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Ref. No.MSEDCL /Dir-Comm/Comments/SGC/ **DATE:** 15.04.2020

To,
The Secretary,
Maharashtra Electricity Regulatory Commission,
13thFloor, center No.1 ,World Trade Centre,
Cuffe parade, Colaba
Mumbai- 400 005.

Sub: Submission of comments / suggestions / objections on **Draft MERC (STATE GRID CODE) REGULATIONS 2020**.

Ref: 1. Public notice by MERC on 01.03.2020
2. Public notice by MERC on 23.03.2020

Respected Sir,

This is in reference to public notice issued by Hon'ble MERC on draft MERC (STATE GRID CODE) REGULATIONS 2020. MSEDCL is hereby submitting the comments on the proposed draft Regulations which is attached herewith.

Some of important comments on MERC (STATE GRID CODE) REGULATIONS 2020 are as under:

1. **Installation of SCADA at all T-D interface points**: The one of most Important requirement for SLDC for real time grid management from communication point of view is real time SCADA visibility. At present less than 20% of MSETCL Substations are having SCADA installed, hence Drawl of only MSEDCL is derived in SCADA based generation of State. Further MSEDCL drawl is also included drawal of Indian Railway, Deemed Distribution Licensee, full OA Consumer. In absence of such facility in Maharashtra, MSEDCL demand is derived which is affected by Visibility issue of various generations as well as inclusion of drawal of Indian Railway & other Deemed DL. Thus these affect monitoring & controlling of deviation between schedule energy & actual drawl of each DISCOM, schedule & actual injection of all generators incl. RE generator, real-time forecasting, etc. Hon'ble Commission is requested to direct STU to prepare plan for installation , commissioning of SCADA on all T-D interface points on which DSM of each individual Entity will be computed by SLDC on post facto basis from meter data.

2. **Importance of 24x7 availability of communication channel for real time SCADA data visibility** : Due to SCADA visibility issue of ISTS drawal point, state has incurred loss to tune of Rs-260 Crs in last 3 years. Hence communication channel availability is very important aspect both from commercial point of view as well as from grid security point of view; as wrong data will result in wrong action from SLDC in real time. In order to ascertain 100% availability of SCADA data in real time operation, it is necessary that at State level there shall be staff available 24x7, who

shall work in shift. Further in order to integrate & monitor ever expanding communication network comprising of elements of various makes viz, Tejas, FIBCOM, COMTEL, ABB, SIEMENS, GE and addition of IPPs, LILO of existing lines with introduction of network elements of different makes, U-NMS is required. Accordingly, PGCIL has proposed the U-NMS in WR. The said issue was also discussed in 39th WRPC meeting .The STU shall study same & also implement same in State also after confirming its usefulness to State Communication system.

3. **Time period for issue of Zero Schedule to the Generators:** As per the draft regulations, the distribution licensee shall give the generator 24 hours prior notice of the Zero Scheduling to enable it to take steps for smooth removal of the Unit from the Grid. At present MSEDCL is giving intimation of zero schedule with notice of 8 Hrs. In this regards it is suggested that the timeline of 8 Hrs intimation shall either be continue or shall be made inline with Regional procedure. As per regional procedure, unit on day ahead basis is taken under RSD after RLDC intimation to withdraw unit to generator & timeline is 21 Hrs of previous day. In case of real time operation, units is taken by ISGS generator under RSD within 1 to 3 hours if beneficiaries are not ready to support technical minimum

4. **Time period for taking unit on bar from Zero schedule** : As per the draft regulation particular Unit is required to be scheduled during the pre-declared Zero scheduling period, the distribution licensee shall intimate the generator at least 72 hours in advance for the Unit(s) to come on a bar in cold start. In this regards it is to submit that the decision of zero schedule is taken based on demand forecast & expected availability from available sources. Hence in case 72 Hrs intimation is given and due to sudden change in weather , demand drops than forecasted of D-3 basis or more than expected RE generation , then decision of revival of units will not be correct. Presently GoI is focusing on increasing RE generation & as recommended in Report of Technical Committee constituted by MoP for Large scale RE integration, flexibility in conventional generator needs to be increase. If we put restriction of 72Hrs in brining unit under zero schedule , we may require to purchase power from Market in case outage of large capacity unit like 660MW or force outage of multiple units within 72 Hrs. This will also affect economic scheduling of Units. Hence it is suggested that instead of making intimation time as 72 Hrs , it shall be either kept as 8 Hrs which MSEDCL informed to generator & generator normally brings unit. Otherwise procedure inline with Regional level shall be framed. As per approved procedure by CERC, at regional level, there is different time for start of unit under RSD which is depending on condition of unit i.e whether HOT start, warm start or cold start.

   Furthermore MSEDCL suggests that following important provisions needs to be added in zero schedule procedure

   i. No maintenance activities on unit under RSD shall be undertaken by the generating station so that the RSD unit is always readily available for revival/synchronization. If a generating station requires maintenance on any machine under RSD, then the same shall be done in due consultation with RLDC.
   ii. In case the machine is not revived as per the revival time declared by the generating station under different types of start, the machine shall be treated

under outage for the duration starting from the likely revival time and the actual revival time.

5. **Demonstration of DC by Generating units in state:-** MSEDCL suggests that following clauses shall be added under circumstances liable for DC demonstration,

   i. In case of variation in DC of generator who has declared its DC under fuel shortage.
   ii. In case, it is observed that generator is continuously declaring higher DC on dayahead basis and revising same in real time operation by downward revision.
   iii. Frequent upward revision on reason of improvement in coal quality and downward revision on poor coal quality or wet coal

   Furthermore, Hon'ble commission is also requested to make necessary regulatory norms for declaration of DC based on coal stock & water, as it is observed some times that generator in absence of such regulatory norms are declaring DC unfaithfully, particularly whenever under zero schedule .

6. **No compensation to merchant generator for part load operation** : At present at regional level, there is no provision for computation of compensation due to part loading in respect of generator providing power under Short term either through bilateral or collective transaction. It is suggested that at State Level also, such generator shall be excluded.

7. **No payment of reactive charges to generator if providing reactive power to grid within its capability curves** : There is no such provision at Regional level for payment to ISGS generator for providing required reactive compensation on request of RLDC also. It is duty of generator as per regulation to inject or absorbed reactive power based on bus voltage. Nobody required to be compensated for compliance of regulation, if it has no financial implication on said entity. The payment shall be only be made to generator, in case generator provide reactive compensation beyond its capability curve where it has to sacrifice its active component of power. It is also suggested that wherever such situation occurs, SLDC shall brought to notice of all concern to take effective steps to avoid reactive compensation by generator beyond its capability curve.

8. **Need to frame Standard of Performance for Transmission Licensees** for not completing work within specified time which affects services to consumer like transmission constraint not being attended resulting in keeping costly unit on bar & use of limited hydro resource for transmission constraint. Similarly long pending faulty capacitor bank & reactor causing high & low voltages problem in grid.

9. **Need of decentralized MoD principle for scheduling & controlling deviation of individual entity :** SLDC shall monitor & control individual DISCOM deviation as per decentralised MoD principle and only in event of system exigencies case like grid parameters including frequency, voltage, transmission line loading, substation loading conditions or State volume limits (presently +/-250 MW) deviate beyond permissible operating range as specified in the Scheduling and Despatch Code, will operate system as per centralised MoD principle

10. RGMO/FGMO also made compulsory to RE generators & strict enforcement of penalty for non-compliance of RGMO/FGMO by concern generator

11. Inclusion of COD procedure for RE generators

MSEDCL requests the Hon'ble Commission to kindly consider MSEDCL's comments / suggestions, attached herewith on MERC (State Grid Code) Regulations, 2020.

With Regards,

Yours Faithfully

Encl-As above

Sd/-

Director (Commercial)

Copy s.w.r.to:

Chairman & Managing Director, MSEDCL, Corporate office Mumbai.

MSEDCL Comments/Suggestions on Draft MERC(STATE GRID CODE) REGULATIONS 2020		
Clause	**Original Provision of draft code**	**Comments/Suggestion**
2 (Definition)	g) **"Bulk Consumer"** refers to any consumer who avails supply at a voltage of 33 kV and above;	In definition of Bulk consumer in CERC (Grant of connectivity , LTA & MTOA in ISTS) Regulation 2010 and amendment thereof, in definition of bulk consumer, minimum connected load capacity of consumer eligible to be considered as Bulk consumer is 100MW & also needs to be connected to ISTS network. Inline with said provision, at State Level, definition of Bulk consumer shall also be 100MW & direct connectivity to InSTS network. Hence it is suggested that Definition of Bulk consumer shall be modified as ***"Bulk Consumer refers to any consumer who avails supply at a voltage of 33 kV and above with minimum connected load of 10 MW.*** Further it is noticed that there is no any regulation/provision in state grid code which is linked with Bulk consumer. Hence this definition is not required & can be omitted
2	**ee) "Forced Outage"** means an outage of a generating unit or a transmission facility due to fault or other reasons which are unplanned;	Presently outages of Units withdrawn under Coal or Gas shortage i.e fuel shortage as well as Water Shortage are currently classified by SLDC under Forced Outages. But these outages need to be classified separately as either fuel shortage or Water Shortage. Hence in proposed definition, excluding Fuel & Water shortage shall be added.
		In addition to existing definitions, following definition shall be added in Regulation. **i. Minimum Turndown Level'** means minimum station loading corresponding to the units on bar upto which a State entity generating stations is required to be on bar on account of less schedule by its buyers or as per the direction of SLDC as detailed in Regulation 34

		ii. **Hot Start :** in relation to steam turbine, means start up after a shutdown period of less than 10 hours (turbine metal temperatures below approximately 80% of their full load values); iii. **Warm Start :** means in relation to steam turbine means start up after a shutdown period between 10 hours and 72 hours (turbine metal temperatures between approximately 40% to 80% of their full load values); **iv. Cold Start :** in relation to steam turbine means start up after a shutdown period exceeding 72 hours (turbine metal temperatures below approximately 40% of their full load values); v. **'Primary Reserve'** means the maximum quantum of power which will immediately come into service through governor action of the generator in the event of sudden change in frequency. This reserve response shall start instantaneously and attain its peak in less than 30 seconds, and shall sustain upto 5 minutes; vi. **'Secondary Reserve'** means the maximum quantum of power which can be activated through Automatic Generation Control (AGC) to free the capacity engaged by the primary control. This reserve response shall come into service starting from 30 seconds and shall sustain up to 15 minutes; vii. **Tertiary Reserve'** means the quantum of power which can be activated, in order to restore an adequate secondary reserve. Fast Tertiary Reserve Response shall come into service starting from five (5) minutes and shall sustain upto thirty (30) minutes. Slow Tertiary Reserve Response shall come into service starting from fifteen (15) minutes and shall sustain upto sixty (60) minutes;

4.1	These Regulations shall apply to — a) All generators in the state connected to InSTS b) Transmission licensee in the State including STU; c) Maharashtra SLDC; d) Distribution Licensees including Deemed Distribution Licensees, Indian Railways; e) Open access consumers, EHV consumers connected to InSTS. Provided that the Commission may issue directions relieving any Transmission Licensee or User, either suo-motu or based on an application submitted by such Transmission Licensee or User, of their obligations to implement or comply with the SGC to the extent as may be stipulated in the directions.	No Comments
4.2	Transmission Licensee, forming part of the InSTS, and User, having a connection(s) to InSTS, as on date of notification of these Regulations shall be given a maximum period of one year to comply with the following requirements under these Regulations: a) Installation and Operation of meters in accordance with CEA Metering Code and Metering Code; b) Entering into a connection agreement in accordance with Regulation 21; c) Providing for protection systems in accordance with Regulation 23.3; d) Providing for communication facilities in accordance with Regulation 24; e) Providing for system recording instruments in accordance with Regulation 25; f) Provision of Free Governor Mode of Operation of generators in accordance with Regulation 29.11	No comments
4.3	All Users who are connected to and/or use the InSTS shall comply with the provision of SGC.	No comments
5.1	A GCC shall be re-constituted by STU within 60 days from the date of notification of these Regulations.	No Comments
5.2	GCC shall be the apex body for implementation of MEGC under these Regulations and	No Comments

	constitute functional committees as specified in these Regulations to coordinate various activities specified in these Regulations.	
5.3	GCC shall be responsible for the following matters, namely a) Facilitating the implementation of these Regulations and procedures developed under these Regulations; b) Assessing and recommending remedial measures for issues that arise during the implementation of these Regulations and procedures developed under these Regulations; Provided that, the GCC may formulate suitable procedures, code of operation, manual and guidelines or revise such procedures/guidelines/manuals/code under these Regulations by undertaking stakeholder consultation and shall submit the same to Commission. c) Review of the MEGC, in accordance with the provisions of these Regulations and propose amendments required if any to the Commission; d) Other matters as may be directed by the Commission from time.	The Procedure or guidelines formulated and submitted to Commission alongwith stakeholder comments shall be put into implementation only after approval from Commission. Hence it is suggested to add following sentence at the end of 2nd para under sub-clause (b) *" for approval & will be implemented after approval from Commission "*
5.4	The GCC shall comprise of the following members: a) Director, State Transmission Utility (STU) - Chairperson of GCC; b) Executive Director/Chief Engineer, SLDC - Member; c) Representative of STU - Member Convener; d) Representative of State-Owned Generating Company - Member; e) Representative of State-Owned Distribution Licensees in the State – member; f) Representative of the Indian Railways in the State – Member; g) Representative of WRLDC – Member; h) Representative of Western Region Power Committee – Member; i) Representative of Maharashtra Energy Development Agency – Member; j) Representative of Renewable Generators in the State - Member; k) Representative of Transmission Licensees in the State, - Member; l) Representative of Privately-Owned Distribution Licensees Including Deemed Distribution Licensees – Member; m) Representative of Private-Owned Generating Companies Including IPPs and CPPs in the State - Member;	In respect of member from Privately Owned Distribution Licensee incl Deemed D.L, clarity is required whether there will only one member representing all private DISCOM and if yes, who & how to decide which DISCOM will represent Private DISCOM.

	n) Representative of Long Term Open Access (OA) Consumers connected to InSTS in the State – Member; o) Other persons as may be nominated by the Commission. Provided that the members referred to in clauses (j) to (o) above shall be selected as nominated by their respective organizations, where organizations will be selected in rotation among all such organizations in the State. The term of each such member, selected in rotation, shall be two years; Provided that the members nominated by each of the organization to the above Committee shall be holding a senior position in their respective organization.	
5.5	Proceeding and Meetings of the GCC a) GCC shall meet at least once every three months. b) Convener (STU) of GCC shall put up names and designation of all members of GCC on its website. Also, the minutes of the meeting shall be uploaded on SLDC's website. Agenda of GCC shall be circulated in advance before the meeting. c) Convener (STU) of the GCC shall submit a report of the GCC meeting to the Commission within 15 days of the meeting.	As per proposed hierarchy, GCC is main committee and other committees like MTC, OCC, PCC, MCCC are subcommittees under the agies of GCC. Hence issues which are not resolved in these sub committees are needed to be brought out in GCC. Hence frequency of GCC shall be less as compared to other committee meeting. It is suggested that frequency of GCC meeting shall be atleast once in a Six month and if required special GCC meeting can be called to resolve any priority related issues. Further both agenda & Minutes of Meeting shall be displayed on STU (convener of GCC) Website
6.1	**6. Grid Code Review** Implementation aspects of the MEGC shall be reviewed by the GCC at least once in every 12 months or as and when required.	No comments
6.2	State Entities/Users seeking an amendment to the MEGC shall send written requests to the convener of the GCC with a copy to the Commission. The GCC shall examine the proposed changes/modifications, along with its written comments submitted by all members of the Committee and decide on the request.	No Comments
6.3	Upon completion of such review, the GCC shall send a report to STU providing information regarding: a) Outcome of the review; b) Any proposed revisions to the MEGC which GCC considers necessary for achievement of objectives; and	No Comments

	c) All written representations and objections submitted by members/Users	
6.4	STU shall submit review report with its recommendations for amendments if any, referred in Regulation 6.2, to the Commission within 15 days from the date of submission of report from GCC along with justification and relevant documents.	No Comments
6.5	The Commission may issue necessary amendment directions/practice directions for implementation of the provisions considering the recommendations of GCC in such manner as may be specified in the directions and the Licensees shall comply with any such directions.	It is suggested that Hon'ble commission shall issue draft amendment (based on GCC report) for inviting suggestion/comments of all stakeholders & public and after following due regulatory process shall notify amendment. As mentioned in regulation 4.3 of SGC, all user connected to InSTS can not be considered as Licensees. Hence it is suggested that the sentence " *the Licensees shall comply with any such directions."* Shall be replaced as "*the Licensees , User , STU & SLDC shall comply with any such directions."*
7.1	GCC, in the succeeding meeting after notification of these Regulations, shall constitute following functional committees for implementation of the MEGC under the aegis of GCC **a) Maharashtra Transmission Committee (MTC):** The Committee shall be responsible for Planning and monitoring timely execution of transmission projects in the Maharashtra State including Mumbai area. The Committee shall also address the InSTS Connectivity related issues if referred by the GCC. **b Operation Coordination Committee (OCC):** The Committee shall be responsible for the implementation of provisions of Operation Code and Scheduling and Despatch Code of MEGC. a) **c) Protection Coordination Committee (PCC):** The Committee shall be responsible for Protection Coordination of InSTS and co-ordination with WRLDC as per the requirement. d) **Metering and Communication Coordination Committee (MCCC):** The Committee shall be responsible for the implementation of provisions of Metering Code. Provided that GCC may formulate any other functional Committee or sub-committees, as it deems fit for the implementation of the MEGC	Under MCCC, The committee shall in also be responsible for Communication code in addition to Metering code. Hence following shall be added after word *"metering code"* under sub-clause (d) in this regulation ***" and Communication code & related issues"***

7.2	Members of functional committees shall be nominated by GCC, ensuring adequate representation of distribution licensees and generating companies including renewable energy generators in the State. The Chairperson and Convener of the functional Committees shall be from STU or SLDC as per the nature of the function.	No comments
7.3.1	**Maharashtra Transmission Committee (MTC)** MTC shall meet at least once every six months and deliberate on all technical and operational aspects of Planning Code and Connection Code and shall provide their suggestions/recommendations to GCC. MTC shall also deliberate on timely execution of scheme and issues related thereof and monitor the execution of transmission related projects in the State and provide their suggestions/recommendations to GCC.	The one of important function of MTC is to coordinate maintenance schedule, which required periodic review atleast quarterly basis. Further other important function of MTC is to monitor transmission related projects. Being delay in project execution not only leads to cost escalation but also may results in overloading or congestion in existing system for which new projects are being implemented. Hence regular review of such projects also need of time. Hence it is suggested that MTC shall meet atleast once in every 3 months.
7.3.2	MTC shall perform the following functions: a) Coordinate system planning, maintenance schedule and contingency plan to ensure adequate transmission system planning; b) Review of existing interconnection equipment for alteration, addition, if necessary, so as to comply with the Connection Conditions provided in the MEGC/IEGC; c) Review the load estimate (long term) and the methodology and assumptions made by the Users; d) Review and finalise the proposals identified on the basis of planning studies; e) Prepare a report on the execution of various planning related activities and achievement of milestones on a quarterly basis and submit to GCC; f) Study and suggest projects to be implemented under Tariff Based Competitive Bidding (TBCB) to optimise the project cost; g) Study and propose the new technology in the Transmission System such as HVDC, HTLS, GIS, Monopoles etc. for the strengthening of the InSTS and any other function as directed by the GCC;	Review of Transmission constraint cases noticed by SLDC & action taken to resolve shall also be one of function of MTC. During real time operation, sometime due to transmission constraint, on account of SLDC decision for relieving congestion, consumer of DISCOM faces power quality issue & sometime Hydro used by backdown of thermal generation leading to loss on account of opportunity cost of Hydro . For example in recent time, 400KV Talegaon –Chakan line was overloaded & to overcome transmission constraint, SLDC pick up Koyna Hydro by about 1000MW by backdown of Thermal generation for load generation balance. Further even after taking Koyna hydro to almost 1000MW, there was overloading of 400KV Talegaon-Chakan Line. The copy of email from SLDC is attached herewith as **Annexure-A**. Similarly for Nashik Transmission constraint, MSEDCL is unnecessarily required to keep costly Nashik Thermal generation even when MSEDCL takes Thermal

	h) Monitor the transmission related projects under execution and analyse the reasons for delay if any with propose way forward; and i) Any other function as directed by the GCC.	generation with less variable rate than Nashik under Zero schedule. Further in case of outages of Lines of Padghe-Bhabhleshwar or outages of Lines from which power is drawn by Mumbai DISOCM, Ghatghar Hydro is pick up by SLDC. These chronic problem are persisting since long, but in absence of regular review of action plan & its execution status from STU to resolve such Transmission constraint issues, problem are yet to be solved. Hence it is necessary that regular review of Transmission constraint cases noticed by SLDC in real time operation & action taken by STU/Transmission Licensees to resolve such issues, shall also be one of function of MTC. Further as mentioned under clause 13.2.5 of this Grid Code, intra-state transmission line which are of strategic importance for inter-state/inter-regional flow such line shall be needed to be identified by STU, so that cost of such line can be recovered through POC mechanism & burden of transmission charge of consumer of Maharashtra can be reduced to some extent. Hence regular review of identification & followup with WRPC/CERC for declaration of ISTS line is needed to be added
7.3.3	MTC shall also undertake scrutiny of Transmission system augmentation proposals prepared by Transmission Licensees and provide its recommendations to GCC for addition of new substation(s) or new transmission line or augmentation of capacity of existing substation or transmission line which STU shall consider for further planning.	No comments
7.4	**Operation Coordination Committee (OCC):** 7.4.1 OCC shall meet at least once every six months and coordinate on all technical aspects of system operation, load despatch and shall provide recommendations to the GCC 7.4.2 OCC shall perform the following functions: a) Review and analyse the grid disturbances and system restoration	At regional level, meeting for review of operational related issues are being taken on monthly basis. The main reason behind same is that operational issues need to be resolved timely to avoid aggravation of problem which may ultimate leads to threat to Grid security and financial loss to user including DISCOM. Further for power planning, generator outages planning is

	procedure; b) Review the reactive compensation mechanism for InSTS; c) Review and finalize outage plan of STU; d) Review the demand disconnection mechanisms; e) Review the installation of Disturbance Recorders, Event Loggers, Frequency Trip Relays (FTR), df/dt relays etc. in the InSTS; f) Review and study the implementation of governor mode of operation for the generating stations in the State; and g) Any other function as directed by the GCC.	important which also needs to be done on monthly basis. Hence it is suggested that frequency of meeting shall be monthly. Further in said meeting, review of events of Transmission constraint & action taken by SLDC in real time shall also be discussed.
7.5	**Protection Coordination Committee (PCC):** 7.5.1. PCC shall meet once every six months and coordinate regarding the implementation of Protection Code to ensure that Users of InSTS discharge their obligations under the Protection Code. 7.5.2. PCC shall perform the following functions. a) Assist STU to prepare protection manual under Protection Code; b) Ensure compliance of Protection Code; c) Specify the minimum protection requirements for the User's system connected to the InSTS; d) Deliberate and decide various protection settings, testing procedure and periodicity; e) Review the requirement of upgradation of protection schemes and necessary switchgear equipment; f) Analyse the failure of protection system in case of major grid disturbance and suggest modifications and alterations; g) Review the suggestion of Users for revision of protection code; and any other function as directed by the GCC.	Although frequency of such meeting may be six month, but meeting shall be taken before GCC.
7.6	**Metering and Communication Coordination Committee (MCCC):** 7.6.1. MCCC shall meet at least once every six months and coordinate regarding the implementation of Metering Code to ensure that Users of the InSTS discharge their obligations under the Metering Code.	The Frequency of review meeting shall be quarterly and under clause 7.6.1, after word "metering code " following shall be added ***" and communication code"***

	7.6.2. MCCC shall perform the following functions: a) Ensure compliance of Metering Code; b) Review deviations in the existing Current Transformers (CT) and PTs/CVTs from the minimum specifications prescribed in Annexure-1 of MEGC and upgradation/ replacement of the same within one year from the date of notification of MEGC; c) Deliberate and decide the issues related to metering and metering failure for DSM account and energy account; d) Deliberate and decide the issues related to communication aspects of AMR/MRI; e) Review and propose amendments in metering arrangement; and f) Any other function as directed by the GCC.	The one of most Important requirement for SLDC for real time grid management from communication point of view is real time SCADA visibility. At present less than 20% of MSETCL Substations are having SCADA installed. Hence Drawal of only MSEDCL is derived in SCADA based generation of State, Drwal of power from central Sector & Drawal of Power by Mumbai from MSETCL network. In present, MSEDCL drawal is also included drawal of Indian Railway, Deemed DL , Full OA Consumer. In absence of such facility in Maharashtra, MSEDCL demand is derived which is affected by Visibility issue of various generation as well as inclusion of drawal of Indian Railway & other Deemed DL as mentioned above. The absence of real time visibility of all Drawal & injection point, following functions of SLDC is difficult 1. Monitoring & controlling of deviation between schedule energy & actual drawal of each DISCOM 2. Monitoring & controlling of deviation between schedule & actual injection of all generators incl. RE generator 3. Real time demand forecasting for economic dispatch of various resource & to maintain deviation at ISTS drawal (state periphery) within limit as per provision in CERC DSM 4. Study of real time transmission constraints & network planning thereof 5. Effective Management of Transmission & generator outages by using network simulation, SCADA/EMS technique 6. Real time Reactive power monitoring & effective control In all neighbouring states like Gujrat, MP, Karnataka etc SCADA is installed on all EHV substation on which Drawal of individual DISCOM is computed for DSM monitoring in real time.

Further as regards to present SCADA visibility, it is submitted that due to real time visibility issues of SCADA installed on ISTS points (i.e points on which Maharashtra drawal from central sector computed and SLDC needs to monitor state level deviation), State has incurred huge loss in past and in future also to avoid such loss concrete action needs to be taken on strengthening real time visibility of all drawal as well as injection points. The Yearwise loss incurred due to poor SCADA visibility is as under

FY	DSM Charges as per WRPC issued Bills (Rs. In Crs)	DSM bills as per UI recorded in SCADA in real time operation (Rs. In Crs)	Loss on account of SCADA visibility issue (Rs in Crs)
2017-18	132.96	38.24	**94.72**
2018-19	113.37	27.84	**85.53**
2019-20 (Feb-20)	24.26	-48.99	**73.45**

It is interesting to note here that even if STU would have taken project for atleast strengthening communication network for real time visibility of ISTS interface points (which are only 84 meter points), expenditure would have been very less than loss occurred due to said issue.

In view of above, Hon'ble Commission is requested to direct STU to prepare plan for installation , commissioning of SCADA on interface points on which DSM of each individual Entity will be computed by SLDC on post facto basis from meter data.

Hence it is suggested that regular review of SCADA visibility of all Drawal & injection point shall be taken in MCCC meeting

8.1.1	**Role of STU** The role of STU as per Section 39(2) of the EA 2003, shall be: a) To undertake transmission of electricity through InSTS; b) To discharge all functions of planning and co-ordination relating to InSTS with- i. Central Transmission Utility; ii. State Government; iii. Generating companies; iv. Regional Power Committee; v. Central Electricity Authority (CEA) or Authority; vi. Transmission Licensees; vii. Any other person notified by the State in this behalf; c) To ensure development of an efficient, co-ordinated and economical InSTS for smooth flow of electricity from a generating station to the load centres; d) To 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 State Commission under sub-section (2) of section 42 of the Act, on payment of the transmission charges and a surcharge thereon, as may be specified by the State Commission. e) STU shall be responsible for planning, coordination and development of reliable communication system for data communication within a State including appropriate protection path among SLDC and ALDC/Sub-LDC thereunder including main and backup as applicable along with STU substations, ISGS. f) STU shall also plan a redundant communication system up to the nearest ISTS	As mentioned earlier in comments on Regulation 7.6, The necessity of real time visibility of all Drawl as well as Injection point is very important for maintaining grid discipline in real time. Hence it is suggested to add following provision under Role of STU. *" For real time grid operation & DSM monitoring, STU Shall prepare plan for 100% SCADA visibility of all Interface points and complete same within six Month from Notification of this regulation"* Following responsibility shall also be assigned to STU which is also given to CTU at Regional level in Clause 7.2(vii) by CERC in CERC (Communication code)2017 *"STU shall be the Nodal Agency for supervision of communication system in respect of intra-State communication system and will implement centralized supervision for quick fault detection and restoration*

	wideband communication node for integration with the InSTS communication system at appropriate nodes. g) STU shall discharge all functions of planning related to the State backbone communication system in consultation with CTU, State Government, Generating Companies, Transmission and Distribution Licensee in the State. h) STU shall also provide access to its wideband Network for grid management by all the Users. i) STU shall extend the required support to Control Centres for the integration of communication system at respective ends.	
8.1.2	Until a Government company or any authority or corporation is notified by the State Government, the STU shall operate the SLDC.	Need discussion
8.2.1	**Role of SLDC** 8.2.1. The SLDC shall be the apex body to ensure integrated operation of the power system in a State. In accordance with Section 32 of the EA 2003, functions of the SLDC include: a) Be responsible for optimum scheduling and despatch of electricity within a State, in accordance with the provisions of MERC DSM Regulation, Scheduling and Despatch Code and the contracts entered into with the licensees or the generating companies operating in that State; b) Monitor grid operations; c) Keep accounts of the quantity of electricity transmitted through the State grid; d) Exercise supervision and control over the InSTS; and e) Be responsible for carrying out real-time operations for grid control and despatch of electricity within the State through a secure and economic operation of State grid.	No Comments
8.2.2	In accordance with Section 33 of the EA 2003, SLDC in a State 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 the power system in the State. 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 SLDC under subsection	No comments

	(1) of Section 33 of the EA, 2003. The SLDC shall comply with the directions of the RLDC.	
8.2.3	In case of inter-state bilateral and collective short-term open access transactions having a state utility or an intra-state entity as a buyer or a seller, SLDC shall accord concurrence or no objection or a prior standing clearance, as the case may be, in accordance with the MERC (Transmission Open Access) Regulations, 2016, as amended from time to time. SLDC shall issue the certificates such as availability of the sellers, as per the provision of the relevant regulations of Commission or any other certificate as may be directed by the Commission from time to time.	The CERC vide 5th amendment of CERC(Open access in Interstate Transmission) Regulation 2008 has introduced National Open aces Registry concept & new provision for **Standing clearance** instead of 'concurrence or No objection'. The inter state bilateral & collective OA transaction are as per provision in said CERC regulation. Hence it is suggested to replace sentence " as the case may be, in accordance with the MERC (Transmission Open Access) Regulations, 2016, as amended from time to time" as under ***" as the case may be, in accordance with CERC(Open access in Interstate Transmission) Regulation 2008 and MERC (Transmission Open Access) Regulations, 2016, as amended from time to time"***
8.2.4	SLDC shall be the Nodal Agency for the integration of Communication System in the Intra-State network at SLDC end for monitoring, supervision and control of power system	As mentioned in CERC Communication Regulation 2017, regulation 7.6, following role of SLDC shall be added after monitoring, supervision and control of power system ***" adequate data availability in real time"*** It is submitted that at regional level same role has been assigned to RLDC by Regulation and in compliance to same, RLDC daily publishes the SCADA visibility report and send to concern for taking corrective action. The sample copy of one such email from WRLDC is attached herewith as Annexure-B
8.2.5	SLDC shall provide operational feedback to CTU and STU.	No Comment
		Additional role of SLDC In future main challenge to SLDC is integration of Huge RE generation. To meet said challenge, Reserve concept is very important. Hence it is suggested that in role of SLDC following role shall be added ***" Ensuring adequate primary, secondary and tertiary reserves***

		"
8.3	**Role of Transmission Licensees** Transmission Licensees shall build, maintain and operate an efficient, coordinated and economical InSTS or ISTS, as the case may be and discharge the other functions assigned to it as per Section 40 of the EA 2003, and these Regulations.	No Comments
8.4	**Role of Distribution Licensees** Distribution Licensee shall discharge the functions as stated in Section 42 of the EA 2003. such as to develop and maintain an efficient, coordinated and economical distribution system in its area of supply; to provide non-discriminatory open access to its distribution system as specified in the MERC Open Access Regulations emended from time to time. Provided that, distribution licensee shall be responsible to provide and maintain adequate reactive power compensation at distribution level such as 33 kV substations, 11 kV lines to maintain the voltage and power factor within the specified limit. Provided further that, the distribution licensee shall ensure that, such reactive compensation shall remain in service.	No comments
8.5	**Role of Users** Users including RE generators shall be responsible for the provision of compatible equipment along with an appropriate interface for uninterrupted communication with the concerned control centres at their own cost and shall be responsible for successful integration with the communication system provided by STU for data communication as per the guidelines issued by NLDC/RLDC/STU. Users may utilize the available transmission infrastructure for establishing communication up to the nearest wideband node for meeting communication requirements from their stations to concerned control centres. Users shall also be responsible for expansion/up-gradation as well as operation and maintenance of communication equipment owned by them.	The MSEDCL is also one of the user of Transmission network but T-D interface point as per metering code approved by Commission is located at EHV substations which are owned by Transmission licensees. Being DSM of MSEDCL would be computed at meter installed at EHV substation, the SCADA installed for real time monitoring of DSM must be at same points. Hence being owner of EHV substation is Transmission licensees, the SCADA visibility in respect of T-D interface point shall be provided by concern Transmission Licensees/STU and as mentioned earlier said work shall be completed by STU within six month from date of Notification of this regulation. It is requested that necessary provision in this regulation shall be added covering above issue.
8.6	**Role of Generator**	No comments

	Generator connected to and/or using the InSTS for evacuating its generation shall inform the STU and SLDC about the contracts entered into with different parties for exporting power along with its schedule from individual generating station under the company. It shall follow the relevant provisions of the MEGC and assist the SLDC in real time operation and control of the system and scheduling of generation.	
8.7	**Role of Qualifying Co-ordinating Agency (QCA)** QCA shall be reckoned as State Entity and the powers, functions and role of the QCA shall be governed as per the provisions stipulated under MERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2018 and its amendments thereof including F&S Procedures formulated thereunder.	No Comments
9	**Part-B-Planning Code** **Introduction** 9.1. In accordance with Section 39(2)(b) of EA 2003, the State Transmission Utility (STU) shall discharge all functions of planning and coordination relating to InSTS with CTU, State Government, Generating Company, Regional and State Power Committee, CEA, licensees and any other person notified by the State Government in this behalf. 9.2. In accordance with Section 39(2)(d) of EA 2003, the STU shall inter-alia provide non-discriminatory open access to its transmission system for use as per the provisions of MERC (Transmission Open Access) Regulations, 2016 and its amendments thereof. 9.3. In accordance with Section 40 of EA 2003, the transmission licensee shall inter-alia provide non-discriminatory open access to its transmission system for use as per the provisions of MERC (Transmission Open Access) Regulations, 2016 and its amendments thereof. 9.4. STU shall be responsible for planning for InSTS lines in line with CEA's National Electricity Plan and shall review its plan consistent with the revision in the National electricity Plan from time to time.	No comments
10	**Objective** 10.1. Objectives of the Planning Code are as follows: a) Specify the principles, procedures, technical and design criteria to be	Provision at 10.1 (h) and 10.1.(i) is repeated. Hence 10.1.(i) shall be deleted and following shall be added after 10.1(h) ***i. Adequate power transfer capability across each***

	adopted by the STU for planning and development of InSTS and inter-state links; b) Promote coordination amongst all Users, STU/SLDC and CTU/RLDC, NLDC, WRLDC, WRPC and CEA in any proposed development of the InSTS; c) Provide methodology and information exchange amongst Users, STU/SLDC, CTU/RLDC, RPC/SPC, NLDC and CEA in the planning and development of the InSTS; d) Probabilistic assessment by the designated agency of a State of its future demand pattern under different scenarios; e) Adequacy of generation resources taking account loss of load probability and energy not served as specified by CEA; f) Adequate generation reserves and demand response for maintaining grid stability; g) Validation of adequacy of transmission resources through system studies considering economic despatch under various demand and generation scenarios including must run generation; h) Validation of adequate power transfer capability to be carried out for the entire grid in a comprehensive manner by STU; i) Validation of adequate power transfer capability to be carried out by STU.	***flow-gate*** ***ii. Import and export capability across ISTS and STU interface*** The above provision are proposed in Draft IEGC 2020. It is noticed in recent times that drawal from ISTS has crossed 10,000MW but ATC has fixed by WRDLC for ISTS drawal point for Maharashtra has fixed at about 9000MW. In last 3 years, MSEDCL long term contract quantum has increased from 5560 MW to 7655 MW (including 1055 MW MTOA for Solar & Wind). The yearwise rise in LTA& MTOA of MSEDCL during last three year as under FY | LTA | MTOA | Total 2016-17 | 5560 | 0 | 5560 2017-18 | 6020 | 0 | 6020 2018-19 | 6130 | 0 | 6130 2019-20 | 6600 | 1055 | 7655 The rise in ATC has to be commensurate with increase in LTA & MTOA contracted capacity from ISTS network. If rise ATC is not commensurate with rise in LTA/MTOA, then restriction will be imposed on Central Sector drawal which may lead to real time curtailment of STOA transaction and thereby need to implementing load shedding to curtail drawal from ISTS. In Last Oct-2018, WRLDC had imposed restriction on drawal of MSEDCL by not allowing MSEDCL to avail URS power from ISGS stations. The copy of one of such email received from WRLDC dated 17th Oct 2018 is attached herewith as Annexure-C .It can be seen that due to such imposition of restriction on MSEDCL , load shedding to some extent could have been avoided on 17th Oct 2018, when there was severe power shortage from Intra State contracted generator on account of acute coal shortage. ***Hence it is suggested that following shall be added after 10.1(h)***

		i. ***Adequate power transfer capability across each flow-gate*** ii. ***Import and export capability across ISTS and STU interface*** This will help development of ISTS network commensurate with atleast LTA & MTOA Further there is no clarity on designated Agency as mention in sub-clause (d). If designated agency for Transmission in State is STU, instead "designated agency", word "STU" shall be replaced.
11	**Generation resource planning** i. Each distribution licensee shall ensure demonstrable resource adequacy as specified by the Commission for the next five (5) years starting 1st April of the next year. Adequacy statement containing a list of such resources along with associated capacities shall be submitted to the STU. ii. Based on the generation resource plans of distribution licensees, STU in consultation with SLDC shall develop Integrated Resource Plan for next five years for the state. While developing such Integrated Resource Plan, STU may consider the following from grid operation perspective: a) Generation flexibility, ramping and minimum turndown level and start-stops b) Requirement of energy storage systems and demand response measures c) Generation reserve requirement d) System inertia for grid stability e) Fuel security iii. STU shall submit such Integrated Resource Plan for the state to CTU in line with requirements specified under IEGC.	As transmission network is planned on Long Term Power purchase contract with generator, it is necessary that generation resource adequacy shall be in term of peak demand against Long term contracted capacity. The DISCOM like AEML has only 500MW of conventional Source under Long term as against about 1500MW peak demand. In percentage term, it is only 33%. Such high dependency on Short Term power purchase will not lead to development of adequate Transmission network. Hence under sub-clause 11(i), clarity is required on "demonstrable resource adequacy as specified by the Commission". If transmission network is to be developed on short term power procurement, then DISCOM like MSEDCL having commensurate Long Term contracted capacity will be burdened by cost of transmission network, if such transmission network remain stranded due to closure of generation unit providing power through short term contract. The Commission needs to specify the adequacy metrics for the same as well the nature of capacities to be taken for assessing resource adequacy STU may additionally consider the following: a. Impact of distributed energy resources on transmission

		system b. Exchange of power with ISTS c. Retirement of generators
12.1	**InSTS Planning** STU for the purpose of preparing the transmission system plan shall be guided by the following: a) Plans formulated by the Authority for the transmission system under the provisions of clause (a) of Section 73 of the Act; b) Electric Power Survey of India report of the Authority; c) CEA (Grid Standard) Regulations, 2010 as amended from time to time; d) Transmission Plan formulated by CTU under the provisions of Grid Code specified by CERC (IEGC); e) Operational feedback from NLDC/RLDC/SLDC; f) Transmission Planning Criteria and Guidelines issued by the Authority; g) Recommendations/Inputs, if any, of the Regional Power Committee; h) Directions/Suggestions of the Commission; i) CERC (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-state Transmission and related matters) Regulations; j) Reports on National Electricity Policy which are relevant for the development of InSTS; k) Renewable capacity addition plan/policy issued by Ministry of New and Renewable Energy Sources (MNRE), Government of India with State target/Government of Maharashtra; l) Any other information/committee study report/data source suggested by the Commission such as load estimate by the authorities such as MMRDA, BMC etc. for special upcoming projects; and m) If more than one transmission licensees are operating in the same area, STU shall consider a plan to avoid the duplication of work and optimisation of InSTS cost.	In CERC (Planning, Coordination and Development of Economic and Efficient Inter-State Transmission System by Central Transmission Utility and other related matters) Regulations, 2018 , following are part of Transmission Network Planning, guidelines for network planning in case of Augmentation of Transmission network is also mentioned. Same Also needs to be part of Planning code at State level. The provision of above regulation of CERC is reproduced as under ***6. Augmentation of the transmission system:*** *(1) The Central Transmission Utility shall, while planning to augment ISTS in the form of expansion or upgradation shall consider the following:* *(a) New and emerging technologies;* *(b) Cost-benefit analysis outcome;* *(c) Likely shutting down of old/ inefficient generating stations;* *(d) Renewable capacity addition;* *(e) Renewable Purchase Obligation;* *(f) System adequacy from the perspective of black start/ start-up supply;* *(g) Requirement of reactive power;* *(h) Optimal utilization of resources to ensure an efficient and economical system with due consideration to power market, cross border interconnection or any other policy initiatives of Government of India.* It is suggested to add above planning guidelines in case of Augmentation of Transmission Network.
12.2	STU shall provide the template to collect requisite data from stakeholders to prepare	No comments

	InSTS plan.	
12.3	Load estimation shall be the primary responsibility of the Distribution Licensees within their area of supply. Distribution Licensees shall prepare Peak Demand and Energy Forecasts (duly assessing the requirements of Open Access, captive Users, energy efficiency measures and distributed generation within its distribution area) of their areas for each of the succeeding 10 years and submit the same annually, by 31st January to the STU. Such estimates shall consider the operational division of the distribution licensee as a basic unit of the service area and shall be submitted to the STU for planning.	SLDC is managing real time operation of power through Intra State Transmission Network and should aware of all transmission constraint . Further as SLDC has to manage & control deviation at State periphery within limit as defined by CERC under CERCDSM Regulation , CERC has assigned responsibility of demand forecasting of state to SLDC under regulation 5.3 of IEGC 2010and also under Draft IEGC 2020, SLDC has been assigned responsibility of Demand Forecasting, providing input for Transmission network planning. Further in future, RE generation penetration into the grid will increase tremendously. The role of SLDC will be very important for grid security & maximum RE integration into grid. Hence it is suggested that inline with CERC regulation, in the responsibility of Load estimation, SLDC shall also be given importance & accordingly necessary changes shall be incorporated in this provision.
12.4	Distribution licensees including Indian Railways shall 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/standby power purchase agreements (PPAs), for the purpose of planning the evacuation/system strengthening schemes.	*No comments*
12.5	STU shall consolidate load estimates of all distribution licensees in the State and prepare overall load estimate of the State which will form the basis for planning for expansion of InSTS	
12.6	STU may consult stakeholders such as Generators, SLDCs, Transmission Licensees and Distribution Licensees including Indian Railways and seek such information from InSTS User as may be required by it, including generation capacity addition, system augmentation and long-term load estimate and all applications for open access. Provided that, while planning new substations, STU shall also consider the requirement of additional space for future expansion for incoming and outgoing	The SLDC operating real time Grid management and hence it is the one who know Transmission constraint issues more than anybody else. Hence role of SLDC is also important in InSTS as well as ISTS planning. Hence it is suggested to add following provision The SLDC shall inform operation issues faced during real time grid management such as Transmission constraint, congestion,

	bays. No extra bay shall be erected unless there is firm requirement from TSU for commissioning of such bay which shall not be more than six months from date of such request.	restriction on generation evacuation, high voltages & low voltages nodes with suggestion to overcome said problem.
12.7	STU shall prepare a perspective transmission system plan based on the data obtained from the Users and internal sources for: a) Short term period, i.e., up to 5 years; b) Medium term period, i.e., up to 10 years; and c) Long term period, i.e., up to 15 years.	As per international practices such as Entso – E, planning is carried out in following manner: 1. Short Term for a period of one year – Operational Decisions 2. Medium term for a period of five years – Investment Decisions 3. Long term for a period of 10 years – Policy Decisions Further in India, CEA creates NEP for five years while perspective transmission plan is created for a longer period. Planning process should accordingly be aligned to CEA's planning process and approval of business plan by the commission
12.8	Transmission system plan prepared by the STU shall consist of the following sections: a) Executive summary of Transmission plan shall 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. b) **Generation evacuation planning:** This section shall target evacuation of the upcoming generation capacity deemed to be connected to InSTS including Renewable Generators; c) **Load Projection Planning:** This section shall deliberate transmission planning to meet the increasing demands from distribution licensee(s) and other Users including deemed distribution licensees; d) **Interconnection Planning:** This section shall deliberate transmission planning for interconnection between the network for generation evacuation and load projection; and	No comments

	e) **Inter-state transmission connection planning:** This section shall deliberate transmission planning for the evacuation of power by the State from neighbouring states or regions via inter-state transmission: Provided that the STU may add any other section as it deems fit for intra-state transmission schemes and system strengthening schemes for the benefit of all Users. Provided further that the transmission system plan shall also include information related additional equipment such as Power Transformers, ICTs, Capacitors Reactors, Static VAR Compensators and Flexible Alternating Current Transmission Systems (FACTS), substation and lines modernisation, major replacement of substations and lines augmentation of substations and lines etc	
12.9	STU in consultation with Transmission Licensees and MTC shall submit physical and financial progress reports of the actual capitalisation, reasons for deviation from planned capitalisation to the Commission on six monthly basis, i.e., on 15 September and 15 April of each financial year.	The report should be quarterly instead of six monthly, as MTC meeting are proposed at frequency of 3 months
12.10	STU shall update the perspective transmission plan every year to take care of the revisions in load projections and generation scenarios considering the seasonal and the time of the day variations. In formulating a perspective plan, the transmission requirement for evacuating power from a renewable source, transmission system required for Open Access and recommendations/ suggestions from various functional committees formed under these Regulations shall also be taken care of. The perspective plans shall be submitted to the Commission for information.	The Stakeholder consultation shall be taken before finalising the any Transmission plan. This is necessary because ultimate user of Transmission network is mainly Distribution Company who is paying Transmission charges. The said provision is also incorporated by CERC in ISTS planning under CERC (Planning, Coordination and Development of Economic and Efficient Inter-State Transmission System by Central Transmission Utility and other related matters) Regulations, 2018 . The relevant provision under said regulation is as under:- ***8. Stakeholder Consultation and Transparency*** *(1) CTU shall consult stakeholders such as generators, STUs, RLDCs, SLDCs and distribution licensees and maintain transparency at all stages of planning of augmentation or strengthening of ISTS. Provided that consultations with generators/ distribution licensees shall mean consultations with the Chief Executive Officer of concerned generator/ distribution*

		licensees or its specifically designated nominee. If a generator/ distribution licensee does not respond within 45 days, it shall be construed that consultation with that generator or distribution licensee is complete and CTU shall proceed further *(2) The Central Transmission Utility shall ensure transparency while carrying out transmission planning under Section 38 and Section 39 of the Act through sharing of information, underlying assumptions, methodology, planning criteria and result of system study regularly.* *(3) The Central Transmission Utility shall publish the following on its website and update the same on a half yearly basis:* *(a) Detailed justification for the scheme along with details of the complete scheme;* *(b) Results of System studies;* *(c) Assumptions made in system studies and inputs received from stakeholders;* *(d) Comments/ suggestions of stakeholders along with its treatment;* *(e) Likely capital costs and estimated monthly tariff; and* *(f) Status of upstream/ downstream system*. It is suggested that on similar line , provision shall be made for Stakeholder consultation by STU under Planning Code.
12.11	STU shall carry out the yearly planning process corresponding to five years forward term for the identification of major transmission system from the financial year immediately following the year in which it is published.	No Comments
12.12	STU shall submit the investment plan for transmission system for approval of the Commission. STU/transmission licensees while submitting an application under subsection (1) of Section 64 of the Act to the Commission for approval, shall submit an investment plan based on the identified intra-state transmission schemes and system strengthening schemes projected in the transmission system plan: Provided that the transmission system plan shall be updated by the STU every year	No Comments

	and published in the manner specified in Regulation 12.13 of this Regulation annually by 31st December and shall cover a plan period of five years commencing from the financial year immediately following the year in which it is published. Provided further that transmission plans shall be updated every year to accommodate the revisions in the load projections and generation capacity additions.	
12.13	STU shall publish the transmission system plan for the InSTS on its website and shall also make the same available to any person upon request in hard copy as desired at a reasonable cost.	It is suggested that the plan which will be publish on website shall also include following (a) Detailed justification for the scheme along with details of the complete scheme; (b) Results of System studies; (c) Assumptions made in system studies and inputs received from stakeholders; (d) Comments/ suggestions of stakeholders along with its treatment; (e) Likely capital costs and estimated monthly tariff; and (f) Status of upstream/ downstream system.
12.14	Cost of the transmission system planning study undertaken in accordance with these Regulations shall be allowed in the determination of the charges of STU under clause (b) of sub-section (1) of Section 62 of the Act.	No Comments
13.1.1	**Technical Planning Criteria**: Planning criterion shall be based on the security philosophy on which the InSTS has been planned considering past experience of STU and Users, future plan of various State Government agencies etc. The transmission planning philosophy shall be guided by National Electricity Plan including its amendments thereof, and other guidelines as specified by the Authority and amended from time to time: Provided that STU shall carry out appropriate system studies while developing the transmission system plan.	Technical Planning Criteria to include the following: a. Study of N-2 contingencies b. Planning of system in coordination with CTU to capture the changes due to economic despatch c. Resilience in terms of black start resources
13.2.1	**Financial Planning Criteria:** While developing transmission system plan covering addition of new transmission system element (transmission line or substation) or for augmentation of the capacity of existing transmission line or addition of	No Comments

	transformer or bay, the STU shall provide due consideration to commercial aspects and cost implications thereof on arising on account of addition/augmentation of any transmission system element. For this purpose, STU shall be guided by but not limited to following commercial principles and parameters as outlined below: (a) Optimum utilisation of the existing capacity and planned capacity addition of the transmission system element (b) Economical and efficient development of transmission system element(s) to economise overall Return of Investment for transmission system (c) Equitable and fairness in recovery of the cost from the transmission system users (d) Coordinated development of transmission system elements, particularly with reference to inter-state/inter-regional transmission system elements vis-à-vis InSTS elements;	
13.2.2	For operationalisation of the above financial criteria, STU shall develop and publish on its website zone-wise transmission capacity utilisation index as well as voltage variation index for various transmission system elements (HVDC, 765 kV, 400 kV, 220 kV, 132 kV and below) Provided that GCC shall formulate methodology for computation of zone-wise transmission capacity utilisation index and voltage variation index, collate relevant data, and shall publish such methodology alongwith relevant data on its website within six months from date of notification of these Regulations; Provided further that GCC shall publish such transmission capacity utilisation index and voltage variation index for HVDC, 765 kV and 400 kV transmission system elements to begin with, within three months from date of notification of these Regulations.	Report published by GCC is proposed to show capacity utilisation and voltage variation report in respect of 765KV & 400KV in first phase. It is suggested that in said report, the concern shall able to see each nodewise/substationwsie capacity utilisation and voltage variation report under each zone of MSETCL as well as other Transmission Licensee. Further it is suggested that timeline shall also be given for providing report for all EHV voltages level say within one year or as decided by Commission
13.2.3	Prior to inclusion of any new transmission system element entailing capital outlay exceeding threshold limit of INR 100 Crore or such other threshold limit to be stipulated by the Commission from time to time, as part of transmission system plan, STU shall evaluate and present alternate options of meeting the User/Requester	No comments

	requirement (with or without transmission element, factoring optimal capacity expansion than sought for, or evaluate alternate technology options, consider deferment or prioritisation considerations etc) and accordingly undertake scenario analysis of various cases and present it to User/Requester in order to ensure economical and efficient development of transmission system element(s) to economise overall Return of Investment for transmission system as whole.	
13.2.4	Prior to inclusion of any new transmission system element or augmentation of the capacity of existing transmission system element, as part of transmission system plan, the STU shall give due consideration to equitable and fairness in recovery of costs from concerned transmission system users (subject to prevalent pricing framework) and shall highlight the incremental cost recovery burden that would be added to transmission system users due to addition/augmentation of such new transmission system element and in case the capacity utilisation of such element does not take place as planned. For this purpose, the STU through (GCC/MTC) shall expressly deliberate, highlight and record the viewpoints of transmission system users for addition/augmentation of transmission system elements, before incorporation of such transmission system element and finalisation of transmission system plan and annual rolling plan.	No Comments
13.2.5	STU shall regularly assess the progress and utilisation of the inter-state and inter-regional transmission systems, their utilisation vis-à-vis InSTS planned capacity addition/augmentation to ensure coordinated development of transmission system elements. A period review of developments/progress shall facilitate STU to participate in the National/Regional Transmission Planning Committee meetings and put forth state perspective and highlight deficiencies which can avoid sub-optimal development/utilisation through timely interventions. The intra-state transmission schemes that are of strategic importance or entail inter-state/inter-regional features needs to be pursed to be covered as part of ISTS network for its cost recovery.	No Comments
13.2.6	STU shall formulate Guidebook for operationalisation of the Planning Code covering detailed modalities for implementation of the financial planning criteria and technical planning criteria, information requirements from Users/Requesters,	No Comments

<table>
<tr><td></td><td>suitable forms/formats and periodic reporting/publication of zone-wise transmission utilisation index and voltage variation index, within three months from notification of these Regulations.</td><td></td></tr>
<tr><td>13.3.1</td><td>EHV Substation Planning Criteria
Maximum short circuit level on any new substation bus shall not exceed 80% of the rated short circuit capacity of the substation. The rated breaking current capability of switchgear at different voltage levels may be taken as given below:
<table><tr><th>Voltage Level</th><th>Rated Breaking Capacity</th></tr><tr><td>132 kV</td><td>25 kA/31.5 kA</td></tr><tr><td>220 kV</td><td>31.5 kA/40 kA</td></tr><tr><td>400 kV</td><td>40 kA/50 kA</td></tr><tr><td>765 kV</td><td>50 kA/63 kA</td></tr></table>Provided that measures such as bus splitting, series reactor or any other commercially available technology may be adopted to limit the short circuit levels at existing substations wherever they are likely to cross the designed limits.</td><td>If we limit maximum short circuit level to 80%, then number substation requirement will increased where there is concentrated load like in major cities. Hence for erection of new substation, additional land will be required which are major issues in Urban area. Hence this condition shall not be made applicable for Urban areas.</td></tr>
<tr><td>13.3.2</td><td>Rating of various substation equipment shall be such that they do not limit the loading limits of connected transmission lines.</td><td>No Comments</td></tr>
<tr><td>13.3.3</td><td>While planning EHV substations, STU shall be guided by the Technical Standards and planning criteria specified/notified by the Authority.</td><td>No Comments</td></tr>
<tr><td>13.3.4</td><td>STU while planning for addition of new substation(s) or new transmission line or augmentation of capacity of existing substation or transmission line, shall consider the recommendations/suggestions of GCC/MTC as per the provision of Regulation 7.3.3 of these Regulations.</td><td>No Comments</td></tr>
<tr><td>13.3.5</td><td>STU should explore the possibility of planning a new substation instead of adding transformer capacity at an existing substation when the capacity of the existing substation has reached, as given in column (B) in the following table. The installed capacity of any single substation at different voltage levels shall not normally exceed, as given in column (C) in the following table:
<table><tr><th>Voltage Level</th><th colspan="2">Transformer Capacity</th></tr><tr><th>(A)</th><th>Existing Capacity (B)</th><th>Maximum Capacity (C)</th></tr></table></td><td>The Maximum capacity mentioned in table is as per Draft CEA (Technical Standards for construction of Electrical Plants & Electric Lines) regulation which is yet to be finaliased by CEA. Hence it is suggested that Maximum Capacity shall be as per CEA Regulation.

If we restrict fault level as well as capacity of ICT/Power transformer, it is one type of dual restriction in planning. Hence as</td></tr>
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<tr><td></td><td><table>
<tr><td>765 kV</td><td>6,000 MVA</td><td>9,000 MVA</td></tr>
<tr><td>400 kV</td><td>1,260 MVA</td><td>2,000 MVA</td></tr>
<tr><td>220 kV</td><td>320 MVA</td><td>500 MVA</td></tr>
<tr><td>132 kV</td><td>150 MVA</td><td>250 MVA</td></tr>
</table></td><td>mentioned in clause 13.3.1, such restriction shall not be imposed atleast in Urban areas. Further such type restriction over & above CEA standard will only leads to increase in capital cost & thereby burden on consumer</td></tr>
<tr><td>13.3.6</td><td>Size and number of interconnecting transformers shall be planned in such a way that the outage of any single unit shall not overload the remaining interconnecting transformers or the underlying system.</td><td>No Comments</td></tr>
<tr><td>13.3.7</td><td>While augmenting the transformation capacity at an existing substation or planning a new substation, the fault level of the substation shall also be reviewed:
Provided that voltage stability studies shall be carried out if the fault level is low.</td><td>No Comments</td></tr>
<tr><td>13.3.8</td><td>A stuck breaker condition shall not cause disruption of more than four feeders for 220 kV system and two feeders for 400 kV and 765 kV system.</td><td>No Comments</td></tr>
<tr><td>13.3.9</td><td>The following bus switching scheme may be adopted for both AIS and GIS and also for the generation switchyards:
a) 220 kV level – ‘One and a half breaker’ or ‘Double Main &Transfer’ scheme with a maximum of eight (8) feeders in one section
b) 400 kV and 765 kV level – ‘One and half breaker’ scheme.</td><td>No Comments</td></tr>
<tr><td>13.4.1</td><td>Additional Planning Criteria for Wind and Solar Projects
Wherever available, actual data of capacity factor for wind and solar generators shall be used for planning. In the cases where data is not available the Capacity factor may be calculated using following factors specified by Authority:<table>
<tr><th>Voltage Level/ Aggregation Level</th><th>132 kV/ Individual Wind or Solar</th><th>220 kV</th><th>400 kV</th><th>State (as Whole)</th></tr>
<tr><td>Capacity Factor (%)</td><td>80%</td><td>75%</td><td>70%</td><td>60%</td></tr>
</table></td><td>No Comments</td></tr>
<tr><td>13.4.2</td><td>‘N-1’ criteria may not be applied to the immediate connectivity of wind and solar projects with InSTS, i.e., the line connecting the projects to the grid and the step-up transformers at the grid station.</td><td>No Comments</td></tr>
<tr><td>13.4.3</td><td>As the generation of energy at a wind Project is possible only with the prevalence of wind, the thermal line loading limit of the lines connecting the wind</td><td>No Comments</td></tr>
</table>

	machine(s)/farm to the nearest grid point may be assessed considering 12 km/hour wind speed.	
13.4.4	Wind and solar projects shall maintain a power factor as mentioned in Regulation 37.10 at their grid interconnection point for all despatch scenarios by providing adequate reactive compensation and the same shall be assumed for system studies.	No Comments
13.5.1	**Additional Planning Criteria for HVDC Transmission System** Option of HVDC Bipole may be considered for transmitting bulk power (more than 2,000 MW) over a long distance (more than 700 km). HVDC transmission may also be considered in the transmission corridors that have AC lines carrying heavy power flows (total more than 5000 MW) to control and supplement the AC transmission network: Provided that the above provision does not restrict implementation of voltage source converter (VSC) based HVDC or similar HVDC technologies wherever suitable.	No Comments
13.5.2	Ratio of fault level in MVA at any of the convertor station (for conventional current source type), to the power flow on the HVDC Bipole, shall not be less than 3.0 under any of the load-generation scenarios and contingencies: Provided that in areas where multiple HVDC bipoles are feeding power (multi in feed), appropriate studies may be carried at the planning stage to avoid commutation failure.	No Comments
13.5.3	Maximum permissible thermal line loadings for different types of line configurations, employing various types of conductors, Surge Impedance Loading (SIL) shall be considered as specified by the Authority	No Comments
13.6	InSTS, as a general rule, shall be capable of withstanding and be secured against the following contingency outages: a. Without necessitating load curtailment or rescheduling of generation during Steady State Operation(s): i. Outage of a 100 kV /110 kV/ 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 400 kV single circuit line with a fixed series capacitor. v. Outage of a single Interconnecting Transformer, or	No Comments

	vi. Outage of one pole of HVDC Bipole line, or vii. Outage of a 765 kV S/C line. viii. Outage of the most severe single generating unit. ix. Outage of a single biggest load. x. Ground Return Mode (GRM) operation of the HVDC line. xi. Power Demand Override (PDO)/Emergency Power Control (EPC) operation of the HVDC link. b. Without necessitating load curtailment but could be with rescheduling of generation during steady state operation: i. Outage of a 400 kV S/C line with Thyristor Controlled Series Capacitor (TCSC), or ii. Outage of a 400kV D/C line, or iii. Outage of both pole of HVDC Bipole line or both poles of HVDC back to back Station, or iv. Outage of a 765kV S/C line with series compensation. 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.	
13.7	The planning study would assume that all the Generating Units operate within their reactive capability curves and the network voltage profile are also maintained within the voltage limits specified.	No Comments
13.8	InSTS shall be capable of withstanding the loss of most severe single infeed without loss of stability.	No Comments
13.9	Any of the events defined in Regulation 13.6 above shall not cause: a) Loss of supply; b) Prolonged operation of the system frequency below and above specified limits; c) Unacceptable high or low voltage; d) System instability; e) Unacceptable overloading of InSTS elements.	No Comments

13.10	In all substations of (66 kV/ 110 kV/ 132 kV and above), except HVDC, size and number of power transformers/ICTs shall be planned in such a way that the outage of any single unit would not overload the remaining transformers/ICTs to maintain the required firm capacity at the substation. In HVDC substations, at least one spare converter/inverter transformer shall be kept ready to use at any time. Provided that in the rural areas, depending upon the feasibility, redundancy can be shared by two EHV substations through 11/22/33 kV network to optimise the project cost. Provided further that if there are no line loading constraints of existing 220 kV /132 kV Double Circuit source line, such Double Circuit line shall be treated as N-1 contingency compliance. In such a case there is no need to construct another Single Circuit / Double Circuit Line from other source to 220 kV / 132 kV substation under the pretext of N-1 contingency compliance. Provided further that the Transmission Licensee may propose new substation or augmentation of the existing substation in the following conditions: a) In urban areas, if the existing transformers are loaded with more than 70% of their installed capacity. b) In rural areas, if the existing transformers are loaded with more than 80 % of their installed capacity. Each scheme for augmentation or extension of InSTS shall need a base and shall be recommended by the STU after due diligence. It will be the responsibility of concerned transmission licensee to execute the scheme efficiently, effectively and timely manner. Provided that the installed capacity of the substation, Transmission Lines and out lets of various voltage level shall be constructed in phased manner as per the projection of load to be feed from the substation to avoid the idling of the assets. Explanation: For the purpose of Regulation 13.10, the term, 'firm capacity' shall mean minimum transformation capacity available at the substation in case of outage of any one transformer/ICT.	No Comments
13.11	STU shall carry out planning studies for Reactive Power compensation of InSTS including Reactive Power compensation by the Generator	No Comments
13.12	**Implementation of Transmission Plan**	No Comments

	13.12.1. STU shall endeavour to ensure that the schemes are executed in accordance with the time frame mentioned in the Transmission Plan formulated by the STU. The execution of transmission projects shall be closely monitored by the MTC constituted under the aegis of the GCC. 13.12.2. Implementation related issue shall be discussed in the meetings of MTC/GCC as per the requirement. MTC/GCC shall also monitor the progress of various clearances required for timely execution of projects. MTC/GCC shall also provide its recommendations for timely completion of the projects. 13.12.3. MTC shall ensure simultaneous execution of substation and transmission lines, to avoid stranding of assets. 13.12.4. MTC shall submit its quarterly report of the status of ongoing transmission projects in the State with reference to STU transmission plan to the 14.1. Commission through GCC.	
14.1	**Planning Data** Transmission Licensees and Users shall supply the following types of data to the STU for the purpose of developing the transmission plan: a) Standard Planning Data b) Detailed Planning Data	No Comments
14.2	**Standard Planning Data** 14.2.1 Standard Planning Data shall consist of details which are expected to be normally sufficient for the STU to investigate the impact on the InSTS due to User/Transmission Licensee development. 14.2.2 Transmission Licensees and Users shall provide the following data to the STU from time to time in standard formats as provided by the STU: a) Preliminary project planning data; b) Committed project planning data; and c) Connected planning data. Provided that the STU shall provide a date for submission of information in the said formats, after providing reasonable time to Transmission Licensees and Users: Provided that the STU shall develop standard formats, for submission of above-	No Comment

	mentioned data, within one month from notification of these regulations and make the same available on its website: Provided also that the STU shall be guided by the formats, developed for submission of abovementioned data, under the provisions of IEGC.	
14.3	**Detailed Planning Data** 14.3.1 Detailed Planning Data shall consist of additional, more detailed data not normally expected to be required by the STU to assess the impact of User/Transmission Licensee development on the InSTS. 14.3.2 Detailed Planning Data shall be furnished by the Users and Transmission Licensees as and when requested by the STU.	No comments
14.4	**Spinning Reserve Planning** 14.4.3 SLDC need to ensure maintenance of adequate Spinning Reserve Margin equivalent to 3% of the System Peak Demand (or such other percentage as specified by Commission) for the purpose of day-ahead load generation balance and intra-day operations. For preparation of day ahead Schedule of Generators as per De-Centralised MoD Principles, the SLDC shall maintain the spinning reserve margin in the specified Generator(s) upto 3% of Installed Capacity or as may be specified by the Commission for the management of ramp up as per the requirement of the Grid. 14.4.4 During day ahead scheduling, SLDC shall provide target despatch schedule for such specified generator(s) after allowing for maintenance of spinning reserve margin upto 3% of Installed Capacity (or as specified by Commission). Provided that distribution licensee having hydro generating stations (excluding small hydro power) under long term/medium term power purchase agreement/arrangement may offer to provide spinning reserve margin from such hydro generator in consultation with SLDC. 14.4.5 The distribution licensees may share the spinning reserve resources on mutually agreed terms. 14.4.6 SLDC shall prepare detailed procedure to operationalise provisions related to	As per CERC order, reserves are to be maintained in form of primary, secondary and tertiary reserves. The latest report of Expert Group also envisages a frequency control continuum wherein primary response will commence immediately after occurrence of an event, followed by secondary response and tertiary response. The section maybe aligned accordingly. Further, demand response should also be made part of reserves planning Clause No. Need to be corrected and same needs to be started from 14.4.1 This issue is related to real time as well as Day ahead power planning. Hence it shall be part of Operation code instead of planning code.

	spinning reserve margin and submit the same to Commission upon stakeholder consultation within six months from the date of notification of applicability of MEGC.	
	PART C: CONNECTION CODE	Additional Points 1. It is suggested to mandate SLDC to develop an energization procedure for any new elements. The procedure shall entail mandatory tests in accordance with CEA construction standards keeping in view the grid security 2. SLDC in coordination with STU should carry out a joint system exercise before first time energization of any new element. This is because the grid conditions are constantly changing and addition/modification of new element should not cause any adverse scenario. Further, timely testing will also help identify system strengthening needs such as requirement of SVC.
15.1	**Introduction** This code specifies the minimum technical and design criteria that shall be complied with by a Transmission Licensee and User connected to or seeking connection to the InSTS. It also set forth procedures by which STU, Transmission Licensee and User connected to or seeking connection to the InSTS shall comply. It shall comply with the CEA (Technical Standards for Connectivity to the Grid) which specifies minimum technical and design criteria and MERC (Transmission Open Access) Regulations 2016 as amended from time to time.	No Comments
16	**Objective** Objective of the code are as given below: a) To ensure safe reliable and integrated operation of the grid; b) 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 ISTS nor impose unacceptable effects on the system of any other connected User or STU;	No Comments

	d) By specifying optimum design and operational criteria to assist Users in their requirement to comply with License obligations to ensure that a system of acceptable quality is maintained; e) Any User seeking a new connection to the grid is required to be aware, in advance, of the procedure for connectivity to the InSTS and also the standards and conditions his system has to meet for being integrated into the grid	
17.1	**Connection Standards** STU, Transmission Licensees and other Users connected to, or seeking connection to InSTS shall comply with the CEA (Technical Standards for Connectivity to the Grid) Regulations 2007, CEA (Technical Standards for Construction of Electric Plants and Lines) Regulations, 2010, MERC (Transmission Open Access) Regulations, 2016 and MERC (Distribution Open Access) Regulations, 2016, as amended from time to time	In Connection standard, following Code/regulation shall also be added ***i. State Metering code-2019*** ***ii. State Communication code,*** iii. ***CEA(Technical Standards for Communication system in Power System Operation) Regulation 2020***
18	**Safety Standards** 18.1 The applicable safety requirements for construction, operation and maintenance of electrical plants and electric lines shall be as per the standards notified by the Authority under clause (c) of Section 73 of the Act. 18.2 In addition, STU and the concerned Users shall be responsible for safety in accordance with CEA (Technical Standards for connectivity to the Grid) Regulations, 2007, CEA (Safety Requirements for Construction, Operations and Maintenance of Electrical and Electric Lines) Regulations, 2011, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010, MERC (TOA) Regulations, 2016 and MERC (DOA) Regulations, 2016 as amended from time to time.	No Comments
19	**Application for Connection**	
19.1	Application for establishing new arrangement or modifying the existing arrangement of connection to and/or use of InSTS shall be submitted by the concerned Transmission Licensee or User to the STU in accordance with a standard format for application as stipulated by the STU.	No Comments
19.2	STU shall be the nodal agency for the purpose of accepting and processing the application for connectivity to InSTS.	No Comments

19.3	Connection requirements specified in the MERC (Transmission Open Access) Regulations, 2016, as amended from time to time shall also be applicable to an User making an application for connection to InSTS in addition to these Regulations	No Comments
19.4	Application for connection to InSTS 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; c) Confirmation that the Transmission Licensee or the User shall abide by the provisions of these Regulations, CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007, CEA (Safety Requirements for Construction, Operation and Maintenance of Electrical Plants and Lines) Regulations, 2011, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 all other related standards by the Authority shall be pursuant to the Act, as amended time to time; d) Any other details deemed necessary for processing of application specified by the STU.	No Comments
19.5	STU shall forward a copy of the application to the Transmission Licensee to whose system, the connection is being sought, SLDC and all other Transmission Licensee within the State whose Transmission System is likely to be affected by such application.	The SLDC is not providing any kind of Transmission connectivity & does not hold ownership of any Transmission system but only provide synchronisation permission after completion of work & all statutory provisions. Hence the word "SLDC" in this provision is not required and shall be omitted,
19.6	STU or Transmission Licensee, in whose system the connection is being sought, may carry out the power system studies as considered appropriate before allowing any new connection.	No Comments
19.7	STU shall ensure that, a) All Users or prospective Users are treated equitably; b) Any new or modified connection, when established, shall not impose any adverse effect on InSTS nor shall a new or modified connection suffer adversely due to its connectivity to InSTS;	No Comments

	c) The ownership and responsibility for all equipment are clearly specified in a Site Responsibility Schedule for each site where a connection is made	
19.8	STU shall, within 30 days, from the receipt of an application and after considering all suggestions and comments received by the stakeholders identified under Regulation 19.5 above; a) Accept the application with such modification or such conditions as may be specified by STU; b) Reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of these Regulations.	No Comments
19.9	In case of acceptance of an application as per sub-section (a) of Regulation 19.8, the STU shall make a formal offer to the applicant: Provided that STU shall forward a copy of the offer to the concerned Transmission Licensee	No Comments
19.10	STU shall be entitled to reject any application for connection to InSTS due to the following reasons apart from others as considered reasonable: a) If a proposed connection is likely to breach any provision of its License or any provision of the MEGC or any provision of IEGC or any criteria or covenants or deeds or Regulations by which STU is bound; b) If the proposed works stated in the application do not lie within the purview of the licence or do not conform to any provision of the SGC or any criteria or covenants or deeds or Regulations by which STU is bound; c) If the applicant does not undertake to be bound, in so far as applicable, by the terms of the SGC; d) If the applicant fails to give confirmation and undertakings according to this section.	No Comments
19.11	Voltage level at which the applicant is offered to be connected to InSTS shall be governed by the standards notified by the Authority and prevailing guidelines adopted by the STU as amended from time to time.	No Comments
19.12	Applicant and the concerned Transmission Licensee, in whose system the connection is being sought, shall finalise a Connection Agreement on acceptance of the offer by the applicant. STU and SLDC shall be provided with a copy of the Connection	No Comments

	Agreement	
19.13	STU shall, upon compliance of the required conditions by the concerned Transmission Licensee/User, shall inform the concerned Transmission Licensee/User that it can be connected to the InSTS.	No Comments
20	**Metering Arrangement**	
20.1	For Metering arrangement the provisions of Metering Code and the Regulations notified by the Authority shall be binding on Users including open access Users, licensees, generators connecting to the InSTS including the Users connected to 33 kV bus at EHV Substations and distribution substation.	It is submitted that if any consumer of DISCOM is directly connected to 33KV Bus of EHV substation (ie. Express feeder consumer) and as mention in this provision, if metering arrangement is to be provided, then firstly, there is no provision in metering code for interface point for Consumer except EHV consumer and secondly, if such consumer has to provide metering at 33KV of EHV Substation, then as per metering code, LV side of Power Transformer is already defined as T-D interface point. Under such circumstance, there is ambiguity in reference to T-D interface point. In view of above, clarity is required , whether this clause is applicable to consumer directly connected to 33KV bus of EHV substation through Express feeder arrangement.
21	**Connection Agreement**	
21.1	STU shall revise model Connection Agreement incorporating provision of these Regulations within three months from the notification of these Regulations and upload a copy of the model Connection Agreement on its website	No Comments
21.2	Connection Agreement shall include, as appropriate, within its terms and conditions, the following information relating to the connection of the User or Transmission Licensee to the InSTS: a) A condition requiring both parties to comply with the MEGC, IEGC and all other regulations concerning standards of grid connectivity notified by the Authority; b) Details of connection, technical requirements, metering and commercial arrangements; c) Details of any capital expenditure arising from necessary reinforcement or	In compliance to CEA regulation, Measurement of harmonic content, DC injection and flicker shall be done at least once in a year in presence of the parties concerned and the indicative date for the same shall be mentioned in the connection agreement

	extension of the system, data communication etc. and demarcation of the same between the concerned parties; d) Responsibility of sharing the charges incurred in necessary reinforcement or extension of the system. e) Modalities for payment of connection charges, sharing of InSTS charges and the effective date for sharing of InSTS charges. f) Single line diagram of the electrical system to be connected; g) Site Responsibility Schedule; h) Protection systems; i) System recording instruments; j) Data and communication facilities; k) Access at connection site; and l) Any other information considered appropriate by the STU or the Commission. Provided that STU shall not grant connectivity/permit execution of work if any, unless the InSTS User signs the agreement as defined above.	
22	**Grid Parameter Variations**	
22.1	**General** Transmission Licensees and Users shall ensure that Plant and Apparatus requiring service from or providing service to the InSTS is of such design and construction that satisfactory operation of such Plant and Apparatus will not be prevented by variation in instantaneous values of system frequency and voltage from their nominal values and that such Plant and Apparatus shall not induce any adverse effect on the InSTS	No Comments
22.2	**Frequency Variation** Rated frequency of the system shall be 50.0Hz and operating frequency shall normally be controlled within the limits in strict conformity with IEGC, and any other Regulations as may be specified by the appropriate authority from time to time	No Comments
22.3	**Voltage Variation** Variations of voltage may not be more than the voltage range specified in the Regulations/Standards framed by the Authority or specified by CERC and as amended from time to time	No Comments
22.4	**Monitoring and Reporting of variation in Grid Parameters**	No comments

	Transmission Licensees shall monitor and keep record of the month-wise Voltage Variation Index at Connection Points and submit report for the past six-monthly performance during next GCC meeting. GCC shall review and deliberate on the cause of the significant variations from the normal range and guide the remedial actions for the improvements. STU in consultation with GCC shall formulate detailed procedure for measurement, monitoring and reporting of the Voltage Variation Index at Connection Points covering InSTS. STU shall publish such report on its website from time to time	
23	**Equipment at Connection Points**	
23.1	**Substation Equipment** 23.1.1. All EHV substation equipment shall comply with the Bureau of Indian Standards/ International Electro Technical Commission/Prevailing Code of Practice. 23.1.2. All equipment shall be designed, manufactured, 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. 23.1.3. Each connection between a User and InSTS shall be controlled by a circuit breaker capable of interrupting, at the connection point, at least the short circuit current as advised by the STU in the specific Connection Agreement.	No Comments
23.2	**Fault Clearance Time** 23.2.1. Fault clearance time for primary protection schemes, when all equipment operate correctly, for a three phase fault (close to the bus-bars) on Users' equipment directly connected to InSTS and for a three phase fault (close to the bus-bars) on InSTS connected to Users' equipment, shall not be more than: a) 100 milliseconds for 800 kV class & 400 kV b) 160 milliseconds for 220 kV & 132 kV/110kV 23.2.2. Back-up protection shall be provided for required isolation/protection in the event of failure of the primary protection systems provided to meet the above fault	No Comments

	clearance time requirements. If a Generating Unit is connected to the InSTS directly, it shall be capable of withstanding, until clearing of the fault by back-up protection on the InSTS side.	
23.3	**Protection System** 23.3.1. 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 specified fault clearance time with the reliability, selectivity and sensitivity Provided that all Users or Transmission Licensees shall provide protection systems as specified by the Authority and the provisions of the protection code and Connection Agreement 23.3.2. Relay setting coordination shall be done at State level in coordination with the STU and with WRLDC/WRPC. 23.3.3. All 220 kV and above stations shall have bus bar protection scheme, over flux, under voltage, over voltage relays and any other protection recommended by Regional PSCC of WRPC/STU. 23.3.4. Users shall provide information to SLDC regarding installation and healthiness of protective equipment like df/dt relays etc., reactive compensation on UFR monthly basis.	No Comments
23.4	**State Generating Station (SGS)** 23.4.1. Unless specifically agreed with STU, the inter-connection point with generating station shall be the as specified in the metering code of these regulations. 23.4.2. Voltage level at which SGS shall be connected to InSTS as agreed with STU. 23.4.3. SGS shall operate and maintain all terminals, communication, metering and protection equipment owned by it within its jurisdiction. All electrical equipment including communication equipment from outgoing feeder gantry onwards shall be owned, operated and maintained by the STU/Transmission Licensee. 23.4.4. Metering arrangement between the generating station and STU/Transmission Licensee shall be as per the Metering Code of these	

	Regulations as amended from time to time. 23.4.5. All hydro stations more than 50MW, Combined Cycle Gas Turbine (CCGT) more than 50MW and liquid fuel stations more than 50MW shall mandatorily have black start facilities. All stations at 220 kV and above shall have synchronizing facilities.	
23.5	**Distribution Licensee** 23.5.1. Network of distribution licensee shall be connected to the InSTS at the voltage level as agreed with the STU. 23.5.2. Unless specifically agreed with Distribution Licensee, the connection point with STU shall be the outgoing gantry of the feeder to Distribution Licensee or EHV consumer as the case may be, from Transmission Licensee's substation. 23.5.3. Metering arrangement between Distribution Licensee and STU/Transmission Licensee shall be as per Metering Code as amended from time to time.	No Comments
23.6	**IPPs, CPPs, Open Access Consumers and other consumers connected to InSTS** 23.6.1. IPPs, CPPs, Open Access Consumers and other consumers shall be connected to the InSTS at the voltage level as agreed with the STU. 23.6.2. Unless specifically agreed with STU, the inter-connection point with generating station shall be the as specified in the metering code of these regulations. 23.6.3. Metering arrangement between Distribution Licensee and STU/Transmission Licensee shall be as per the Metering Code as amended from time to time.	No Comments
23.7	**Inter-State Transmission System.** 23.7.1. For the connection of the InSTS with the ISTS, the connection, protection and metering arrangements shall be as per the provisions of CERC (Indian Electricity Grid Code) Regulations, 2010, as amended from time to time	No comments
24	**Data and Communication Facilities**	
24.1	All Users shall provide reliable and efficient voice and data communication systems at their own cost to facilitate necessary communication and data exchange, and supervision/control of the State Grid by the SLDC, under normal and abnormal conditions:	As mentioned earlier in comments on Clause 7.6, there is no SCADA installed in more than 75% of MSETCL EHV Substation , which is posing problem to SLDC to monitor each DISCOM actual drawal & also one of main hurdle for real time demand forecasting,

	Provided that unless and until the communication facilities are installed, commissioned and functioning properly, the User shall not be allowed to synchronize with the Grid	as for demand forecasting, 15 minute timeblockwise past history of each drawl node i.e substation is required alongwith weather forecast . In absence of same, SLDC is presently compelled to derive real time MSEDCL drawal from generation , which is neither correct method for DSM monitoring of MSEDCL nor from grid security point of view. Also SLDC is not able perform its separate Demand forecasting as mandated by IEGC Regulation under Regulation 5.3 in absence of 15 minute timeblockwise past history of each drawl node. As per provision under regulation 4.6.2of IEGC 2010, it is responsibility of STU to provide SCADA data visibility. But same it not complied in respect of all substations of STU. Hence provision in State Grid code shall be made, whereby it shall be made mandatory for STU to provide SCADA visibility of all Drawal points of all DISCOMs which are defined as T-D interface points as per Metering code. Being presently meter are capable to provide real time data of demand from meter, SCADA (which is technology for real time data transfer) shall be installed on all T-D interface points which STU is Owner. Further in proposed grid code STU shall be given timeline for 100% SCADA data visibility of all drawal points, The penalty /charges recovered through DSM mechanism shall be used for implementation of such project.
24.2	All Users and Transmission Licensees in coordination with the STU shall provide the required facilities at their respective ends as specified in the Connection Agreement at their own cost: Provided that the equipment/devices for communication and data exchange shall be provided as specified by the Commission in the Communication Code of these Regulations, guidelines of SLDC for interface requirement, and other such guidelines/specifications as applicable.	No comments
24.3	All Users shall provide systems to telemeter power system parameters such as	As per Metering code approved by Hon'ble Commission, in case of

	power flow, voltage and status of switches/transformer taps, etc. in line with interface requirements and other guidelines made available by SLDC. The associated communication system to facilitate data flow up to appropriate data collection point on InSTS shall also be established by the concerned User as specified by the STU in the Connection Agreement at their own cost. If the Users do not comply to provide the requisite communication facilities, STU shall not grant the final connectivity	T-D interface point, LV side of Power Transformer is considered. This Power Transformer is ownership of STU and hence STU needs to provide SCADA visibility of these point. Further as mentioned in comments on clause 7.6 & 24.1, as per provision in clause 4.6.2, it is responsibility of STU to provide SCADA visibility. Hence it is proposed that in said clause in addition to user, STU /Transmission licensee shall also be added. Further STU shall also be not allowed to connect any new Transmission line, Reactor, SVS system , Power Transformer, ICT, any Transmission element to grid unless SCADA visibility is provided to SLDC for same. Unless this provision is made, STU will not start installing SCADA, which is most important part for SLDC for grid security point of view.
25	**System Recording Instruments**	
25.1	Recording instruments such as Data Acquisition System/Disturbance Recorder/Event Logger/Fault Locator (including time synchronization equipment)/voice recorder/any other such equipment in each generating station/substation/SLDC/ALDC shall be provided in the InSTS for recording of dynamic performance of the system and shall be maintained in working condition: Provided that all such locations shall be time synchronised with the Meter Data Acquisition Systems (MDAS) located at SLDC and same shall be ensured by periodic verification and validation procedure to be developed and monitored by the STU.	The technical feasibility of MDAS capability to obtained data from various recording instruments needs to be checked.
25.2	All Users and Transmission Licensees shall provide all the requisite recording instruments as specified in the Connection Agreement in accordance with the agreed time schedule.	Clarity is needed on what DISCOM needs to provide under this clause
26	**Responsibilities for Operational Safety**	
26.1	**Site Responsibility Schedule (SRS)** 26.1.1. Transmission Licensees and the Users shall be responsible for safety as indicated in the SRS for each connection point. 26.1.2. SRS shall be produced by the concerned Transmission Licensee and the User detailing the ownership responsibilities of each, before the execution of the	No comments

	project or connection, including safety responsibilities. 26.1.3. An SRS shall be prepared for each connection. At the connection site where equipment of both entities, i.e., the Transmission Licensee and the User are installed, the User shall furnish required data to the Transmission Licensee and the Transmission Licensee shall prepare SRS. At a generating station, the transmission licensee shall furnish the necessary data to the generating company who shall prepare SRS. The SRS format is provided in Annexure-2. 26.1.4. SRS shall be developed by the concerned Transmission Licensee/Generating Company pursuant to the relevant Connection Agreement and shall state the following for each item of plant and apparatus installed at the Connection point: a) Ownership of the Plant/Apparatus; b) Responsibility for control of the Plant/Apparatus; c) Responsibility for the operation of the Plant/Apparatus; d) Responsibility for maintenance of the Plant/Apparatus; and e) Responsibility for all matters relating to the safety of persons at the connection point. 26.1.5. The format, principles and basic procedure to be used in the preparation of SRS shall be updated by the STU within two months of notification of these regulations and shall be provided to each User and Transmission Licensee for compliance: Provided that the principles and basic procedure to be used in the preparation of SRS provided in Annexure-2 shall continue to be used till such time as the updated principles and procedures under these Regulations are issued by the STU. Provided further that no connection shall be made unless SRS is prepared and signed by all concerned parties.	
26.2	**Access at Connection Site** 26.2.1. The Transmission Licensee or User owning the Connection Site shall provide reasonable access and other required facilities to another Transmission Licensee or User whose equipment is proposed to be installed/installed at the Connection Site for installation, operations and maintenance, etc.	No comments

	26.2.2. Written procedures and agreements shall be developed between the Transmission Licensees and Users to ensure that mandatory access is available to the concerned Transmission Licensee or User at the same time safeguarding the interests of the Transmission Licensee and User at the connection site.	
	PART D: OPERATING CODE	
27	**Operating Philosophy** 27.1 The primary objective of the integrated operation of the InSTS is to enhance the overall operational economy and reliability of the entire network spread over the geographical area of the State. Users shall cooperate with each other and adopt good utility practice at all times for satisfactory and reliable operation of the InSTS. 27.2 All Users shall comply with this Operating Code, for deriving maximum benefits from the integrated operation and for equitable sharing of responsibilities. 27.3 All licensees, generating company and any other Users connected to the InSTS shall comply with the directions issued by the SLDC to ensure integrated grid operation and for achieving the maximum economy and efficiency in the operation of the InSTS.	No comments
28	**Operating Conditions**	
28.1	SLDC shall supervise the overall operation of the InSTS	No Comments
28.2	SLDC, in coordination with Operation Coordination Committee, shall develop, document and maintain detailed operating procedures for managing the InSTS. These operating procedures shall include the following: a) Black start procedures; b) System restoration procedures for partial grid failure; c) Load curtailment procedures; d) Renewable energy curtailment procedures e) Islanding procedures; and f) Any other procedure considered appropriate by the SLDC. Provided that such procedures shall be developed in consultation with Users,	No comments

	licensees, renewable energy developers and WRLDC with three months from the date of notification of these Regulations. Provided further that such procedures, after consulting in GCC, shall be provided to all the Users. A copy of the same shall be uploaded on SLDC's website and submitted to the Commission for information	
28.3	The control rooms of the SLDC including Area/Sub-load Despatch Centres, Generating Stations, Substations of 132 kV and above and any other control centres of Transmission Licensees and Users shall be managed frequently by qualified and adequately trained personnel. Provided that the control centres of distribution licensees (with recorded peak demand more than 100 MW) including Indian Railways shall carry out functions such as demand forecasting, load management, power management and real time revisions in schedule, demand curtailment etc. The control rooms shall have regular interaction with SLDC and act upon the instructions received from SLDC. The distribution licensees shall also develop online tracking and monitoring system for distributed generation including rooftop solar PV systems above 100kW within its license area for facilitating decisions of revision of drawal schedule during intra-day operation	It is also suggested that: a) QCA should also have round the clock coordination centres as they would be coordinating scheduling and operating activities for the RE generators. b) Transmission licensees not having substations should also have round the clock coordination centres in order to cater to lines that maybe awarded on TBCB.
29	**System Security Aspects**	
29.1	All Users and Transmission Licensees shall endeavour to operate their respective power systems and power stations in synchronisation with each other at all times, such that the entire system within the State operates as one synchronised system.	No comments
29.2	All switching operations, manually or automatic, shall be based on guidelines of the following: a) CERC (Indian Electricity Grid Code) Regulations, 2010, as amended from time to time; b) Instructions/Guidelines issued by SLDC; c) Directives of the Commission; and d) Decisions/Recommendations made by GCC.	No Comments
29.3	No part of the InSTS shall be deliberately isolated from the rest of the InSTS except – a) Under an emergency and conditions in which such isolation will	

	prevent a total grid collapse and/or will enable early restoration of power supply; b) When serious damage to the equipment is imminent and such isolation will prevent it; c) When such isolation is specifically instructed by the SLDC; d) On the operation of under frequency/ islanding scheme as approved by SLDC; and e) For the safety of human and/or animal life	No Comments
29.4	Complete synchronisation of the InSTS shall be restored as soon as the conditions permit. The restoration process shall be supervised by SLDC, in coordination with WRLDC in accordance with the operating procedures separately formulated by WRLDC.	No Comments
29.5	No important element of the InSTS shall be deliberately opened or removed from service at any time, except when specifically instructed by SLDC or with a 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 at SLDC's website: Provided further that, in case of opening/removal of any important element of the InSTS under an emergency situation, the same shall be communicated to SLDC at the earliest after the event: Provided that any emergency tripping not advised or permitted by SLDC shall be put up before the GCC for ratification, in the subsequent meeting	
29.6	Any tripping, whether manual or automatic, of any of the elements of the InSTS, referred in Regulation 29.3, shall be precisely intimated by the concerned Transmission Licensee or User to the SLDC within one time block. The reason, to the extent determined, and likely time of restoration shall also be intimated. All reasonable attempts shall be made for the elements' restoration as soon as possible: Provided that the information/data from disturbance recorder, sequential event logger outputs, etc., containing the sequence of tripping and restoration or	It is suggested that instead of mentioning period for intimation to SLDC as one Time block, time in minutes shall be mention like within 15 minutes . Hence word one time block shall be replaced by ***"as soon as possible but within 15 minutes"***

	any other information as asked, shall be sent to SLDC for the purpose of analysis: Provided further that such information/data may be directly made available at SLDC through suitable communication media for faster post fault analysis during grid disturbances	
29.7	All Users, STU and SLDC shall carry out maintenance of their respective power system elements in accordance with the provisions in the Grid Standards specified by the Authority. Any prolonged outage of the power system elements of any Users/STU which is causing or likely to cause danger to the grid or sub-optimal operation of the grid shall regularly be monitored by SLDC. SLDC shall report such outages to GCC. GCC shall suggest an action plan and provide instructions to restore such elements in a specified time period.	No Comments
29.8	SLDC, in coordination with WRLDC, Users and Transmission Licensees shall make all possible efforts to ensure that frequency remains within the band of 49.90 Hz to 50.05 Hz as specified in CERC (IEGC) Regulations, 2010 amended from time to time	Present IEGC frequency band is 49.95Hz to 50.05 Hz. Hence word "49.90 Hz to 50.05 Hz" shall be replaced as ***"49.95Hz to 50.05 Hz"***
29.9	Users and Transmission Licensees shall provide automatic under-frequency and df/dt relay-based load curtailment/islanding schemes in their respective systems, wherever applicable, to arrest frequency decline that could result in a collapse/disintegration of the InSTS, as per the directives of the GCC and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency	No Comments
29.10	Users and Transmission Licensees shall ensure that the under-frequency and df/dt relay-based load curtailment/islanding schemes, mentioned in Regulation 29.9 are always functional: Provided that the relays may be temporarily kept out of service, in extreme contingencies, with the prior consent of SLDC.	No Comments
29.11	STU shall carry out periodic inspection of the under-frequency relays and produce the report to SLDC. SLDC shall maintain the record of under frequency relay and/or df/dt relay operation Provided that SLDC shall decide and intimate the action required to the Users and Transmission Licensee to get required load relief from under frequency relay	It seem that there is Grammatical error in respect of second para of clause 29.11. The sentence *"Provided that SLDC shall decide and intimate the action required to the Users"* need be replaced as ***"Provided that SLDC shall decide and intimate the action required from the Users"***

	and/or df/dt relay operation: Provided also that SLDC shall keep comparative data of expected load relief and actual load relief obtained in real-time system operation	
29.12	Users and Transmission Licensees shall facilitate identification, installation and commissioning of System Protection Schemes in the power system (including inter-tripping and runback) as finalized by GCC, to operate the InSTS closer to their limits and protect against situations including voltage collapse, cascading and tripping of the important corridor: Provided that such schemes shall always be kept in service. If any such scheme is to be taken out of service, prior permission of SLDC shall be obtained indicating the reasons and period of the anticipated outage from service: Provided further that such schemes shall be prepared by STU after due consultations with OCC and PCC.	No Comments
29.13	SLDC Procedures shall be developed to recover from partial/total collapse of the grid in accordance with CEA (Grid Standards) Regulations, 2010 and as amended from time to time as per the requirement of the Regulation 42. These procedures shall be followed by all the Users, STU and SLDC to ensure consistent, reliable and quick restoration	No Comments
29.14	Each User and Transmission Licensee shall provide adequate and reliable communication facility internally and to SLDC, other Users and other Transmission Licensees to ensure the exchange of data/information necessary to maintain reliability and security of the InSTS. Wherever possible, redundancy and alternate path shall be maintained for communication along the important routes, e.g., Users to Distribution Licensee/respective entity to SLDC	No Comments
29.15	All Users and Transmission Licensees shall send the requested information/data including disturbance recorder/sequential event recorder output, etc. within 24 hours to SLDC for the purpose of analysis of any grid disturbance/event. No User or Transmission Licensee shall block any data/information required by the SLDC and/or WRLDC for maintaining reliability and security of the State and/or Regional Grid and for analysis of an event	As per the Pradhan Committee Report, all system operators must be adequately trained and certified. It is recommended that all SLDC operators are certified by appropriate authorities. In India, NPTI is providing certification for system operators. The same maybe mandated at SLDC level
30	**Operation of Generators Connected to InSTS**	Regulation 30 specifies only primary response on account of

		governor action. The clauses need to be revisited on the following aspects: a. Due to high RE penetration in the foreseeable future, the thermal generators are likely to be backed down. Thus, primary response from thermal is likely to reduce. It is, thus recommended that RE maybe mandated to give primary response through additional capacity or battery storages. b. Due to penetration of RE, inertia of the power system is likely to reduce. SLDC is recommended to monitor the inertia of the system constantly to prevent activation of relays c. Primary response should also be specified for generators working on part load. SLDC to always ensure there is margin of primary response available when generators are working on part load d. Deadband to be specified to prevent governor hunting e. All thermal generators maybe mandated to work on AGC. RE generators should be made accountable for any deviation on account of schedules f. Secondary and Tertiary reserves maybe specified in order to maintain grid stability. Provision of Demand response for Secondary and Tertiary reserves maybe specified g. Performance parameters maybe specified for SLDC to keep frequency within he band and Generators for governor action. Non adherence to the performance may lead to suo-motu action by Commission
30.1	A generating unit shall be capable of continuously supplying its normal rated active and/or reactive output at the rated system frequency and voltage, subject to the design limitations specified by the manufacturer	No Comments
30.2	A generating unit shall be provided with an Automatic Voltage Regulator (AVR), protective devices and safety devices, as set out in Connection Agreement	No Comments

	and/or specified by the Authority	
30.3	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 capacity more than 25 MW, which are synchronised with grid, irrespective of their ownership, shall have their governors in operation at all times in accordance with the following provisions: **Governor Action** a) Following thermal and hydro generating units shall be operated under free governor mode of operation (FGMO). i. Coal/Lignite based thermal generating units of 200 MW and above; ii. Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each; iii. Hydro units of capacity more than 25 MW. Provided that the generators presently operating under restricted governor mode of operation (RGMO) shall be operated in FGMO within one year from the date of notification of these regulations. Provided further that if any generating unit of over 50 MW size is required to be operated without its governor in normal operation, the SLDC shall be immediately advised about the reason and duration of such operation	Due to high RE penetration in the foreseeable future, the thermal generators are likely to be backed down. Thus, primary response from thermal is likely to reduce. It is, thus recommended that RE maybe mandated to give primary response through additional capacity or battery storages. Due to penetration of RE, inertia of the power system is likely to reduce. SLDC is recommended to monitor the inertia of the system constantly to prevent activation of relays CERC vide its order dated 6th Dec 2017 approved commissioning of AGC pilot project (Secondary Response) between NLDC and NTPC Dadri stage-II.CERC also directed NLDC to replicate the pilot project in at least one station in each region. Accordingly, AGC pilot project in WR was implemented at Mouda-II from 20th Mar 2019. CERC vide its order dated 28th August 2019 in Petition No.: 319/RC/2018 directed that "*all ISGS (Tariff determined or adopted by CERC) thermal generating stations of 200 MW installed capacity and above and hydro generations of installed capacity 25 MW and above (Excluding ROR hydro) shall be AGC enabled. The communication for AGC from generating station RTU to nearby wide band node shall be made available by generating station. The purpose of AGC implementation was to ensure secondary reserve , so as to bring frequency closure to 50Hz*" In view of same, Hon'ble Commission is requested to issue necessary directive for implementation of AGC at state level also.
30.4	All Generating Stations connected to InSTS shall submit their frequency response characteristics (FRC) to SLDC on monthly basis to corroborate their self-certification regarding the compliance to governor mode of operation as per Regulation 30.3a)i above.	In addition to self certification from generator, SLDC shall also monitor frequency response i.e RGMO/FGMO response. The RLDC at regional level is monitoring RGMO/FGMO response and appraised same in monthly OCC meeting of Western Region. The

		copy of MOM of OCC meeting is attached herewith as Annexure-D (Page No. Hence provision shall be made in regulation for monitoring of RGMO/FGMO response in real time basis from all eligible generators and appraised same in monthly OCC meeting for taking corrective action. Further said report shall also be submitted to Commission for taking decision in matter of reduction of 1% RoE by Hon'ble Commission under provision 29.5 of MERC **(MULTI YEAR TARIFF) REGULATIONS, 2019.** **Further as mentioned in CEA regulation, RE generator shall also provide frequency response. The relevant provision is as under** *The generating stations with installed capacity of more than 10 MW connected at voltage level of 33 kV and above –* *a. shall be equipped with the facility to control active power injection in accordance with a set point, capable of being revised based on directions of the State Load Dispatch Centre or Regional Load Dispatch Centre, as the case may be;* *b. shall have governors or frequency controllers of the units at a drop of 3 to 6% and a dead band not exceeding ±0.03 Hz…..* *c. shall have the operating range of the frequency response and regulation system from 10% to 100% of the maximum Alternating Current active power capacity, corresponding to solar insolation or wind speed, as the case may be;* d. *shall be equipped with the facility for controlling the rate of change of power output at a rate not more than ± 10% per minute* Accordingly it is suggested that Certificate for frequency response shall also be mandatory for RE generators
30.5	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 and no dead bands and/or time delays	No Comments

	shall be deliberately introduced. Provided that periodic check-ups by the third party should be conducted at regular intervals, once in two years, through independent agencies selected by SLDC. The cost of such tests shall be recovered from the generators by the SLDC. If deemed necessary by SLDC, the test may be conducted more than once in two years	
30.6	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 generating units of capacity more than 25 MW, operating at or up to 100% of their Maximum Continuous Rating(MCR), shall be capable of (shall not in any way be prevented of) instantaneously picking up to 105% and 110% of their MCR respectively when frequency falls suddenly. After an increase in the generation as above, a generating unit may ramp back to the original level, at a rate of about 1% per minute, in case the continued operation at the increased level is not sustainable. Any generating unit not complying with the above requirements shall be kept in operation (synchronized with the State Grid) only after obtaining the permission of SLDC.	The primary spinning reserve which is to be maintain by generator in term of RGMO is still to be complied by many generator at regional level. The main reason for non-compliance is no stringent monitory penalty to generator for same. Regulation 5.2(i) of IEGC 2010 mandate generator for RGMO. However till date said provision is still violated by many generators connected to grid. There is provision for penal actions for Non-compliance of FGMO/RGMO provision is liable for penal actions under Section 142 / reduction of 1% on RoE under CERC Tariff regulation. Further is also provision under regulation 5.2(h) of IEGC -2010 that any generator unit not complying with RGMO shall be kept in operation (synchronised with regional grid) only after obtaining the permission of RLDC. The expert committee report on spinning reserve has also recommended (21.5, page 51) that Primary reserves of 4000 MW would be maintained on an All India basis considering 4000 MW generation outage as a credible contingency. The same would be provided by generating units in line with the IEGC provisions. For implementation of RGMO/FGMO, it is suggested that provision shall be introduced in term of incentive to all generator whose frequency response is more than 80% and similarly penalty shall levied on all generators whose RGMO/FGMO response is less than 50% (or as decided by commission) . The incentive collected from generator toward RGMO/FGMO response shall be paid from generator liable for penalty under RGMO/FGMO.

		Unless such kind of stringent steps like proposed commercial mechanism & 1% RoE reduction are not being imposed, generators will not be inclined to give RGMO/FGMO response.
30.7	For the purpose of ensuring primary response, SLDC shall schedule the generating station or unit(s) as specified in the Regulations 14.4 of these Regulations. 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 a 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 as and when introduced by the Commission	During peak inflow, hydro generating stations may have to be scheduled to 110% of their capacity. Hence, the first proviso of 30.7 maybe modified accordingly Purpose of Regulation14.4 is mainly to control overdrawal of DISCOM in realtime . RGMO/FGMO is correlated to Spinning reserve, then as per Expert Committee report of Spinning Reserve it can be seen that RGMO or FGMO is primary response which shall be automatic and which will immediately come into service through governor action of the generator in the event of sudden change in frequency. This reserve response shall start instantaneously and attain its peak in less than 30 seconds, and shall sustain upto 5 minutes. Whereas spinning reserve which is required to be maintained as per regulation is Tertiary reserve which needs to be activated by SLDC to control overdrawal of concern DISCOM by picking up said generation in which such sipping reserve is kept.
30.8	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 1% per minute or as per manufacturer's limits.	No comments
30.9	Except under an emergency, or to prevent imminent damage to the equipment, no User shall suddenly reduce his generating unit output by more than the limit as specified by the SLDC, without prior intimation to and consent of the SLDC. Similarly, no User shall cause a sudden variation in its load by more than the limit as specified by the SLDC, without prior intimation to and consent of the SLDC. All the Users shall ensure that temporary overvoltage due to sudden load rejection and the maximum permissible values of voltage unbalance shall remain within limits specified under IEGC or Authority as amended from time to	No comments

	time	
30.10	All generating units shall be provided with an AVR, protective and safety devices, as set out in Connection Agreement. All generating units shall normally have their AVR in operation, with appropriate settings: Provided that in case a generating unit of over 50 MW is required to be operated without its AVR in service, the SLDC shall be immediately intimated about the reason and duration, and its permission is obtained	No comments
30.11	Power System Stabilizers in the AVR of generating units, wherever provided, shall be properly tuned by the respective generating unit owner as per the directions of the STU from time to time. STU will be allowed to carry out checking of the Power System Stabilizer and further tuning it, wherever considered necessary	No comments
30.12	All generating stations connected to the Grid shall follow the instructions of SLDC for backing down/ramping down/shutting down the generating unit(s). SLDC shall provide a Certificate for the period of the backing down/ramping down/shutting down for the purpose of computing the deemed generation if required	"For purpose of computing Deemed generation, if required" shall be replaced with "***for computing Deemed availability***"
30.13	SLDC shall make all efforts to evacuate the available solar, wind and solar-wind hybrid power and treat as a must-run station. However, SLDC may instruct the solar/wind generator to back down generation as consideration of grid security is endangered and solar/wind generator shall comply with the same. For this, the Data Acquisition System facility shall be provided for transfer of information to the SLDC. a) SLDC may direct a wind farm to curtail its VAr drawal/injection in case the grid security is endangered. b) During the wind generator start-up, the wind generator shall ensure that the reactive power drawl (inrush currents in case of induction generators) shall not affect the grid performance.	No Comments
30.14	Hydro generators having the capability to operate in pump mode are required to do so under instructions from SLDC	As per Clause 8.2.18 in scheduling & Dispatch code, it is mentioned that *" For operation of Pumped storage hydro power plants (PSHPP), concerned distribution licensee shall indicate the daily schedule of*

		PSHPP for the week. MSLDC shall operate the PSHPP as per the daily schedule indicated by concerned distribution licensee considering to the grid conditions such as frequency, voltage, reactive power requirement etc. and availability of off peak energy. " Hence there is no need this clause & shall be deleted.
31	**Declaration of Commercial Operation Date (COD)**	
31.1	The InSGS connected to InSTS and any component of InSTS shall follow the procedures specified below for declaration of COD.	No comments
31.2	**Declaration of Commercial operation of InSGS.** 31.2.1. Date of commercial operation in case of a unit of thermal InSGS shall mean the date declared by the generating company after demonstrating the unit capacity corresponding to its 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 COD of the last unit of the generating station: Provided that: a) 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. b) 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. c) The generating company of InSGS shall certify that: i. The generating station meets the relevant requirements and provisions of the technical standards of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and IEGC, as applicable. ii. 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. iii. Permanent electric supply system including emergency supplies and all necessary instrumentation, control and protection systems and auto loops for full load operation of the unit have been put in service. d) The certificates as required under clause (iii) above shall be signed by the Director/Senior officer of the generating company and a copy of the certificate shall be submitted to the SLDC before the declaration of COD. The generating company shall submit approval of the board of directors to the certificates as required under clause (iii) within a period of three months of the COD. e) Trial run shall be carried out in accordance with Regulation 31.2.3 of these Regulations. f) Partial loading may be allowed with the condition that average load during the duration of the trial run shall not be less than MCR or the Installed Capacity or the Name Plate Rating excluding the period of interruption and partial loading but including the corresponding extended period. g) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to MCR 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. h) SLDC, shall confirm its consent or convey its concerns and objections, if any, to the generating company for declaration of COD within seven days of receiving the generation data based on the trial run.	

	i) If SLDC notices any deficiencies in the trial run, it shall be communicated to the generating company within seven days of receiving the generation data based on the trial run. j) Scheduling of power from the generating station or unit thereof shall commence from 00:00 hrs after the declaration of COD.	
31.2.2	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 COD of the last generating unit of the generating station. Provided that: a) Where beneficiaries 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 and SLDC; b) 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. c) The generating company shall certify that: i. The generating station or unit thereof meets the requirement and relevant provisions of the technical standards of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and Indian Electricity Grid Code, as applicable: ii. The main plant equipment and auxiliary systems including drainage and dewatering system, primary and secondary cooling system, LP and HP air compressor, fire fighting system, etc. have been commissioned and are capable for full load operation of units on a sustained basis. iii. 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.	No comments

	d) The certificates as required under clause (iii) above shall be signed by the Director/Senior officer of the generating company and a copy of the certificate shall be submitted to the SLDC, before the declaration of COD. The generating company shall submit approval of the Board of Directors to the certificates as required under clause (iii) within a period of three months. e) Trial run shall be carried out in accordance with sub-Regulation 31.2.3 of this Regulation. f) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to MCR 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. g) 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 COD of the last unit of the generating station shall be considered as the COD 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: h) 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 the 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. i) If SLDC, notices any deficiency in the trial run, it shall be communicated to the generating company within seven days of receiving the generation data based	

	on the trial run. j) Scheduling shall commence from 00:00 hrs after the declaration of COD.	
31.2.3	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 MCR 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 at maximum rating or installed capacity or nameplate rating for a continuous period of 12 hours: Provided that: a) Short interruptions, for a cumulative duration of four hours, shall be permissible, with a corresponding increase in the duration of the test. cumulative interruptions of more than four hours shall call for a repeat of trial operation or trial run. b) 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 the period of interruption and partial loading but including the corresponding extended period. c) Where 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. d) Units of thermal and hydro generating stations shall also demonstrate the capability to raise load up to 105% or 110% of this MCR or installed capacity or the name plate rating as the case may be.	No comments
31.3	**Declaration of date of Commercial operation of InSTS**	
31.3.1	COD in relation to an InSTS or an element thereof shall mean the date declared by the transmission licensee from 00:00 hours 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:	No comments

	a) In case of InSTS executed through TBCB, the transmission licensee shall declare COD of the InSTS in accordance with the provisions of the Transmission Service Agreement (TSA). b) 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 TBCB, the concerned generating company and Transmission Licensee shall endeavour to the Commission, the generating station and the transmission system simultaneously as far as practicable and shall ensure the same through appropriate Implementation Agreement in accordance with relevant provisions of MERC (Terms and Conditions of Tariff) Regulations, 2019 or any subsequent amendment or re-enactment thereof. In case the transmission line or substation dedicated to a generator is being implemented through TBCB, then matching of commissioning of the transmission line/substation and generating station shall be monitored by the CEA. c) 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 TBCB, 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 and shall ensure the same through an appropriate implementation agreement. Where either of the transmission systems or both are implemented through TBCB, the progress of implementation of the transmission systems in a matching time schedule shall be monitored by the CEA. d) In case a transmission system or an element thereof is prevented from regular service on or before the Scheduled COD for reasons not attributable to the transmission licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system of other	

	Transmission Licensee, the Transmission Licensee shall approach the Commission through an appropriate application for approval of the COD of such transmission system or an element thereof. Provided that, the Transmission Licensee while executing the Transmission, System shall endeavour to match the construction schedule of the generator or downstream network as the case may be to avoid the idling of the assets. Provided further that, in case of an existing Transmission Licensee, such request may be included as part of its Multi Year Tariff (MYT) Petition or Mid-Term Review Petition or True-up Petition to be filed under MYT Regulations; e) An element shall be declared to have achieved COD only after all the elements which are pre-required to achieve COD as per the TSA are commissioned. In case any element is required to be commissioned prior to the commissioning of the pre-required element, the same can be done if CEA/STU confirms that such commissioning is in the interest of the power system. f) Transmission Licensee shall submit a certificate from the Director/Senior officer of the company that the transmission line, substation and communication system conforms to the relevant provisions of MEGC and other Standards specified by the Authority.	
31.3.2	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 the continuous flow of power, and communication signal from the sending end to the receiving end and with the requisite metering system, telemetry and protection system in service enclosing certificate to that effect from the SLDC.	No comments
31.3.3	COD in relation to a communication system or an element thereof shall mean the date declared by the Transmission Licensee from 00:00 hour of which a communication system or element thereof shall be put into service after the completion of site acceptance test, including the transfer of voice and data to the respective control centre as certified by the SLDC	It doesn't provide regulations regarding the Date of Commercial Operation and trial run procedure for RES stations. Regulation 31 should additionally provide regulations regarding De-Commissioning and procedures for the same to facilitate retirement of generating units

		It is suggested that in addition to this provision for COD declaration of RE generator shall also be mentioned in present grid code. We had also requested Expert Committee on IEGC to make suitable provision for CoD declaration of Re generator. Accoridingly Expert Committee on IEGC in Draft IEGC 2020 has made following provision **(*4) Wind/Solar/Storage/Hybrid generating station*** *(a) Date of commercial operation in case of units of a renewable generating station aggregating to 50 MW and above shall mean the date declared by the generating company after undergoing successful trial run and after getting clearance from the respective SLDC/RLDC.* *(b) The generating company shall certify that the generating station including main plant equipment such as wind turbines/solar inverters, auxiliary systems, as the case may be, has complied with all relevant provisions of CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 and CERC approved 'Procedure for implementation of the Framework on Forecasting, Scheduling and Imbalance handling of Renewable Energy Generating Stations including power parks based on Wind and Solar at inter-state level'. (Refer **Annexure - 8**). The certificates as mentioned above shall be duly signed by the MD/CEO/CMD of the generating company.* *(5) All generating companies shall declare the Date of Commercial Operation of unit or plant thereof within fifteen (15) days from the date of clearance by RLDC/SLDC.* *(6) Scheduling of generating unit/station shall start from 0000 hours of the date of declaration of Commercial Operation.*

		On Similar Line, procedure for Declaration of COD of RE Generators shall be made in present State Grid code.
31.3.4	In the event of any dispute regarding the CoD declaration, the SLDC's certification shall prevail. Provided that, in the event of inconsistency between the provisions relating to the trial operation and commercial operation as specified in these regulations and the provisions of MERC (Terms and Conditions of Tariff) Regulations, 2019 or any subsequent enactment thereof, the provisions of these regulations shall prevail	No comments
32	**Demonstration of DC of the Generating Units in the State:**	
32.1	SLDC may ask the generating station/Units connected to InSTS (excluding renewable energy generators) to demonstrate the maximum DC of generating Unit for the day or generation schedule for the particular time block, particularly under the following circumstances: 32.1.1. In case the schedule by generator for a particular Unit during peak hours is lower than off-peak hours; 32.1.2. In case the schedule for a particular generating unit during the low demand period during the year is higher than the generation schedule during the high demand period during the year; 32.1.3. In case the variation in minimum and maximum generation schedule by any generator for a particular generating unit during various time-blocks of the day is more than 30% of contracted capacity; 32.1.4. In case of the request by contracted distribution licensee; 32.1.5. At the discretion of the SLDC on random basis at any time which shall not be more than once every quarter. (Explanation – For the purpose of these Regulations, the number of hours of "peak" and "off-peak" periods during a day shall be four and twenty respectively. The hours of peak and off-peak periods during a day shall be declared by the SLDC at least a week in advance. The high demand season (period of three months, consecutive or otherwise) and low demand season (period of remaining nine months, consecutive or otherwise) in the State	The Generator Declares capacity which became schedule only after SLDC Dispatch instruction. Hence the word "schedule" appearing in sub-clause 32.1.1 to 32.1.3 shall be replaced with word " DC". Further following clause shall be added under circumstances liable for DC demonstration. ***1. In case of variation in DC of generator who has declared its DC under fuel shortage*** **Reason:** As per provision in IEGC under clause 6.5(21), the schedule of thermal generating station indicating fuel shortage while intimating the declared capacity to RLDC shall not be revised except in case of forced outage of generating unit. It is observed in past that generating unit having coal shortage were declaring higher DC, particularly during expected backdown period ***2. In case, it is observed that generator is continuously declaring higher DC on dayahead basis and revising same in real time operation by downward revision*** **Reason :** It is observed in case of some thermal station that dayahead DC declared is on higher side which subsequently revised in realtime in anticipation of pick up instruction. Reduction in DC in realtime basis, hamper the power planning

shall be declared by the SLDC, at least six months in advance.

Provided that the SLDC, after duly considering the comments of the concerned stakeholders, shall declare peak hours and high demand season in such a way as to coincide with the peak hours and high demand season of the State).

of DISCOM and which result in scheduling of costly power, overdrawal from grid, use of unplanned Hydro & load curtailment etc. The difference between Dayahead & Final DC of some of station observed in month of Nov-2019 is as under:

Date	Station Name	DA DC in Mus	FINAL DC in Mus	DIFF in Mus	% Deviation
11-02-2019	BHUSAWAL-4 & 5	22.56	19.77	2.79	12.37
11-06-2019	BHUSAWAL-4 & 5	22.56	18.77	3.79	16.79
11-01-2019	KORADI- 8 to 10	37.51	33.78	3.74	9.96
11-02-2019	KORADI- 8 to 10	36.38	32.43	3.96	10.88
11-03-2019	KORADI- 8 to 10	36.38	30.41	5.97	16.41
11-04-2019	KORADI- 8 to 10	36.38	33.06	3.33	9.15
11-05-2019	KORADI- 8 to 10	39.82	34.83	4.99	12.53
11-06-2019	KORADI- 8 to 10	38.66	31.33	7.33	18.97
11-07-2019	KORADI- 8 to 10	36.38	32.30	4.09	11.23
14/11/2019	KORADI- 8 to 10	34.13	31.09	3.04	8.89

3. Frequent upward revision on reason of improvement in coal quality and downward revision on poor coal quality

		or wet coal **Reason :** It is observed in monsoon period, that generator in anticipation of backdown or after backdown instruction, give upward revision in DC on reason of improvement in coal & downward revision on anticipation or after pick up instructions on reason of poor coal quality or Wet coal. To arrest such mis-declaration from generating unit, such provision is required. As an example, the sample DC declaration of Bhusawal U-4&5 is attached herewith as Annexure-E. It can be observed that DC of 695 MW was declared from 72 to 96 time block of 1st Nov 2019 and DC of 940MW was declared for 1st time block of 2nd Nov 2019 which was not revised in real time even when it is practically impossible to ramp up by 145MW in single time block. Similar types of incidences also observed in case of APML & MSEDCL vide letter dated 24.07.2018 informed to avoid such frequent revision in DC. The copy of letter addressed to APML is also attached herewith as Annexure-F Further Hon'ble commission is also requested to make necessary provision in regulation for declaration of DC based on coal stock In Past it is observed that in case RPL, unitNo-1 was withdrawn under coal shortage since 01.05.2018 and zero schedule was given to Unit No-3 on 26.06.2018. The coal stock available with RPL was sufficient for 2.44 days. However, RPL declared DC of Unit No-1 from 00:00 Hrs on 30.06.2018 which was withdrawn for coal shortage, although coal stock was 3.63 days. **Guideline for monitoring of coal stock at Power Plant on Daily basis, By CEA** ***3. Coal stock norms (Normative Coal Stock)***

The normative coal stock is to be calculated based on coal requirement at 85% PLF .The Norms for number of days of coal stock to be kept in power plant depends of distance of power plant from mine head are as per details given below:

Distance of Power plant	***Number of days of stock***
Pit Head station	*15*
Upto 500Km away from coal mine	*20*
Upto 1000Km away from coal mine	*25*
Beyond 1000KM away from coal mine	*30*

4.Criteria for critical & supercritical coal stock

The coal stock at power plant is categorised as critical & supercritical coal stock Based on following criteria.

Criticality	***Plants***	***Criteria***
Critical stock	*Pit Head Plants*	*Coal Stock less than 5 Days*
	Non-Pit Head Plants	*Coal Stock less than 7 Days*
Super Critical stock	*Pit Head Plants*	*Coal Stock less than 3 Days*
	Non-Pit Head Plants	*Coal Stock less than 4 Days*

As per CEA norms for coal stock, in case thermal station with non pit head , coal stock of less than 7 days is considered as critical.

RPL inspite of aware of said provision, declared DC for unit which was under fuel shortage only after receipt of zero schedule for Unit no3. The MSEDCL also taken up said issues with RPL . The copy of letter dated 24.07.2018 is attached herewith as annexure-G.

The RPL in reply inform that "*CEA norms are for monitoring purpose only to ensure power plant is generating through out the year. There is no nexus between schedule submitted by generator to DISCOM/SLDC and CEA norms for coal stock at plant ". The copy of letter of RPL dated 01.08.2018 is attached herewith.*

Hence in future to avoid mis-declaration or to take undue advantage of no specific regulation on Coal stock & DC by generator, it is necessary that there shall be norms defined in Regulation on coal stock which shall be considered as fuel shortage and minimum coal stock above which generator can declare maximum DC of all units. It is suggested that CEA guideline for coal shall be used for framing regulation on declaration of DC.

Similarly, minimum water stock (sufficient in nos of days terms to run station) required to declare DC also needs to be defined in Regulation. In recent time it was observed that DC was declared by Parli U-6 & 7 even when water stock was not available to run the plant. These units were withdrawn under zero schedule. However when MSEDCL given request to issue schedule to Parli U-7, the said unit was hardly run for 68 hours when unit was withdrawn by generator under Water shortage issue. Looking into water Shortage problem of Parli U-7, MSEDCL given schedule to Parli U-6 but said unit also informed its inability to bring unit due to water shortage.

Unit	Under Zero Sch. From	Schedule Given on	Synch	Remark
Parli U7	15.02.2019	22.06.19	22.06.19	Withdraw

<table>
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<table>
<tr><td></td><td></td><td>at 02:00</td><td>@11.53 Hrs</td><td>on water shortage on 25.06.19 at 8:00 Hrs</td></tr>
<tr><td>Parli U6</td><td>12.12.2018 from 00:00 hrs</td><td>25.06.19 from 18.30</td><td>No</td><td>Informed water shortage</td></tr>
</table>
The email correspondence is attached herewith as Annexure-H
This means that these generating units without having sufficient water stock to run plant , was declaring DC when under Zero schedule, knowing that MSEDCL is having surplus power to meet demand & there would be less probability of having schedule from MSEDCL.
In order to curb such incidence in future of taking undue advantage of zero schedule , there needs to be Water Stock norm specified for DC declaration.
</td>
</tr>
<tr>
<td>32.2</td>
<td>Detailed Procedure for Demonstration of DC of generating units is enclosed as Annexure-3 with these Regulations</td>
<td>Comments given in Detailed Procedure for Demonstration of DC of generating units.</td>
</tr>
<tr>
<td>32.3</td>
<td>If generator unit is unable to ramp up the under circumstances specified above, such instance will be considered as misdeclaration by the generator and the penalty as per the provisions of MYT Regulations shall be made applicable. For generating units whose Tariff is being determined by the Commission under Section 62 of the EA 2003, the penalty shall be as per the MYT Regulations and for the Generating Units having PPAs entered into under Section 63, the penalty shall be as per the provisions of PPA or as per following conditions, whichever is higher:
(a) In the event of the Generating Company failing to demonstrate the declared capacity, the Annual Fixed Charges due to Generating Company shall be reduced as measure of penalty</td>
<td>No comments</td>
</tr>
</table>

	(b) 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 (c) For the second mis-declaration, the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations in the year, the penalty shall be multiplied in the geometrical progression.	
32.4	The generator which fails to demonstrate the DC shall require to re-demonstrate the DC for which it had failed to demonstrate with prior request to SLDC and concerned beneficiary as per the detailed procedure. Provided that, such generator shall not be allowed to request for re-demonstration of DC on the same day. Provided further that the SLDC shall cap the DC of such generator to the actual generation demonstrated during test for the remaining time-blocks of that day or till such time the generator re-demonstrate the higher DC than the actual generation demonstrated during testing. Provided further that the costs associated with re-demonstration of DC shall be borne by such Generator.	The re-demonstration of higher DC by generator shall be on next day only and with prior intimation to both SLDC & contracted DISCOM atleast 10 time block in advance. This is because, as per 6th amendment of IEGC, regional Entity(in Maharashtra, MSEDCL) can make revision in schedule of contracted ISGS generator from 8th time block. If InSGS generator re-demonstrate DC any time during this period, it will affect power planning of DISCOM and decision taken thereof and will also impact purchase of power or sale of power in market through RTM.
32.5	SLDC shall prepare the report of such instances of misdeclaration in the format enclosed as Annexure-6 and publish the report on its website. SLDC shall send the report to the concerned Distribution Licensee having PPA with the Generating Unit on a monthly basis, by 5th of every month	No comments
33	**Principles of Merit Order Despatch for Operation of InSGS Connected to InSTS**	
33.1	SLDC is responsible for coordinating the scheduling of Buyers and Sellers within its control area. SLDC shall also be responsible for Preparation of Merit Order (MOD) Stack for Day Ahead scheduling process for each month considering the principles specified in the MERC DSM Regulations and the Principle specified in this MEGC as amended from time to time	

33.2	SLDC shall prepare Buyer wise MOD Stack for day-ahead scheduling process and centralised MOD Stack for intra-day operation considering the principles specified in the MERC DSM Regulations and Scheduling and Despatch Code under the SGC by the Commission.	As per Scheduling & Dispatch code, SLDC is required to schedule power on decentralised MoD principle. It is expected that MSLDC shall develop the system to monitor & control real time deviation of individual state Entity. In Past , there are several instance of overdrawal of Indian Railway in event of tripping of units of RGPPL or BRBCL but instead of any action on said defaulting DISCOM, SLDC had used MSEDCL contracted generation Hydro i.e Koyna or given pick up instruction to generator (not contracted with Indian Railway) to match state Load Gneration balance or in other word to control overdawl of Indian Railway. Such instances also noticed in respect of Deemed Distribution licensee, which MSEDCL already brought to notice of Hon'ble commission through its petion on standby Charges for SEZ & Deemed Distribution Licensees. Till date, SLDC has only taken action for managing State UI/Deviation and neither for controlling individual DISCOM UI or generator UI, for which MSEDCL has several times given email to SLDC. Such action of MSLDC is directly affecting MSEDCL as it's contracted resources are being used for other DISCOM. The MSEDCL has several times requested MSLDC to develop such screen to monitor individual DISCOM wise Deviation but action in the matter still pending. **The copy of one such letter is attached herewith as Annexure-I.** It is not possible that all generators including RE will maintain generation as per day ahead schedule & there will not be any deviation from generator. Hence there is most probability that deviation at state level goes beyond +/-250 MW. Further the said deviation limit is only applicable when frequency is within IEGC band which is at present 49.95 to 50.05 Hz. Hence SLDC will be required to take action for state deviation as per frequency, which is not under control of any State. Hence if SLDC is permitted to operate centralised MOD only on condition of state Deviation limit

		exceeding +/-250 MW or based on frequency, it will not be appropriate. Unless SLDC monitor individual deviation & instruct concern to control individual deviation, state deviation will not be within limit. Hence SLDC needs to first control deviation of individual and only in case of system contingencies (like relieving congestion on transmission line/substation, frequency drops below 49.75 HZ or frequency increase above 50.05 HZ) as mentioned in regulation, MSLDC shall take suitable measures under centralised MOD, in the interest of reliable and safe grid operations and to ensure compliance of WRLDC instructions in conformity with the provisions of the CERC DSM Regulations and the amendments thereof. At regional level also WRLDC not only monitor deviation on interregional points but also monitor individual state deviation and if any state deviate beyond permissible state volume limit or violating provision under CERC DSM regulation, issues warning message through auto email and if defaulting entity fails to react, then action is taken such as opening of EHV line etc. In recent past, WRLDC issued one such warning message to Maharashtra and therafter in view of delay in timely action from Maharashtra, WRLDC opened 220KV Wardha Line which is also informed vide emailby WRLDC . Hence it is requested that this provision shall be suitably modified by including following • *During real time operation, in case of any seller deviate beyond its deviation limit, the necessary instruction will be given to said seller to control its deviation.* • *In case of shortfall in availability of any buyer, MSLDC shall first use spinning reserve generation capacity. After use of spinning reserve also, if concern DISCOM is overdrawing*

		from grid, MSLDC shall direct concern DISCOM to arrange the power using means like use of standby arrangement, availing URS, intra day purchase & failure to do so, load curtailment instruction shall be given to bring discipline & to maintain grid security as per Regulation 39.3 of MSGC. Similarly in case of underdrawal of any specific DISCOM, the MSLDC shall give backdown instruction to generator contracted with concern DISCOM only as per decentralized MOD and not all DISCOM's generators • *The MSLDC shall develop the SCADA system to monitor real time deviation of individual state Entity and also develop online auto messaging system to give message to concerned entity violation their respective DSM limit.* • *However in case of system contingencies (like relieving congestion on transmission line/substation, frequency drops below 49.75 HZ or frequency increase above 50.05 HZ) MSLDC shall take suitable measures in the interest of reliable and safe grid operations and to ensure compliance of WRLDC instructions in conformity with the provisions of the CERC DSM Regulations and the amendments thereof. In such case, MSLDC shall issue necessary despatch or curtailment instructions in accordance with Centralised MoD principles for the state as whole, considering the technical constraints such as Ramp rate of generators so as to maintain the Load-Generation balance and comply with conditions stipulated under IEGC and State Grid Code.*
33.3	SLDC shall prepare separate MOD Stack for each Buyer considering the contracts of respective Buyer and least cost principles as specified in the MOD Principles of SGC	No comments
33.4	SLDC shall also prepare Centralised MOD Stack of the generators for real-time	As stated above, it is requested that SLDC shall monitor & control

	operation, in case the grid parameters including frequency, voltage, transmission line loading, substation loading conditions or State volume limits (presently +/- 250 MW) deviate beyond permissible operating range as specified in the Scheduling and Despatch Code.	individual DISCOM deviation as per decentralised MoD principle and only in event of system exigencies case like grid parameters including frequency, voltage, transmission line loading, substation loading conditions or State volume limits (presently +/-250 MW) deviate beyond permissible operating range as specified in the Scheduling and Despatch Code, will operate system as per centralised MoD principle
33.5	For preparation of MoD Stack, seller whose tariff is determined by the Commission or seller whose tariff is adopted by the Commission shall project the unit wise variable charge for the next month for which MoD is to be prepared considering all the possible charges including impact of change in law and submit to the buyer by 11th day of every month in the Format- 5B enclosed as Annexure -8 with these Regulations	No comments
33.6	The seller shall also submit to the buyer, all the computations and supporting documents considered for projection of variable charge for the next month. Provided that, the seller shall consider the variable charge approved/adopted by the Commission and FSA billed during latest month and impact of all the change in laws already approved by the Commission and projected impact on the variable charge on account of change in law by various authorities.	No comments
33.7	The buyer shall verify the variable charge submitted by seller and submit to the SLDC for preparation of MoD stack by 14th day of every month with intimation to seller with whom it has PPA in the Format- 5B enclosed as Annexure-8 with these Regulations	No comments
33.8	SLDC shall prepare the MoD Stack on the 15th day of every month, which would be effective from the 16th day of the month till the 15th day of the subsequent month unless revised by SLDC. SLDC shall upload the monthly MoD Stack on its website by 15:00 hours on the 15th day of every month in the Format- 5B and Format-6B enclosed as Annexure -8.1 and Annexure-8.2 with these Regulations	No comments
33.9	MoD Stack uploaded on the 15th of the month may be subsequently revised by SLDC in the following circumstances: a) Commencement of supply of power by a Generating Unit under a new	No comments

	arrangement/agreement, b) Revision of Variable Charges for preparing the MOD Stack due to Tariff Order issued by this Commission for State Generating Stations or the CERC for Central Generating Stations, c) Impact of Change in Law in the PPAs as notified by the Distribution Licensee.	
33.10	The Commission shall scrutinise and ascertain the variations, if any, from the basis of projection of variable charge during prudence check at the time of truing up of Generating Stations whose tariff is determined by the Commission and in case of claims for revision in Variable Charge on account change in law in case of generating stations whose tariff is adopted by the Commission Provided that, during prudence check if the Commission observes that, the seller has not considered the impact of change in law in existence at the time of projection of variable charge for MoD purpose, the Commission shall disallow the same. Provided further that at the time of true-up of power purchase cost of Buyers, the Commission shall consider the adherence to MoD principles followed by Buyers and due diligence exercised by the Buyers on claims of projected variable charges as estimated by Sellers to ensure overall efficacy of the power procurement by Buyers.	No comments
33.11	For Central Section Generating Stations (CSGS), the Variable Charge for MOD purposes shall be the landed variable cost at the State periphery for the immediately preceding month, including the injection losses, drawal losses of CTU and other such charges like Electricity Duty Cess of exporting State	In case of Intra State generator, it is proposed to consider projected variable cost in MoD and in case of ISGS, N-1 month actual landed variable cost will be considered. It is not clear why there is different philosophy /Principle is applied for MoD principle. It is suggested that principle applied to both InSGS as well as ISGS shall be same & same shall be based on actual N-1 month variable rate. If any generator fail to provide its variable rate for N-1 within time frame i.e before 14th of month , then any financial impact of account of such non communication needs to pass on to concern generator only
33.12	The Seller shall consider impact of Change in Law in the Variable Charge that it	No comments

	intimates to Buyer and Buyer to SLDC for preparation of the MOD Stack. However, the payments for such Change in Law claims will be made by the Buyer to Seller after the approval of the Commission in accordance with the provisions of the MYT Regulations or provisions of PPA	
33.13	For Intra-State Open Access transactions having single part tariff, total tariff shall be considered as Variable Charge for MOD purpose.	No comment
33.14	The Variable Charges for MOD purposes shall be provided up to four decimal places.	No comments
34	**Technical Minimum Schedule for Operation of InSGS Connected to InSTS**	
34.1	Technical minimum for operation in respect of a unit or units of InSGS shall be 55% of MCR loading or installed capacity of the unit of generating station. Provided that, deviation from the above provision may be considered by the Commission on case to case basis subject to certification from the Original Equipment Manufacturer (OEM) of generating plant with supporting document.	As per latest CEA flexibilization of power plants report, generating stations are being tested for technical minimum at 40%. MERC may similarly encourage operation of thermal power plants at 40% technical minimum. At present there is no compensation mechanism for part loading upto 70% of MCR loading. Hence if any generator submit its unbilty to for compliance of this regulation, the compensation for part loading of such generators shall not be worked out as per methodology finalised in annexure -4 of this state Grid Code
34.2	InSGS 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 buyer.	
34.3	InSGS, who will be directed by SLDC to operate below normative plant availability factor but at or above technical minimum, shall be compensated depending on the Average Unit Loading (AUL) 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 Provided that no compensation for SHR degradation or increase in AEC shall be	Although it is mentioned at second para that no compensation for SHR degradation or increase in AEC shall be payable if the AUL for the generating station for the computation period works out to be more than or equal to 70%, but in subsequent tables compensation for Heat rate as well as AEC even between 85 to 75 % loading is given. Hence correction is needed in said table., wherin for Unit loading between 75 to 85% shall also be considered as NIL

<table>
<tr><td></td><td>payable if the AUL for the generating station for the computation period works out to be more than or equal to 70%.</td><td></td></tr>
<tr><td></td><td>Provided further that:
a) In case of coal/lignite based generating stations, following station heat rate degradation or actual heat rate, whichever is lower, shall be considered for the purpose of compensation:
<table>
<tr><th>Sr. No.</th><th>Unit loading of Installed Capacity of the unit (%)</th><th>Increase in SHR (for supercritical units) (%)</th><th>Increase in SHR (for sub-critical units) (%)</th></tr>
<tr><td>1</td><td>85- 100</td><td>Nil</td><td>Nil</td></tr>
<tr><td>2</td><td>75- 84.99</td><td>1.25</td><td>2.25</td></tr>
<tr><td>3</td><td>65- 74.99</td><td>2</td><td>4</td></tr>
<tr><td>4</td><td>55- 64.99</td><td>3</td><td>6</td></tr>
</table>
b) In case of coal/lignite based generating stations, the following Auxiliary Energy Consumption degradation or actual, whichever is lower, shall be considered for the purpose of compensation:
<table>
<tr><th>Sr. No</th><th>Unit Loading (% of MCR)</th><th>Degradation in AEC admissible (%)</th></tr>
<tr><td>1.</td><td>85 – 100</td><td>NIL</td></tr>
<tr><td>2.</td><td>75 - 84.99</td><td>0.35</td></tr>
<tr><td>3.</td><td>65 - 74.99</td><td>0.65</td></tr>
<tr><td>4.</td><td>55 - 64.99</td><td>1.00</td></tr>
</table></td><td></td></tr>
<tr><td>34.3</td><td>c) Where the scheduled generation falls below the technical minimum schedule, the concerned InSGS shall have the option to go for Reserve Shut Down (RSD) and in such cases, start-up fuel cost over and above seven start/stop in a year shall be considered as additional compensation based on the following norms or actual, whichever is lower:</td><td>Presently in State Uran Gas station and TPC Unit -7A & 7B as Gas based Thermal Station . Although both station listed in MoD stack but during real time operation both station are not subject to Backdown from SLDC.
However lower Gas availability , Average unit loading of these stations may go below 70% during the month. The DISCOM are no</td></tr>
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<table>
<tr><th rowspan="2">Unit Size (MW)</th><th colspan="3">Oil Consumption per start-up (Kl)</th></tr>
<tr><th>Hot</th><th>Warm</th><th>Cold</th></tr>
<tr><td>200/210/250 MW</td><td>20</td><td>30</td><td>50</td></tr>
<tr><td>500 MW</td><td>30</td><td>50</td><td>90</td></tr>
<tr><td>660 MW</td><td>40</td><td>60</td><td>110</td></tr>
</table>

d) In case of gas-based InSGS, compensation shall be decided based on the characteristic curve provided by the manufacturer and after prudence check of actual operating parameters of Station Heat Rate, Auxiliary Energy Consumption, etc.</td>
<td>way responsible for such less average loading . Hence it is requested that Compensation for gas station shall not be worked out till these station are operated at 55% Technical Minimum from SLDC as per MOD principle of operation.</td>
</tr>
<tr>
<td>34.3</td>
<td>e) Compensation for the Station Heat Rate and Auxiliary Energy Consumption shall be worked out in terms of energy charges</td>
<td>If we assume that there are two units where Average unit loading worked out as 64% and other as 55%. Then as per table mentioned in clause 34.3 (a) , compensation will be 6 % for both units assuming both units are sub-critical units.
This method doesn't look appropriate. Hence in DRAFT IEGC-2020, Expert Committee on Review of IEGC has suggested different methodology. Following methodology is specified in Draft code which is reproduced as under :

For instance, if SHR and AEC have to be calculated for a sub-critical plant unit operating
at 77% loading factor, the methodology shall be as follows:
(a) Station Heat Rate:
Degradation in station heat rate at 80% + pro-rate degradation at 77% calculated between 80% and 75%
= [0.76 + (1.45-0.76)] * 3÷5 = 1.17%
(b) Auxiliary Energy Consumption:
Degradation in AEC at 80% + pro-rate degradation at 77% calculated between 80% and 75%
= [0.10 + (0.25-0.1)] *3÷5 = 0.19%
Considering same aspect, if we compute SHR in our above case, then it would be as under</td>
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<tr>
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<td></td>
<td>
<table>
<tr><td></td><td>Unit-A</td><td>Unit-B</td></tr>
<tr><td>AUL %</td><td>64%</td><td>55%</td></tr>
<tr><td>Degradation in SHR @ 65-70%</td><td>4</td><td>6</td></tr>
<tr><td>Degradation in SHR @ 55-65%</td><td>6</td><td>6</td></tr>
<tr><td>Computed Degradation in SHR</td><td>=4+(6-4)*1/10

=4.2</td><td>=4+(6-4)*10/10

=6</td></tr>
</table>

Hence it can be seen that there is large difference in compensation for SHR degradation.
In view of above, it is suggested to adopt above methodology to compute SHR for AUL falling between Range of SHR.</td>
</tr>
<tr>
<td>34.3</td>
<td>f) The compensation so computed shall be borne by the entity who has caused the plant to be operated at schedule lower than corresponding to the normative plant. Availability Factor up to technical minimum based on the compensation mechanism specified by the Commission as Annexure-4 with these Regulations.
g) No compensation for Heat Rate degradation and Auxiliary Energy Consumption shall be admissible if the actual Heat Rate and/or actual Auxiliary Energy Consumption are lower than the normative Station Heat Rate and/or normative Auxiliary Energy Consumption applicable to the unit or the generating station.
h) There shall be a reconciliation of the compensation at the end of the financial year in due consideration of actual weighted average operational parameters of Station Heat Rate, Auxiliary Energy Consumption and Secondary Oil Consumption.
i) No compensation for Heat Rate degradation and Auxiliary Energy Consumption shall be admissible if the actual Heat Rate and/or actual Auxiliary Energy Consumption are lower than the normative station Heat Rate and/or normative Auxiliary Energy Consumption applicable to the unit or the generating station in a month or after annual reconciliation at the end of the year.</td>
<td>The compensation to Thermal Unit due to operation under centralised MoD principle from SLDC shall be also calculated and same shall be paid from state DSM pool.
As regional level, NLDC is implementing “ Security Constraint Economic Dispatch (SCED)” wherein National level MoD principle is used for rescheduling of generator to optimise cost of generation. In said concept also, compensation to generator due to part loading is worked out & payment is made from SCED pool.</td>
</tr>
</table>

34.4	In case of a generating station whose tariff is neither determined nor adopted by the Commission, the concerned generating company shall have to factor the above provisions in the PPAs entered for sale of power to claim the compensation for operating at the technical minimum schedule	At present at regional level, there is no provision for computation of compensation due to part loading in respect of generator providing power under Short term either through bilateral or collective transaction. It is suggested that at State Level also, such generator shall be excluded. The some of reason for exclusion are as under 1. Merchant generator is expected to bid considering all market & operating threats like lower scheduling than contracted . 2. Under standard document for STOA Purchase by PFC, there is provision of penalty in case total take from generator is less than 85%. 3. If there is no sufficient schedule to merchant generator to meet its Technical Minimum, generator takes out unit from grid. If this is considered as Zero schedule (as DISCOM schedule become zero after lapse of contract period), then DISCOM will also required to pay compensation to merchant generator , which is not actual zero schedule given by DISCOM. 4. At present, mechanism of compensation for part loading at central level , although it is mentioned that said mechanism is also applicable in respect of generator whose tariff is not determined by CERC but there is no clarity whether to give compensation to generator having PPA is only under Long term, / medium term(where fix cost is part of tariff) or generator having PPA under Short term also eligible. There are many LTA/MTOA whose tariff is not determined by CERC, like in case of Maharashtra GMR Warora (EMCO)but scheduling is from RLDC . Now as per this mechanism also, said generator is not covered as it is not InSTS connected generator. The said generator at present not following ISGS

		provision of 55% Technical Minimum. In view of same, it is proposed to delete this clause
34.5	The generating company shall keep a record of the emission levels from the plant due to part load operation and submit a report for each year to the Commission by 31st May.	No comments
34.6	The mechanism for compensation for station heat rate and auxiliary energy consumption for low unit loading on monthly basis in terms of energy charges and compensation for secondary fuel oil consumption over and above the norm of 0.5 ml/kWh for additional start-ups in excess of seven start-ups, is enclosed as Annexure-4 with these Regulations	Comments given on the mechanism for compensation of Annexure-4
35 **Guidelines for 'Zero Schedule' for InSGS Connected to InSTS**		Regulation 35 is flawed and should be removed a. Guidelines should not be treated as regulations and thus should not be a part of the Grid Code b. Due to increasing RE and corresponding must run status, there will be increased instances of backing down. Discoms should not be liable to bear the costs on account of such backing down c. Discoms have to demonstrate resource adequacy for all time blocks. Owing to high RE, discoms will have to enter into PPAs to ensure optimal generation mix. Thus, any implication of zero scheduling without backing down will only increase the financial burden on the discoms d. It has been stipulated that distribution licensee shall give prior notice of 24 hours. This is not possible as revision of schedules is allowed upto 4 time blocks before the actual delivery. e. The generator should have an uptime of 8 hours to come on bar. This necessitates flexibility

		f. As per CEA Construction standards, thermal generators should be capable of load cycling and two shift operations. The current regulations go against the requirement of flexible operations in the current RE scenario
35.1	In case of anticipated generation availability in surplus of anticipated demand, the Distribution Licensees need to optimise their cost of power procurement considering the contracted sources for the period of anticipated surplus	No comments
35.2	The distribution licensee shall ensure that, there shall not be any adverse impact on its power procurement cost on account of zero scheduling of contracted generator. Provided that, the Commission shall verify the decisions of zero scheduling of unit vis-à-vis power procurement cost from alternate sources during trueing up of ARR of distribution licensee	The zero schedule is presently being implemented by MSEDCL only. The main reason is due to huge variation in peak demand & minimum demand on hourly basis as well as seasonal basis. This year peak demand of 21570MW recorded in month of Feb-2020 and minimum demand of 9390MW recorded in Oct-2019. This means that difference of more than 50% between minimum & Maximum demand. Moreover there is seasonal variation in Wind & Solar generation. The present contracted capacity which is under MOD is 20750 MW & with 70% technical minimum, MSEDCL can achieve about 14,500MW minimum demand. Hence when demand falls below 14,500MW, unless Unit are taken from bar, it will not possible to meet minimum demand to extent of 9000MW or so. Hence it can be seen that to cope up with all these variation in demand pattern & variation in RE generation, DISCOM in order to make economic Load generation balance as well to optimise power purchase cost, needs to take units under zero schedule. The decision of zero scheduling not only depend on forecasted demand & forecasted availability from RE like Wind & Solar but also depends many other factors such , expected rate of power from Market (which depends on demand & supply of power in Market) availability from conventional generator tie up under long term, medium term as well short term, congestion etc. These parameter

		may affect decision taken for zero scheduling on any odd day but as decision are continuously monitored, corrective action is initiated on daily basis. If zero scheduling tool is not used by MSEDCL, then in even after curtailment of RE generation, load generation will not be possible for DISCOM & it will be also difficult for SLDC to manage underdrawal in the system on account of constraint in conventional thermal generator of technical minimum. The revision in technical minimum will not only increase flexibility but will also help DISCOM to reduce power purchase cost as about 15% more backdown in costly station leads to pick of cheap station.
35.3	If the anticipated generation availability is more than the anticipated demand, the Distribution Licensee in consultation with SLDC may consider giving Zero Schedule (ZS) to some of its contracted sources for the period during which the demand is expected to be lower than the total contracted sources availability put together	No comments
35.4	SLDC shall provide its concurrence to the proposed "Zero Schedule" by Distribution Licensee considering the demand-supply position and transmission constraints.	No comments
35.5	If grid constraints prevent the Zero Scheduling of the Unit with the highest Variable Charge in the MOD Stack, the Unit with the next highest Variable Charge needs to be considered. However, SLDC shall publish the details of such grid constraints on its website, along with the period for which it is likely to persist.	The transmission constraint of Nashik –Babhalwshwar Line is persisting since long period and due said problem, MSEDCL is required to keep two units of Nashik station on bar . This has been happening since long but action required from STU is not being taken even after said issue is discussed in many coordination meeting at higher Level. Due to such scheduling of high cost generation, consumer of MSEDCL unnecessarily being burden with high power purchase cost for delay from STU end and there is no financial implication to STU for said transmission constraint. MSEDCL started implementing zero schedule concept since January 2016, but till date there is no concrete action on resolving transmission constraint from STU . Hence it is suggested that Commission shall specify Standard of Performance to transmission

		Licensee & failure to take corrective action, penalty shall be imposed on concern Transmission Licensee. For Example in case of Nashik, differential cost between Nashik & zero schedule unit shall be imposed as a penalty.
35.6	The distribution licensee shall give the generator 24 hours prior notice of the Zero Scheduling to enable it to take steps for smooth removal of the Unit from the Grid	At present MSEDCL is giving intimation of zero schedule with notice of 8 Hrs. As per RSD procedure at Regional level approved by CERC, there is specific procedure. The relevant provision of said procedure is reproduced below: ***5. Methodology for taking generating station or unit(s) thereof under Reserve Shut Down (Day Ahead Scheduling)*** *5.5. If the net EX-PP injection schedule for a generating station is less than technical minimum, the beneficiaries shall be required to review their requisition(s) and submit a revised requisition(s), by 2000 hours of current day (D-1) to the concerned RLDC.* *5.6. Based on the revised requisitions received up to 2000 hours of current day (D-1), RLDC shall prepare revised injection schedule for the concerned generating* *station. If the scheduled injection is still less than technical minimum, RLDC shall review the anticipated demand pattern based on the demand forecast and* *grid conditions to decide on the requirement of providing technical minimum schedule to the generating station.* *5.8. If the grid conditions do not demand for providing technical minimum to a generating station, the concerned RLDC shall issue R-1 schedule based on the* *requisitions received. Under such situation, the generating station shall have the option to go for RSD with intimation to RLDC latest by 2100 hrs.* ***6. Methodology for taking generating station or unit(s) thereof under Reserve Shut down (Real Time Schedule Revision)***

		6.1 A beneficiary can surrender its part or full entitlement during the day of operation in accordance with the relevant provisions of Grid Code. *6.2 In case, the schedule of a generating station goes below technical minimum, due to this surrender of power:* *6.2.1 RLDC may provide technical minimum schedule considering the system conditions in accordance with Regulations 6.5.14 and 6.5.20 of the Grid Code.* *6.2.2 In case the system condition does not require, RLDC shall direct the generating station to take any unit or the generating station under RSD. In such a scenario, RLDC shall display the station likely to go under RSD on its website. In case, the schedule is still less than the technical minimum and generating station decides to take a unit(s) under RSD, it shall inform the same to concerned RLDC.* *Further under procedure for taking RSD unit bar, there is following provision* *7.1 Once a unit is taken out under RSD, the generating station shall notify the period for which the unit will remain under RSD and the unit can be recalled anytime after 8 hours. In case of system requirements, the generating unit can be revived before 8 hrs as well.* *From above also it can be seen that for dayahead scheduling generator needs to take out unit for next day after intimation from RLDC at 21:00 Hrs.* *For real time scheduling no specific time is given but being schedule is less than technical minimum, generator withdraw unit under RSD at early as technically possible. The recent email from generator intimating RSD is attached as a sample case under Annexure-J.*

<table>
<tr>
<td></td>
<td></td>
<td>
<table>
<tr><th>Unit No.</th><th>Capacity</th><th>Time of mail requesting for TM support</th><th>Time of Unit taken on RSD Date and Time</th><th>Diff Days Hours</th></tr>
<tr><td>Gadarwara Unit-1</td><td>800</td><td>24-02-2020 11:46</td><td>24-02-2020 12:58</td><td>1:12</td></tr>
<tr><td>KHARGONE Unit -1</td><td>880</td><td>24-02-2020 17:58</td><td>24-02-2020 18:51</td><td>0:53</td></tr>
<tr><td>Mouda Unit-2</td><td>500</td><td>02-01-2020 01:25</td><td>02-01-2020 02:14</td><td>0:49</td></tr>
<tr><td>Gadarwara Unit-1</td><td>800</td><td>18-01-2020 22:53</td><td>19-01-2020 01:32</td><td>2:39</td></tr>
</table>

Further it is also mentioned that once any unit is taken under RSD, generator will specify period for which it will remain under RSD & said unit can be revive anytime after 8 Hours.

Hence it is suggested that present timeline of 8 Hrs intimation shall either be continue or inline with Regional procedure, unit shall be taken under RSD/zero schedule from 00:00 Hrs for next day if on request of DISCOM, SLDC give zero schedule taking into account whether said unit will be required for next day for peak period & DISCOM has sufficient availability to meet peak demand.
</td>
</tr>
<tr>
<td>35.7</td>
<td>In case a particular Unit is, in fact, required to be scheduled during the pre-declared Zero scheduling period, the distribution licensee shall intimate the generator at least 72 hours in advance for the Unit(s) to come on a bar in cold start</td>
<td>The decision of zero schedule is taken based on demand forecast & expected availability from available sources. Hence in case 72 Hrs intimation is given and due to sudden change in weather , demand drops than forecasted of D-3 basis or More than expected RE generation , then decision of revival of units will not be correct. Presently GoI is focusing on increasing RE generation & as recommended in Report of Technical Committee constituted by MoP for Large scale RE integration, flexibility in conventional generator needs to be increase. If we put restriction of 72Hrs in brining unit under zero schedule , we may require to purchase</td>
</tr>
</table>

		power from Market in case outage of large capacity unit like 660MW or force outage of multiple units within 72 Hrs. Further at regional level , there is approved procedure of CERC for taking unit under RSD. The relevant provision is reproduced below ***Methodology for revival of generating station or unit(s) from RSD*** *7.1 Once a unit is taken out under RSD, the generating station shall notify the period for which the unit will remain under RSD and the unit can be recalled anytime after 8 hours. In case of system requirements, the generating unit can be revived before 8 hrs as well. The time to start a machine under different conditions such as HOT, WARM and COLD shall be as per the declaration given by the generating station under the Detailed Procedure for Ancillary Services Operations (Format AS-1 and AS-3 of the said Procedure).* *7.2 One or more beneficiaries of the generating station as well as the generating station may decide for revival of unit(s) under RSD with commitment for technical minimum schedule with minimum run time of 8 hrs for Coal based generating stations and 3 hrs for Gas based generating stations post revival. In such situations, the generating station shall revise the On Bar and Off Bar DC (with due consideration to ramp up/down capability).* *7.3 RLDC may also advise the generating stations to revive unit(s) under RSD for better system operation (IEGC 6.5.20). In such cases, RLDC shall ensure technical minimum schedule by increasing schedule of all the beneficiaries in the ratio of under-requisition.* *7.4 In case the machine is not revived as per the revival time declared by the generating station under different types of start, the machine shall be treated under outage for the*

		duration starting from the likely revival time and the actual revival time. RLDC shall ensure that intimation is sent to the generating station sufficiently in advance keeping in view its start-up time. 7.5. Illustrative diagram showing minimum run time and a flow chart for taking machines under RSD is given at Annexure-I and Annexure-II respectively of this DOP. It can be seen that there is specific time for revival has to be specified by generator to RLDC under different condition of start like hot start, cold start & Warm start. The said time varies from 6 hrs to 24 Hrs under various conditions. The recent declaration by various ISGS generator is attached herewith as Annexure-K. Same is also available at WRPC website at http://www.wrpc.gov.in/Commercial_rras_dat.asp. Hence it is suggested that instead of making intimation time as 72 Hrs , it shall be either kept as 8 Hrs which MSEDCL informed to generator & generator normally brings unit. Otherwise procedure inline with Regional level shall be framed.
35.8	Zero scheduling shall be carried out by the distribution licensee considering its roles and obligations under the corresponding PPAs	No comments
35.9	Any additional cost implication in Variable Charges (by means of inferior norms of operation or minimum fuel off-take conditions) that arises on account of Zero Scheduling shall be borne entirely by such distribution licensee and shall be dealt as per provisions under PPA with generators. Pass through on this count will not be allowed while truing up the power procurement cost	In case of compensation due to frequent start stop, there is provision in Regional level RSD compensation mechanism that cost of secondary oil required for start up after 7 RSD start/stop operation shall be borned by cocern. In line with same, if DISCOM zero schedule instruction to any unit during a year involes more than 7 start /stop operation, then only pass through of such expenditure shall be not allowed . in all other case, pass through shall be allowed as RSD/Zero schedule is being implemented by DISCOM as a cost optimisation methodology & most economic Load generation balance.
36	Guidelines for Instructing RSD of Generating Unit by SLDC	In present draft regulation , following important provisions needs

	36.1 A Reserve margin equivalent to the contracted capacity of the largest Unit of the Power Station, contracted by the Distribution Licensee needs to be maintained 36.2 RSD should be implemented for the capacity available in excess of the largest Unit contracted by the Distribution Licensee. 36.3 RSD should be applied to Units with higher Variable Charges in the MOD Stack, subject to grid conditions permitting the same. 36.4 SLDC shall upload the details of RSD of the previous month on its website by the 3rd of every month in the format provided as Annexure-5 with these Regulations.	to be added 1. No maintenance activities on unit under RSD shall be undertaken by the generating station so that the RSD unit is always readily available for revival/synchronization. If a generating station requires maintenance on any machine under RSD, then the same shall be done in due consultation with SLDC & DISCOM. The DC shall be reduced appropriately. 1. In case the machine is not revived as per the revival time declared by the generating station under different types of start, the machine shall be treated under outage for the duration starting from the likely revival time and the actual revival time. SLDC shall ensure that intimation is sent to the generating station sufficiently in advance keeping in view its start-up time. 2. DC of unit going under Zero schedule will be average DC of last 24 Hours prior to zero scheduling **Reason** : It is observed presently that in absence on any regulatory provision, generator are declaring max Ex bus generation during zero schedule, irrespective whether such DC is attend by said generator atleast once in a last 24 Hrs Although there is provision in revised scheduling and Dispatch code that the seller while making Ex-power plant foreseen generation capability in MW & MWh is also required take into account availability of fuel & water along with foreseen Day ahead capability. During fuel shortage condition, in case of thermal stations, they may specify minimum MW, maximum MW, MWh capability and declaration of fule shortage . But there is no norms have been specified on minimum Water & Fuel requirement for considering declaration of DC and condition which can be term as Fuel & Water shortage.

37	**Voltage Control and Reactive Power Management**	
37.1	Reactive power compensation and/or other facilities shall be provided by the STU/Users, as far as possible, in the areas prone to low or high voltage systems close to the load points thereby avoiding the need for exchange of Reactive Power to/from the InSTS and to maintain the InSTS voltage within the specified range at all the times. Their healthiness and operation as per real time requirement shall be ensured by the User/STU.	The regular review of healthiness of Reactor & Capacitor shall be taken in OCC meeting alongwith its impact on system. This will enable effective focus in bringing reactor/capacitor in service. Further as highlighted earlier Standard of performance for transmission licensee needs to be framed for timely attending problem related to replacement or installation of new reactor or capacitor bank.
37.2	Line Reactors may be provided to control temporary overvoltage within the limits set out in connection agreements	No comment
37.3	The additional reactive compensation to be provided by the User shall be indicated by the STU in the Connection Agreement for implementation	No comments
37.4	Users shall endeavor to minimize the Reactive Power drawal 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 drawal points may be changed to control the Reactive Power interchange as per a User's request to the SLDC, but only at reasonable intervals.	No comments
37.5	Switching in/out of all 400 kV bus and line Reactors throughout the grid shall be carried out as per the instructions of SLDC. Tap changing on all 400/220 kV Interconnecting Transformers shall also be done as per the instructions of SLDC only. The Users already connected to the grid shall provide additional reactive compensation as per the quantum and time decided by the SLDC.	The SLDC shall deliberate needs of additional reactive compensation alongwith list of nodes/substation in OCC meeting.
37.6	Notwithstanding anything above, SLDC may direct the User to curtail its VAr drawal/ injection in case the security of the Grid or safety of any equipment is endangered	No comments
37.7	As per Regulation 70 of the MERC (Multi-Year Tariff) Regulations, 2019, the Generating Station shall inject/absorb the reactive energy into the grid on the basis of machine capability as per the directions of SLDC	.
37.8	Reactive energy exchange, only if made as per the directions of SLDC, for the applicable duration (injection or absorption) shall be compensated/levied by the	As mentioned in Commercial mechanism, generator shall not be paid from pool for providing reactive compensation within its

	SLDC to the generating station as specified in these Regulations	capability curve even in case SLDC instruct the same. There is no such provision at Regional level for payment to ISGS generator for providing required reactive compensation on request of RLDC also. It is duty of generator as per regulation to inject or absorbed reactive power based on bus voltage. Nobody required to be compensated for compliance of regulation, if it has no financial implication on said entity. The payment shall be only be made of generator, in case generator provide reactive compensation beyond its capability curve where it has to sacrifice its active component of power. It is also suggested that wherever such situation occurs, SLDC shall brought to notice of all concern to take effective steps to avoid reactive compensation by generator beyond its capability curve
37.9	The generating station shall change generator transformer taps and generate/absorb Reactive power as per the instructions of SLDC within the capability limits of the respective generating units, i.e., without sacrificing the active generation required at that time. Payments shall be allowed to be paid to the generating stations for such VAr generation/absorption at the generating stations as per the detailed procedure enclosed as Annexure-7 of these Regulations	As per regulation 6.6(6) if IEGC -2010, the ISGS and other generating station connected to regional grid shall generate/absorb reactive power as per instructions of RLDC, within capability limit of respective generating units, that is without sacrificing on the active generation required at that time. No payments shall be made to the generating companies for such VAr generation/absorption. In line with IEGC code InSGS generating station shall be given responsibility to VAr generation/absorption as per instructions of SLDC that too without any payments
37.10	Wind generating stations connected to InSTS shall be capable of supplying dynamically varying reactive power support, so as to maintain power factor of 0.98 (absorbing) at their grid inter-connection point for all dispatch scenarios by providing adequate reactive compensation or as specified by the Authority and the same shall be assumed for system studies.	The Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019 was notified on 6 Feb 2019. This amendment has several provisions in respect of Renewable Energy (RE) generation. The amendments would be applicable to all new generating units commissioned after 6th Aug 2019. Prior to this amendment, one amendment was notified by CEA on 15th Oct 2013 and effective for all units commissioned after 15th Apr 2014.

<table>
<tr><td></td><td></td><td>Considering huge RE capacity additions at state and regional level ensuring adherence and compliance to CEA regulations is need of the hour. Compliance to CEA regulations (Amendments) by RE generators to be monitored as described below and may be adopted at state level also.
As per CEA regulation, “the generating station shall be capable of supplying dynamically varying reactive power support so as to maintain power factor within the limits of 0.95 lagging to 0.95 leading”.
It is suggested that the power factor shall be based on voltage at the respective node ie. In case voltages in below 97% then Wind generator shall maintain 0.98 PF leading (injecting) and in case voltage at node is above 103% then Wind generator shall maintain 0.98 PF lagging (absorbing)</td></tr>
<tr><td>37.11</td><td>Wind generating stations and solar generating stations shall have fault ride through the capability of not less than 300 milliseconds so that the grid is not destabilized due to sudden outage of generation in the event of grid disturbance. The provisions of the CEA’s Regulations for Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) shall be applicable to the Wind and Solar Generators as amended from time to time.</td><td>The old generator not having said provision shall be given timeline for required changes, if technically possible otherwise such generator shall be decommissioned & replace with new</td></tr>
<tr><td>37.12</td><td>Wind and Solar generators shall control the harmonics level, at all connection points of a User on the transmission system, in accordance with that prescribed by the IEEE STD 519-1992, namely “IEEE recommended practices and requirements for harmonic control in the electrical power systems”</td><td>In case of commissioning of new Wind & Solar generators, following shall be part of commissioning documents .
1. Measurement report of harmonic current injection at PCC
2. DC offset current injection measurement report at PCC
3. Flicker measurement report at PCC</td></tr>
<tr><td>37.13</td><td>All Users shall attempt to ensure that grid voltages always remain within the limits specified in CEA (Grid Standards) Regulations, 2010 as amended from time to time and as mentioned below:
<table>
<tr><td colspan="3">Voltage - (kV rms)</td></tr>
<tr><td>Nominal</td><td>Maximum</td><td>Minimum</td></tr>
<tr><td>765</td><td>800</td><td>728</td></tr>
</table></td><td>No comments</td></tr>
</table>

400	420	380	
220	245	198	
132	145	122	
110	121	99	
100	110	90	
66	72	60	
33	36	30	
22	24	20	
11	12	10	

37.14	STU and/or SLDC shall carry out load flow studies to predict where voltage problems may be encountered based on the operational data and identify appropriate measures to ensure that voltages remain within the defined limits. On the basis of these studies, SLDC may issue specific instructions to Users to maintain voltage level at interconnecting points within permissible limits	It is suggested that based on said Study STU shall also plan for reactive compensation . Further it is observed that there are many Reactive elements not in operation due to being faulty since long and inspite of review of taking these units in service in many OCC meeting, no timely action is being taken from STU. The relevant pages copy of OCC meeting MoM of 470th OCC held on 13.04.2015 and 527th OCC on 24.01.2020 is attached herewith as Annexure-L . It can be seen that Reactor at Dhule , Solapur, Akola-II, Nanded is pending for more than 5 year and may be more than that . Further Copy of Agenda of Recent GCC meeting i.e 84th GCC held on 26th Feb 2020 is attached herewith Annexure-M . It can be seen from attached annexure-II of 84th GCC meeting MoM, the reactor failed in 2016 is not yet repaired or replaced with new one. Such delay in installation of Reactor is posing high voltage issues in respective area. There is SOP to DISCOM for releasing of New connection as well as attending fault; failing to attend same penalty is imposed. There is no Standard of Performance set out for Transmission company in any regulation even at Regional Level . The only factor consider is availability factor. But loss which system incurred due to such delay on part of Transmission licensee is not being addressed. Hence it is requested to frame Standard of Performance for

		Transmission Licensees for not completing work within specified time.
37.15	SLDC shall take appropriate measures to control InSTS voltages, which may include but not limited to power transformer tap changing, capacitor/reactor switching including capacitor switching by the distribution licensees at 66 kV and 33 kV substations, operation of hydro unit as synchronous condenser and use of MVAR reserves with generating stations within the technical limits agreed to between the STU and generators: Provided that generators shall inform SLDC of their reactive reserve capability promptly on request. Provided further that the generating station shall inject/absorb the reactive energy into/from the InSTS on the basis of their Unit capability as per the directions of SLDC.	
37.16	Reactive energy exchange, only if made as per the directions of SLDC, for the applicable duration (injection or absorption) shall be compensated/levied as per the detailed procedure for accounting and settlement of intra-state reactive energy charges specified as Annexure-7 with these Regulations: Provided that the applicability of the procedure for accounting and settlement of Intra-State reactive energy charges shall come into effect from the date to be notified by the Commission separately.	As mentioned earlier generator shall not be paid from pool for providing reactive compensation within its capability curve even in case SLDC instruct the same. There is no such provision at Regional level for payment to ISGS generator for providing required reactive compensation on request of RLDC also. It is duty of generator as per regulation to inject or absorbed reactive power based on bus voltage. Nobody required to be compensated for compliance of regulation. The payment shall be only be made of generator, in case generator provide reactive compensation beyond its capability curve where it has to sacrifice its active component of power. It is also suggested that wherever such situation occurs, SLDC shall brought to notice of all concern to take effective steps to avoid reactive compensation by generator beyond its capability curve
37.17	Generating Stations (except CPPs) shall provide up to date capability curves for all Generating Units to the SLDC indicating any restrictions to allow accurate system	No comments

	studies and effective operation of the InSTS: Provided that CPPs shall similarly furnish the net reactive capability that will be available for Export/Import to/from InSTS.	
37.18	All Users and STUs shall provide adequate voltage control measures through voltage relay as finalized by GCC or operational committee thereunder, 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 Authority.	No comments
37.19	All Users except generating stations shall provide local VAr compensation/generation to maintain the voltage within the specified limits: Provided that there shall not be any drawal of VArs from the EHV grid under low-voltage condition.	No comments
37.20	Notwithstanding the above, SLDC may direct all Users except Generating Stations to curtail its VAr drawal/injection in case the security of InSTS is endangered	No comments
37.21	Reactive power facilities connected to InSTS shall be in operation at all times and shall not be taken out without the permission of SLDC	No comments
37.22	Periodic/seasonal tap changing of inter-connecting transformers and generator transformers shall be carried out to optimize the voltages and if required other options such as tap staggering may be carried out in the network	It is general observation that Tap changing of ICT or Power Transformer are not being done. Hence in order to have period review of Tap Changing of ICT & Power Transformer and Reason for same needs to be maintained either by Respective Transmission Licensees or by SLDC. Such report shall be one of agenda point for monthly OCC meeting Hence it is suggested to added relevant provision in Grid code for maintaining Tap Changing report & review of same in monthly OCC meeting
37.23	Generating stations connected to InSTS shall generate/absorb reactive power as per the instructions of SLDC, within the capability limits of the respective generating units, without sacrificing the active generation required at that time	
37.24	Wind Generators, during the start-up, shall ensure that reactive power drawal shall not affect the grid performance: Provided that SLDC may direct the wind generator to curtail VAr drawal/injection	SLDC needs to develop SCADA screen whereby operating staff in real time can monitor voltages and VAr injection/absorption at various point; atleast important point and software shall prompt

	for the security of the grid.	SLDC operator to initiate action by sending message to concern for corrective action.
38	**Demand Estimation**	
38.1	The SLDC shall set out the responsibilities for short term (one day to 52 weeks) demand estimation of active as well as reactive power (MW, MVAr and MWh) for operational purpose. It shall also provide procedures, formats as well as timelines to be followed for exchange of information between the concerned entities for arriving at these estimates.	Presently weather forecast upto fifteen days is available. Hence in case of RE generator also whose generation is based on weather forecast has mandated by regulation to forecast on weekly basis. Hence it is suggested that demand forecast in which weather plays a important role (atleast for Maharashtra having about 25% Agricultural load), only weekly demand forecast shall be hourly basis and for other period, tentative hourly forecast for each month based on histrorical demand pattern shall be required to submit. Further being reactive power at some node may be leading and at some node may be lagging. Hence effective reactive power can not be forecasted. Further at present, there is no such data of nodewise or T_D interface pointwise reactive power , same can not be possible to forecast. Morever demand has to be met in term of active power for which DISCOM contract with various genarator in term of active power only. The reactive power requirement at different node will vary with time of day & which in turn depends on load as well as voltage at respective node. Hence it is suggested that in demand forecasting only active power shall be forecasted in term of MW & MWh. The format shall be formulated by SLDC by taking stakeholder consultation
38.2	All Buyers shall be responsible for the estimation of their own demand. Buyers shall submit their demand estimation to SLDC for demand estimate of the State. All Buyers shall also maintain historical data for demand estimate. Provided that SLDC shall refer to the demand estimate considered by the STU while developing the transmission system plan under Regulation 12.1 of these Regulations.	
38.3	Each Buyer shall develop methodology for daily/weekly/monthly/yearly demand estimation in MW and MWh for operational analysis purposes as well resource	SLDC be instructed to share T-D interface pointwise 15minute time blockwise data to MSEDCL. Further being SLDC has to operate

	adequacy. All Buyers shall also maintain historical database for demand estimation	state generation as per demand forecast for state as a whole, it is necessary that SLDC must develop online estimation/forecasting of demand for managing system. In fact there are provision in IEGC-2010, wherein task of demand forecasting for real time basis is assigned to SLDC. The relevant provision in IEGC -2010 are reproduced as under ***5.3 Demand Estimation for Operational Purposes*** *(a) This section describes the procedures/ responsibilities of the SLDCs for demand estimation for both Active Power and Reactive Power.* *(b) The demand estimation is to be done on daily/weekly/monthly /yearly basis for current year for load - generation balance planning. The SLDC shall carry out system studies for operational planning purposes using this demand estimate.* *(c)* ***Each SLDC shall develop methodologies/ mechanisms for daily/weekly/monthly/yearly demand estimation (MW, MVAr and MWh) for operational purposes****. Based on this demand estimate and the estimated availability from different sources, SLDC shall plan demand management measures like load shedding, power cuts, etc. and shall ensure that the same is implemented by the SEB/distribution licensees. SLDCs. All SEBs/distribution licensees shall abide by the demand management measures of the SLDCs and shall also maintain historical database for demand estimation.* *(d)* ***Each SLDC shall carry out its own demand estimation from the historical data and weather forecast data from time to time****. All distribution licensees and other concerned persons shall provide relevant data and other information as required by SLDC for demand estimate.*

		(e) ***While the demand estimation for operational purposes is to be done on a daily/weekly/monthly basis initially, mechanisms and facilities at SLDCs shall be created at the earliest but not later than 1.1.2011 to facilitate on-line estimation of demand for daily operational use for each 15 minutes block.*** *(f)* ***The monthly estimated demand by the SLDC shall be provided to RLDC and RPC for better operation planning*** *g) The SLDC shall take into account the Wind Energy forecasting to meet the active and reactive power requirement.* From above, it can be seen that Hon'ble CERC while framing regulation in 2009 has given responsibility of state as whole to respective SLDC and there is no amendment for demand forecasting till date. In fact in draft IEGC 2020 also concern state SLDC is given responsibility of Demand forecasting. The Hon'ble Commission is requested to relook into this proposed provision of Demand forecasting. It can be seen that all proposed responsibility (which draft IEGC 2020 has included for SLDC) has been assigned to DISCOM in this State Grid code and SLDC has been kept away from Demand forecasting which is actually SLDC most important responsibility as security of grid lies with SLDC. Unless SLDC develop online estimate of demand, how can it even manage centralised MOD. In proposed Draft IEGC 2020, DISCOM /SEB has been assigned mainly following responsibility in respect of demand estimation *Each distribution company of state shall furnish expected off take from each thermal generating station with whom they have long-term or medium-term power purchase agreement,*

		on weekly and monthly basis to respective thermal generating station for planning procurement of fuel. *In view of above, it is requested to modify the provision under Demand forecast and instaed of DISCOM, SLDC shall be replaced. The Hon'ble Commission in addition to SLDC , may decide giving certain responsibility of demand forecasting to DISCOM.*
38.4	Each Buyer shall utilize state of the art tools, weather data, historical data and any other data for getting effective demand estimate for operational use. Each Buyer shall compare the actual demand with forecast demand and compare the forecasting error for improvement. The Buyers shall maintain the data of forecast error for daily/day-ahead/weekly/monthly and yearly basis on their website	Comments as above
38.5	The demand estimation shall cover the different time periods such as short term, medium term and long term as applicable for operational purposes. The time period shall be decided after considering the requirements under other existing Regulations for furnishing demand estimate related information	No comments
38.6	Each Buyer shall submit node-wise morning peak, evening peak, day shoulder and night off-peak estimated demand in MW and MVAr on monthly and quarterly basis at all nodes including and above 132 kV for preparation of scenarios for computation of ATC/TTC by SLDC	As state earlier, proposed provision is proposed in Draft IEGC 2020 for SLDC and DISCOM are not involve. The relevant draft provision of Draft IEGC 2020 is reproduced as under *(g) Each SLDC shall submit node-wise morning peak, evening peak, day shoulder and night off-peak estimated demand in MW and MVAr on monthly and quarterly basis at all nodes including and above 132 kV for preparation of scenarios for computation of ATC/TTC by RLDC and NLDC.* *Hence it is requested to make necessary changes in proposed provision. However if commission want DISCOM to also carry out such exercise, then* it is suggested that nodewise demand forecasting shall not be introduced immediately for DISCOM & shall be introduced in future say after 2years for date of Notification of this State grid code or as decided by Hon'ble Commission . *The reason for same is as under:*

		Presently there is no nodewise historical data in case of MSEDCL. Till date MSEDCL demand in FBSM bills is also derived (from State Generation and other DISCOM drawal which is measured by SLDC) . The derived demand in FBSM is presently available for Feb-2018 i.e lag by more than 2 years. Any wrong computation of generation leads to wrong computation of demand of MSEDCL. The sample FBSM bills with MSEDCL Demand computed more than 50,000 MW is attached herewith as Annexure-N. Inspite of pointing out sasid discrepancy, SLDC has not corrected said FBSM bill till date. The STU itself has agreed that there was no 100% metering of all T-D drawal points (for which demand forecasting is expected). Till date also, neither STU nor SLDC has made available 15 minute time blockwise data to MSEDCL. In absence of 15 min time blockwise data, it is not possible to forecast nodewise demand at present. In future once such data is made available through new DSM mechanism, such forecasting may be possible. Hence it is suggested that nodewise demand forecasting shall not be introduced immediately & shall be introduced in future say after 2years for date of Notification of this State grid code or as decided by Hon'ble Commission
38.7	To facilitate estimation of Total Transfer Capability/Available Transfer Capability (ATC) on three-month ahead basis, all Transmission Licensees through STU shall furnish monthly estimated demand and availability data to SLDC for better operational planning for InSTS Network. Similar information shall be furnished by SLDC to RLDC/RPC for better operational planning for ISTS network as per the provision of IEGC	It is submitted that under operational planning study in Draft IEGC-2020, there is following provision ***38. OPERATIONAL PLANNING STUDY*** *Each SLDC shall also carry out total transfer capability/available transfer capability on three months ahead basis and any changes required during real time/day ahead operation due to change in operating scenario considered and declare it on their website for each time block. The process shall be in line with the CERC (Measures toRelieve Congestion in Real Time Operation) Regulation*

		2010. The SLDC shall also furnish the constraints considered and assumption made during the declaration of TTC/ATC For above work, SLDC needed SCADA data visibility of each & every Transmission element. There is provision in SCADA software through which SLDC can perform this task. Looking into this aspect, it is alos proposed in Draft IEGC2020 as under (*2) SLDC, RLDC and NLDC shall utilize network estimation tool integrated in their EMS/SCADA system for the real time operational planning study. All users shall ensure that real time operational data for successful execution of network analysis using EMS/SCADA is made available in healthy condition throughout. Any prolonged outage of data shall be immediately reported to SLDC, RLDC or NLDC along with firm timeline for its restoration. The performance of online network estimation tools at SLDC and RLDC shall be discussed in the monthly operational meeting organized by RPC secretariat. Telemetry related issues impacting the online network estimation tool shall be monitored by RPC Secretariat for early resolution.* Hence in view of above, it can be seen that SCADA visibility of each node (drawal & Injection) is very important. The SLDC needs to start computation of realtime availability of ATC/TTC which will be possible only is SLDC has complete realtime SCADA data visibility of all nodes. This activity is presently lacking from SLDC due to lack of all point SCADA visibility. Further skill manpower needs to be developed at SLDC for use of software for computaing ATC/TTC in real time. Presently such computation are carried out at regional level and NLDC declares ATC/TTC for each corridor for

		carry out short term power transaction. In fact, now for RTM market ATC/TTC computation is very important part. Looking into future trends in power sector, SLDC, Maharashtra shall also start computing ATC/TTC for real time and declare same on its website. Further as mentioned earlier, in absence of nodewise /substation of (atleast hourly load data), nodewise demand forecasting not possible and said task is assigned to SLDC by IEGC. For MSEDCL, presently due to non-availability of meter data of T-D interface point (from STU), it is possible to forecast the demand for MSEDCL as a whole (not nodewise) and its planned availability data
39	**Demand Management**	
39.1	SLDC shall be responsible for reduction of demand in the event of insufficient generating capacity, inadequate transfers from external interconnections to meet demand, or in the event of breakdown or congestion in InSTS or ISTS or other operating problems (such as frequency, voltage levels beyond normal operating limit, or thermal overloads of the equipment and lines, etc.) or overdrawal of power vis-à-vis that of intra-state entities beyond the Volume limits specified in MERC DSM Regulations 2019.	It is normally observed during summer month that 400 KV Jejuri – Lonikand and 400KV Talegoan PG-Chakan line get overloaded . to relive overloading, Koyna Hydro is pick up irrespective of backdown in state. This unnecessarily causing wastage of Koyna. The recent incidence & correspondence from SLDC is attached herewith for ready reference under Annexure-O. In view of above, it can be seen that not only generation resource planning & adequacy is important but Transmission line adequacy also important. Looking into such important point, Draft IEGC 2020 has proposed following provision under demand management:- *(1) The demand management under this clause covers the management to the extent of ensuring grid security which affects integrated grid operation.* *(a) STU shall ensure transmission adequacy of intra-state system for secure grid operation.* *(b) SLDC shall ensure reserves adequacy for secure grid operation.* *(c) Each Distribution licensee shall ensure resource and*

		network adequacy to meet demand of consumption centres and all category of consumers all the time. In view of same, it is requested to incorporate above provision in this regulation. Further also frame Standard of Performance for Transmission Licensee
39.2	SLDC for the safety of InSTS may direct the Users to curtail their drawal from the InSTS. Such directions shall include the time period or the system conditions until which the issued directions shall be applicable: Provided that any non-compliance of such direction shall be dealt with as per the provisions of Regulation 70 of these Regulations.	It is observed that irrespective of overdrawal of any DISCOM, SLDC has till date only directed MSEDCL to implement Load shedding. It is requested that In case SLDC opted not to issue notice to any DISCOM for implementing Load shedding, then same may please be informed to Hon'ble Commission for issue of necessary directives to concern DISCOM for ensuring resource adequacy. Presently DISCOM like AEML, Indian Railway, Serene, Gigaplex etc has not any resource to control overdrawal either due to sudden demand rise than forecasted or change in RE generation availability.
39.3	**Demand Curtailment**	
39.3.1	Buyers including distribution licensees and Users shall endeavour to restrict their actual drawal, from InSTS, of its control area within their respective drawal schedules: Provided that if automatic demand management scheme is not available, the manual load curtailment shall occur to ensure that there is no overdrawal	No comments
39.3.2	The measures taken by the buyers including distribution licensee or User shall not be withdrawn as long as the frequency remains at a level lower than the limits specified or congestion continues unless specifically permitted by the SLDC.	No comments
39.3.3	Each buyer including distribution licensee or user or STU shall formulate contingency procedures and make arrangements that will enable demand disconnection to take place, as instructed by the SLDC, under normal and/or contingent conditions: Provided that SLDC may direct to modify such procedures or arrangement, if	No comments

	required, in the interest of grid security and concerned Users shall abide by these directions.	
39.3.4	SLDC through respective distribution licensees or Users may formulate and implement state-of-the-art demand management schemes for automatic or manual demand management like under frequency relays, rotational load curtailment, demand response within six months from the notification of these Regulations: Provided that such schemes shall be duly prepared in coordination with OCC and approved by the GCC.	No comments
39.3.5	The interruptible loads for demand management shall be arranged in four groups of loads such as: a) Scheduled load curtailment; b) Unscheduled/Emergency load curtailment; c) Loads to be shed under frequency relays or df/dt relays; and d) Loads to be shed under any System Protection Scheme such as islanding, to maintain the frequency within the permissible limits and network security: Provided that such loads shall be grouped in such a manner that it does not overlap between different groups of loads.	No comments
39.3.6	Particulars of feeders or group of feeders at Transmission Licensee, distribution licensee and User substation which shall be tripped under under-frequency load curtailment scheme whether manually or automatic on a rotational basis or otherwise shall be displayed on their website for information of the consumer(s).	No comments
39.3.7	SLDC shall devise standard, instantaneous, message formats to give directions in case of contingencies and/or threat to the system security to reduce overdrawal by any User/distribution licensee at different overdrawal conditions depending upon the severity of the overdrawal : Provided that the concerned User or distribution licensee shall ensure immediate compliance with these directions of SLDC.	No comments
39.4	In case of certain contingencies and/or threat to system security, the SLDC may direct Users to decrease their drawals and such Users shall act upon such directions immediately:	No comments

	Provided that such directions shall include the time period or the system conditions until which the issued directions shall be applicable: Provided further that SLDC and Transmission Licensees shall ensure that requisite load curtailment is carried out by buyers including distribution licensees/Users in its control area so that there shall not be any overdrawal: Provided further that any non-compliance with such directions shall be dealt with as per the provisions of Regulation 70 of these Regulations.	
39.5	**Load Crash:** In the event of load crash due to weather disturbance or any other reasons, SLDC shall control the situation by getting the following methods implemented from Distribution Licensee(s) and other Users in descending priorities: a) Lifting of the load restrictions, if any; b) Exporting the power to neighbouring regions/states; c) Closing/Backing down of hydropower units (subject to non-spilling of water and effect on irrigation) keeping in view the inflow of water into canals and safety of canals/hydel channels. d) Backing down of thermal stations with a time lag of 5-10 minutes for a short period in merit order; Provided that any other instruction issued by WRLDC shall assume priority over such methods: Provided further that such methods shall be reviewed from time to time by GCC	No comments
40	**Periodic Reports**	
40.1	A daily report covering the performance of the InSTS shall be prepared by SLDC based on the inputs from Users and shall be put on its website. This report shall also cover the wind and solar power generation and injection into the Grid	In case DISCOM, data of all substation is with STU/respective Transmission licences. DISCOM has only data of any Load shedding or Load curtailment done during the day. Hence it is suggested that instead of word user, Transmission Licensee & generator shall be added
40.2	A weekly report covering the performance of the InSTS shall be prepared by SLDC. Such weekly report shall be available on the SLDC website for at least 12 weeks. The weekly report shall contain the following:	It is also suggested to include following in the report 1. Transmission constraint observed during a week & action taken in real time

	a) Frequency profile; b) Voltage profile of selected substations normally having low/high voltages; c) Demand and Supply situation; d) Major Generation and Transmission Outages; e) Transmission constraints; f) Instances of persistent/significant non-compliance of the MEGC; g) Instances of congestion in InSTS; h) Instances of inordinate delays in restoration of transmission elements and generating units; i) Non-compliance of instructions of SLDC by Users resulting in non-compliance of these Regulations; j) Total scheduled and actual generation/drawal of the State Entities; k) Lines/Substations operating near thermal rating or rated capacity; and l) Lines/Substations drawing excessive reactive power. Provided that the weekly report may categorize the grid incidents (GI) as GI-1 to GI-2 and grid disturbance (GD) as GD-1 to GD-5 based on the severity of tripping as per the provisions of CEA (Grid Standards) Regulations, 2010, as amended from time to time.	2. Action taken in real time to mitigate constraint a. Line opened on high voltages b. Line opened to control overloading c. Generation Pick up out of MOD
40.3	A monthly report covering the performance of the InSTS shall be prepared by SLDC and shall be made available on the website	The monthly report shall be inline with report published by NLDC which is available on its website https://posoco.in/reports/monthly-reports/monthly-reports-2019-20/ Sample report for Month of Jan-2020 is attached herewith as Annexure-P.
40.4	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 the details of various actions taken by different Users/Transmission Licensees, and the Users/Transmission Licensees responsible for causing the constraints.	The quaterly report shall be inline with report published by WRLDC which is available on its website https://www.wrldc.in/content/170_1_QuarterlyReports.aspx Sample report for Oct-19 to Dec-19 is attached herewith as annexure-Q
40.5	The SLDC shall also provide information/report to the WRLDC as per the	No comments

	provisions of IEGC in the interest of smooth operation of ISTS	
40.6	The SLDC shall provide the 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	At present each RLDC is quarterly preparing report on Operational feedback on Transmission constraint to NLDC , which in turn consolidate report & submit to CEA. The copy of recent report is attached herewith as Annexure-R. The report mainly contains following information 1. Transmission constraint 2. ICT constraint 3. Nodes experiencing High & low voltage 4. Action taken in real time to mitigate constraint d. Line opened on high voltages e. Line opened to control overloading f. Generation Pick up out of MOD 5. Delay in Transmission lines/generation affecting grid operation adversely 6. Outage of Fixed Series Capacitors (FSCs) and FACTS Devices 7. Oscillations observed through Phasor Measurement Units (PMUs) during quarter 8. Transmission Tower Collapses 9. Transmission Elements under long outage 10. Important lines / ICTs under construction from Transfer Capability and Reliability view point 11. Substations with High Fault level In addition to above, the report also contain some important event like *1.1. Uncertainty in Demand met in Indian grid* *1.2. Frequent blackouts in Khupi, Lekhi & Nirjuli areas of Arunachal Pradesh Power System and*

		Ningthoukhong area of Manipur Power System. *1.3. Multiple Trippings in Kashmir valley due to heavy snowfall 1.4. Tower Sabotage of important Grid Elements* *1.5. Solar Eclipse on 26th December 2019* *1.6. Frequent Outage of HVDC Bhadrawati Bipole and HVDC Champa-Kurukshetra Pole I, II & III* *1.7. Very High Voltages in the System* *1.8. Integration of new grid element in Western – Northern Corridor* *1.9. Impact of Bulbul Cyclone on Indian Power System* *1.10. Action taken in real-time to mitigate constraint* *1.11. Violation of protection standard in case of tripping of the Inter-Regional lines of voltage class 220kV and above* *1.12. Grid Events* *1.13. System Protection Scheme (SPS) Operations* *1.14. Frequency Response Characteristics (FRC* *1.15. Long Outage of Important Transmission elements due to Tower Collapses* *1.16. Important lines under construction from Transfer Capability and Reliability view point* It is necessary that SLDC shall also include above aspect in its Operation feedback report. Hence it is suggested to add guidelines for preparing operational feedback report or preparation of operation feedback report inline with report published by NLDC.
41	**Procedure for Operational Liaison**	
41.1	**Operations and Events on User/ STU/Transmission Licensees' System**	
41.1.1	In case the State Grid may or will, experience an operational effect while carrying out any operation on the Transmission system, the concerned User or a Transmission Licensee, shall inform to the SLDC before carrying out such operation with details of the operation to be carried out.	No comments
41.1.2	The User or a Transmission Licensee shall, immediately following an event on its	No comments

	system, inform the SLDC, in case the State Grid may or will, experience an operational effect following the event, and give details of what happened in the event.	
41.1.3	Forced outages of important network elements in the State Grid shall be closely monitored by the concerned Licensee/User. Licensee/User shall send a monthly report of prolonged outage of generators or transmission facilities to the STU and SLDC.	It is suggested that SLDC shall develop online webportal for user (Transmission licensee/ generator) to feed outages whenever such outage are availed or occured. Presently WRLDC has such provision, so that uptodate outages are available. It happens some times that some of unit withdrawn under forced outage is converted into zero schedule on declaring its availability . Such changes are not correctly incorporated every time . Further short duration or intra day tripping are not recorded outages properly. To increase accuracy of report, it is suggested to develop webportal . Concern user shall also inform expected revival of unit/line under outage, which will help in power planning
41.1.4	All operational instructions given by SLDC shall have unique codes which shall be recorded and maintained as specified by the Authority.	No comments
41.1.5	Forced outages of important network elements in the State Grid shall be closely monitored at SLDC level and necessary actions/restorations instructions will be issued by SLDC to Users/Transmission Licensees.	As suggested above, online webportal shall be developed for close monitoring of outages
41.1.6	Any operation in a State having an impact on other state(s)/region(s) shall be intimated by the SLDC to WRLDC.	No comments
42.1.1	Produce a coordinated generation and transmission outage programme for the State Grid, considering all the available resources and considering transmission constraints, as well as, irrigation requirements.	No comments
42.1.2	Minimise surplus or deficits, if any, in the system requirement and operate the system within Security Standards.	No comments
42.1.3	Optimize the transmission outages of the elements of the State Grid without adversely affecting the grid operation but considering the Generation Outage Schedule, outages of User/STU systems and maintaining system security standards.	At regional level in WRLDC, there is separate team for study of outages of both generation & transmission which study impact of said outage through network simulation study . However presently at SLDC, there is no such procedure being followed. The outages are generally given on basis of past experience. Hence it is

		suggested to add following line in provision *" SLDC shall study impact of any planned outage (either generator/transmission line) through network simulation software and will accordingly approved outages taking into consideration various system constraint & precautions to be taken to avail said plan outage"*
42.2.1	All Users including buyers and sellers and Transmission Licensees shall provide SLDC with their proposed planned outage programmes in writing for the next financial year by 31st October of each year. These shall contain identification of each Generating Unit/Transmission Line/Interconnecting Transformer for which outage is being planned, reasons for the outage, the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest end date.	As per provision in IEGC2010 under clause 5.7.4(b) & (C), timeline of 31st Oct is last for generator to submit their plan to RPC & 30th Nov is last day or timeline for RPC to publish report. It is suggested that in order to have proper power planning, last day for submission of planned outages by InSGS generator to SLDC shall be 15th Oct & thereafter SLDC shall study impact of such outage & then finalise outage program in consultation with contracted DISCOM
42.2.2	SLDC shall prepare the draft outage programme for the next financial year by 30th November of each year for the InSTS: Provided that outage plan shall be developed after considering system security and reliability and shall be developed such that the extent of unmet system demand on account of such a plan is kept to a minimum: Provided further that in case of hydro generating stations such a plan shall also endeavour to maximize the utilization of water for the purpose of power generation subject to applicable constraints related to alternate use of such water: Provided further that outage of wind generator may be planned during lean wind season, outage of solar, if required during the rainy season and outage of run-of-the-river hydropower plant in the lean water season.	As suggested above, last date for SLDC to prepare draft outage plan for state shall be 15th Nov and before finalising draft plan, SLDC shall share result of impact of proposed plan outage & then finalise outage program in consultation with contracted DISCOM. This will help DISCOM to plan its resources properly & to ensure maximum availability during peak demand period.
42.2.3	All Users and STU shall follow annual outage plans published by SLDC. If any deviation is required, the same shall be obtained with the prior permission of SLDC. The outage planning of run-of-the-river hydro plant, wind and solar power plant and its associated evacuation network shall be planned to extract maximum power from these renewable sources of energy.	No comments
42.2.4	Transmission Outage Planning shall be harmonized with Generation Outage	No comments

	Planning and Distribution System Outage Planning shall be harmonized with Generation and Transmission Outage Planning.	
42.2.5	The final outage plan for next year shall be intimated to all Users and Transmission Licensee latest by 31st December of each year: Provided that SLDC shall finalise the outage plan in consultation with the Users and Transmission Licensee: Provided further that the above annual outage plan shall be reviewed by SLDC on monthly basis in coordination with all concerned parties, and adjustments made wherever found necessary.	No comments
42.2.6	Each User or Transmission Licensee shall, at least two weeks prior to availing an outage as per the planned schedule, inform SLDC about the outage and obtain prior approval from it to avail outage.	At present at regional level, there is practice of taking approval from buyer in OCC meeting before availing any outage, so that DISCOM/buyer is not affected due to such plan outage. Hence it is suggested that final approval for availing plan outage shall be given after due deliberation in state OCC meeting
42.2.7	SLDC shall have the authority to defer any planned outage in case of occurrence of following events: a) Major grid disturbances (e.g., partial/total blackout); b) System isolation; and c) Any other event in the system that may have an adverse impact on the system security by the proposed outage. Provided that SLDC shall inform about the revised outage plan, with appropriate reasons for revisions in the outage plan, as soon as possible.	No comments
42.2.8	In case of emergency in the system, which may include events like loss of generation, breakdown of the transmission line, grid disturbances and system isolation, SLDC may appropriately review the situation before clearance of the planned outage: Provided that scheduled outage of power stations of 10 MW capacity and above as notified by SLDC from time to time, will be subject to annual planning:	No comments
42.2.9	SLDC shall prepare and submit to WRPC its outage plan in writing for the next financial year by 30th November for each year. These shall contain identification of each Generating Unit/Transmission Line/Interconnecting Transformer for	No comments

	which outage is being planned, reasons for the outage, the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date. SLDC shall submit Load Generation Balance Report for peak as well as off-peak scenario by 31st October for the next financial year to WRPC. The annual plans for managing deficits/surpluses shall be clearly indicated in the LGBR.	
42.2.10	Scheduled outage of power stations and EHV transmission lines affecting regional power system shall be affected only with the approval of WRLDC in coordination with SLDC.	No comments
42.2.11	SLDC shall upload quarterly, half-yearly, yearly outage reports on its website.	Daily , weekly outages shall also be available on SLDC website as available on RLDC website at http://59.185.241.150:8080/pentaho/api/repos/%3Ahome%3Awrldc%3AOutage%3AGeneration_Outage_Report.prpt/viewer?userid=wrldc&password=password
42.2.12	In respect of scheduled outage referred in this Regulation, a calendar shall be formulated in respect of Annual Outage Planning for the ensuing financial year. Such outage plan shall be deliberated and finalised in the meeting of the Operation Coordination Committee.	No comments
43	**Restoration/Recovery Procedures**	
43.1	Detailed plans and procedures for restoration after partial/total blackout of each User/ Transmission Licensee shall be finalized by the concerned Users and Transmission Licensees in coordination with SLDC. The procedure should be reviewed, confirmed and/or revised once every subsequent year. Mock trial runs of the procedure or different sub system shall be carried out by the User/Transmission Licensee at least once every six months under intimation to SLDC. Provided that Users shall agree to such plans and procedure and promptly inform SLDC in advance wherever they have difficulty in complying the same.	**SLDC should also perform the following:** **h. Simulation studies to ensure preparedness of restoration procedures** **i. SLDC should also ensure that thermal generators capable of black start facility are capable of working in houseload operation** 2. Post Despatch Analysis to be introduced: To improve

		operational planning, it is imperative that SLDC carries out a detailed post despatch analysis. The post depatch analysis may consist of the following: a. Pattern of demand met, b. frequency profile, c. voltage and tie-line flows, d. angular spread, e. area control error, reserve margin, ancillary services despatch f. transmission congestion and n-1 violations, g. Generation mix: source and station wise generation, h. Extreme weather events, special events Further, data maybe archived with 5 minute or less granularity to improve operational planning
43.2	Detailed procedure for restoration of InSTS shall include the following contingencies and shall be in conformity with system restoration procedure of WRLDC: a) Total system blackout; b) Partial system blackout; and c) Synchronization of islands of splits of system. Provided that such procedure shall consider the generation capabilities and operational constraints of ISTS and InSTS.	No comments
43.3	List of generating stations with black start facility, inter-state/inter-regional ties, synchronizing points and essential loads to be restored on priority, shall be prepared and will be available with SLDC. The list shall be reviewed and confirmed by GCC.	No comments
43.4	SLDC shall be authorized during the restoration process following a blackout, to operate with reduced security standards for voltage and frequency as necessary to achieve the fastest possible recovery of the grid.	No comments

43.5	All communication channels required for restoration process shall be used for operational communication only, till grid normalcy is restored.	No comments
43.6	Distribution Licensees or Users with essential loads shall separately identify non-essential components of such loads, which may be kept off during system contingencies. Distribution Licensees shall draw up an appropriate schedule with corresponding load blocks in each case and assign relative priority in the restoration of essential loads. The non-essential loads shall be put on only when system normalcy is restored, as advised by SLDC.	No comments
43.7	All Users shall pay special attention to carry out the procedures so that secondary collapse due to undue haste or inappropriate loading is avoided. Despite the urgency of the situation, careful, prompt and complete logging of all operations and operational messages shall be ensured by all the Users to facilitate subsequent investigation into the incident and the efficiency of the restoration process. Such investigation shall be conducted promptly after the incident.	No comments
43.8	SLDC shall carry out the post-disturbance analysis of all major grid disturbances resulting into total or partial system blackout or system split and desynchronism of any part of the State Grid. All Users shall coordinate and furnish the data pertaining to the system disturbance to enable SLDC to analyse the system disturbance and furnish a report to WRLDC in accordance with the provisions of IEGC, as amended from time to time.	No comments
43.9	PCC under GCC shall also review the data collected and analyse the failure of protection system either of InSTS or any User and recommend modification and/or improvement in the protection system or relay setting schemes and, if necessary, of the islanding and restoration scheme of InSTS and Western Region, to be carried out by the Grid Users.	No comments
44	**Congestion Management**	
44.1	STU in consultation with SLDC shall develop a procedure for relieving congestion in the InSTS within a period of six months from the notification of these Regulations: Provided that till the time such procedures are developed, Congestion Management in real-time system shall be dealt with as per the Central Commission's relevant Regulations as amended from time to time:	No comments

	Provided further that such procedure shall be reviewed by GCC and shall be provided to all the Users and shall be kept on the website of SLDC as well as STU. Provided also that congestion charges shall be applicable if determined by the Commission from time to time.	
45	**Inter User Boundary Safety**	
45.1	STU shall maintain an updated list of designated officers (names, designations and telephone numbers) to all Users who have a direct inter User boundary with STU or other Users on its website. Similarly, all Users with a direct inter User boundary with STU or other User system shall maintain a similar updated list of their designated officers on their website.	No comments
45.2	STU in coordination with OCC shall prepare a detailed procedure for any work to be carried out across an inter-User boundary within three months from the notification of these Regulations and submit to the GCC for approval. The procedure approved by GCC shall be available on the STU's website. STU shall review the procedure for inter-User boundary work at least once in 12 months and submit to GCC for approval.	
45.3	For the inter-User boundary between STU and other User's circuits, all Users shall comply with the agreed safety rules, which must be in accordance with CEA Safety Regulations or any other rules and regulations framed under the Act.	
46	**Event Information**	
46.1.1	Any of the following events shall require reporting by the User/Transmission Licensee or SLDC or STU as the case may be: a) Blackout/partial system blackout; b) System islanding/system split; c) Grid indiscipline; d) Loss of major generating unit; e) Violation of security standards; f) Severe equipment problem relating to major circuit breaker, transformer, bus bar or EHV Transmission Tine tower collapsing; g) Non-compliance of SLDC's instructions;	No comments

	h) Protection failure on any element of InSTS; i) Power system instability; j) Tripping of any element of the State Grid; k) Major fire incidents; l) Force majeure conditions; m) Fatal or non-fatal accident of human; n) Sudden load rejection by any User; o) Exceptionally high or low system voltage; and p) Any other event as stipulated by the Commission from time to time.	
46.2.1	User or Transmission Licensee, after having initially reported about the event orally to the SLDC, shall provide a written report within two days of the occurrence of the event to the SLDC in accordance with Regulation 46.1.1.	No comments
46.2.2	SLDC, after having initially reported about the event orally to the Users/Transmission Licensees, shall provide a written report within two weeks of the occurrence of the event to the concerned Users/Transmission Licensees.	No comments
46.2.3	A written report shall be sent to SLDC or Users/Transmission Licensees, as the case may be, and shall confirm the oral notification together with the following details of the event: a) Time and date of the event; b) Location; c) Plant and/or Equipment directly involved; d) Description and cause of event; e) Antecedent conditions; f) Demand and/or Generation (in MW) interrupted and duration of interruption; g) All relevant system data including copies of records of all recording Instruments including h) Disturbance Recorder, Event Logger and Data Acquisition System; i) Sequence of tripping with time; j) Details of Relay Flags; k) Remedial measures; and l) Any other related information.	No comments

	Provided that SLDC shall develop standard reporting format considering information mentioned in 46.1.1 and as agreed by the GCC. Such formats shall be made available on the SLDC website.	
46.2.4	Events affecting a generation capacity or a load of more than 1,00 MW shall immediately be reported in writing to the Commission by the SLDC/Transmission Licensee/User, as the case may be: Provided that the summary including brief detail of the event, extent and probable causes of the event shall be submitted to the Commission within 24 hours from the occurrence of such event.	As most of Generation capacity are more than 210MW, SLDC each and every generation outage event will be required to be informed to Commission. Further seasonal demand of agricultural consumer of Maharashtra goes more than 9000MW . Hence to manage Agricultural load, presently AGLM schemes are implemented. At present , Divisionwise AGLM group have been formed with average load in each AGLM group as 200MW. The switching of AGLM is with 5 minute interval. Hence in a 15 minute time block, switchover of AG load of more than 100MW is presently happening . Hence it is suggested that instead of reporting the events affecting a generation capacity or a load of more than 100 MW to commission, the event affecting a generation capacity or a load of more than 1,000 MW shall only be reported to Hon'ble commission. also prepare such report atleast half yearly basis.
46.2.5	Reporting of accidents shall be in accordance with Section 161 of the Act and rules framed thereunder. Notice of accident and failure of supplies or transmission of electricity shall be in the specified form to the Electrical Inspector.	Additional Protection Code may specify performance indices in line with CERC regulations such as dependability index, security index etc
47	**Cyber Security**	A Chief Information Security Officer maybe appointed who would be responsible for all cyber security related issues. Further, list of critical information infrastructure will be identified in consonance with IT Act 2000.
47.1	All Users shall identify critical and vulnerable cyber assets and take maximum possible efforts to protect them from potential cyber attacks so as to support reliable and secure operation of the grid.	
47.2	The details of the requirement of Cyber Security shall be as specified in Regulation 55 of these Regulations	

	Communication Code	
48.1	These regulations provide for planning, implementation, operation and maintenance and up-gradation of the reliable communication system for all communication requirements including the exchange of data for integrated operation of State Grid. **a)** To ensure seamless integration, reliable, redundant and secure communication; **b)** To ensure that any network change shall not cause any adverse effect on the functioning of the existing Communication System. The Communication System shall continue to perform an intended function with specified reliability, security and quality; **c)** A Data Provider or an intervening Communication System Provider is required to be aware, in advance, of the latest standards and conditions to be met by its system for being connected into the Communication System.	
49.1	**49. Boundary of Communication System** Intra-State Communication System shall cover: a) SLDC control rooms b) STU (InSTS network) c) Distribution Companies and Buyers within the State d) State Generating Stations, IPPs including RE generators connected to InSTS e) Substations of STU and State Transmission licensees f) Nodes of ISTS with InSTS	
50	**Periodic Testing of Communication System**	
50.1	All Users providing communication systems shall facilitate periodic testing of the communication system in accordance with the procedure for maintenance and testing to be prepared by STU within 60 days of notification of Regulations and approved by GCC.	
50.2	STU shall prepare the procedure for testing and maintenance of communication network security system including third party system if any and approved by GCC.	T The CEA has recently notified CEA(Technical Standard for Communication system in Power System Operation) Regulation 2020 on 27th Feb 2020. In said regulation under clause 20, guidelines given for Maintenance & Testing . Hence it is suggested to mention reference of CEA(Technical Standard for

		Communication system in Power System Operation) Regulation 2020 in this provision. It is suggested to add following para in this provision The STU shall prepared maintenance & Testing of Communication system in accordance with guidelines given in CEA(Technical Standard for Communication system in Power System Operation) Regulation 2020
51	**Periodic Auditing of Communication System**	
51.1	The MCCC under GCC shall conduct a performance audit of the communication system annually as per the procedure specified by CERC/ RPC/ RLDC/ Authority. Based on the audit report, GCC Secretariat shall issue necessary instructions to all stakeholders to comply with the audit requirements within the time stipulated by the GCC.	No comments
52	**Fault Reporting**	
52.1	SLDC in case of outage of telemeter data or communication failure shall inform the respective User so that the User shall ensure the healthiness of its communication system. In case outage pertains to a fault in the communication system of other User, the User shall lodge complaints about the failure of the communication to the communication system owner for quick restoration.	As submitted earlier in comments on Regulation 8.3.2., it is submitted that at regional level same role has been assigned to RLDC by Regulation and in compliance to same, RLDC daily publishes the SCADA visibility report and send to concern for taking corrective action. It is requested that following para shall be added in this provision *"The SLDC will daily publish the Daily telemetry outage report stating inception & restoration of outage , status of telemetry points not reporting to SLDC and List of T-D & G-T points not having Telemetry for real time visibility."*
52.2	The communication provider shall explore the possibility for route diversion on the existing facility in close coordination with a concerned provider in case the fault restoration is prolonged. No separate charges shall be paid for such route diversion or channel re-allocation. However, such re-routing shall be discontinued once the original channel is restored.	In order to ensure timely action regarding route diversion and any other action needed for timely restoration of communication link, it is necessary that there shall be staff available for 24x7 hrs. Presently SCADA team of SLDC work only during working days ie. Monday to Friday . Similarly team of STU (from Office of CE(ACI), MSETCL) also works on working days excluding Saturday , Sunday & public Holiday. Any issue noticed after working Hours is

		attended only next day. Looking into importance of 24x7 Hrs availability of Staff for attending SCADA & related issues, at Regional level also issue of 24x7 Hrs availability of Tejas Engineers (Outsource agency of Power Grdi who look after Communication link availability & divert rout in case of problem in main link) . The copy of Minute of Meeting of 39th WRPC meeting held on 19th Dec 2019 with agenda point 26 is attached herewith. As MSETCL is not part of Unified Load Despatch and Communication (**ULDC**) **project** of Western region, STU needs to make such facility at State level also. Looking into issue of communication channel problem, state has incurred huge loss on account of unnecessary payment of DSM charges to central DSM pool which is also mentioned earlier, MSEDCL had requested to develop SCADA screen showing difference between SCADA values of ISTS drawal point at CTU end & at STU end. Since development of said Screen, the impact of SCADA /communication problem has reduce. But There is need for robust communication network availability both from point of view of real time operation for SLDC & also from protection point of view. Considering importance of Communication channel availability, it is necessary that at State level there shall be staff available 24x7, who shall work in shift. Further in order to integrate & monitor ever expanding communication network comprising of elements of various makes viz, Tejas, FIBCOM, COMTEL, ABB, SIEMENS, GE and addition of IPPs, LILO of existing lines with introduction of network elements of different makes, U-NMS is required. Accordingly, PGCIL has proposed the U-NMS in WR . The said issue was also discussed in 39th WRPC meeting at Agenda point No. 7. The copy of MoM of said WRPC meeting is attached herewith as Annxure-S.

		The STU shall study same & also implement same in State also after confirming its usefulness to State Communication system.
53	**Communication System Availability and Backup**	
53.1	All Users of InSTS shall maintain the communication channel availability at 99.9% annually and with a backup communication system, the availability of the communication system shall be 100%.	There is provision under clause 29.4 & 29.5 for reduction of 1% RoE depending on report of SLDC. Hence it is submitted that SLDC shall be assigned duty of maintaining record of communication availability and 1%RoE shall be deducted for all asset whose communication network is not established yet, which we have already point out earlier that at present SCADA is installed at only 20% locations.
54	**Monitoring and Reporting of Communication System Performance**	
54.1	All Users/Transmission Licensees shall monitor and keep record of the month-wise Communication System (SCADA RTU) Availability Index and Average Duration of Downtime per month (in Minutes) for AMR System at each Connection Point and submit report for the past six-monthly performance during next MCCC meeting.	As stated earlier, SLDC shall also monthly publish the telemetry outage report stating inception & restoration of outage , status of telemetry points not reporting to SLDC and List of T-D & G-T points not having Telemetry for real time visibility.
54.2	MCCC shall review and deliberate on the cause of the significant variations in indices from the normal range (below 99.9% for Communication System (SCADA/RTU) Availability Index and more than 60 minutes/month in case of Average duration of Downtime for AMR system) and guide the remedial actions for the improvements.	No comments
54.3	STU in consultation with MCCC shall formulate detailed procedure for measurement, monitoring and reporting of the Communication System Index (for SCADA/RTU) and Average duration of Downtime (for AMR System) at Connection Point covering intra-state transmission network. STU shall publish such report on its website from time to time.	No comments
55	**Cyber Security**	
55.1	Communication infrastructure shall be planned, designed and executed to address the network security needs as per the standards specified by CEA and shall be in conformity with the Cyber Security Policy of the Government of India, issued from time to time.	
55.2	STU in assistance with SLDC shall prepare a Crisis Management Plan and/or procedure in line with Information Technology (IT) Act 2002, as amended from time	It is suggested that reference shall be added regarding "National Cyber security Policy 2013" . This policy was published by

	to time and any other rules or policy or guidelines relevant to the subject, within six months from the date of notification of these Regulations, to ensure that adequate Cyber Security mechanism is available with all Users to prevent any potential cyber attack on the systems and submit for approval of the GCC	Ministry Of Communication And Information Technology , Govt. of India With a mission to protect information and information infrastructure in cyberspace, build capabilities to prevent and respond to cyber threats, reduce vulnerabilities and minimize damage from cyber incidents through a combination of institutional structures, people, processes, technology and cooperation. The reference of said policy is also given in CEA (Technical Standard for Communication in Power system Operation) Regulation 2020 under clause 14.
55.3	An appropriate communication or IT network may be built up preferably using Multi-Protocol Label Switching, which is simple, cost-effective and reliable. In the remote places where connectivity is a problem, the stations can use dedicated fibre cable from the nearest node. Such communication or IT network may be built using dedicated fibres to avoid any cyber attack on the power system.	No comments
55.4	The existing communication or IT network shall be maintained properly. Remote Terminal Units and communication equipment shall have an uninterrupted power supply with proper battery backup so that in case of total power failure, supervisory commands and control channels do not fail.	There is need for Standard of performance in respect of attending communication related problem by concern in time , as presently it is observed that there are some major station like Parli U-6, U-7 & parli U-8, the real time data of these station is not available to SLDC since inception of these stations and inspite of repeated followup from DISCOM as well as from SLDC, there is still no action from concern. The data of major Hydro station i.e Koyna is most of the time not available in real time. As presently there is no SOP for maintaining visibility, concern are either not taking action at all or taking delayed action which is actually affecting State DISCOM and in future generator also. Further it also creates threat to system security.
55.5	Regular cyber vulnerability test/mock drills/cyber audit/and other measures as per the crisis management plan of the Indian Computer Emergency Response Team (ICERT) shall be carried out regularly by all Users. The frequency of such audits/mock drills shall be decided by STU in the procedure/guidelines stipulated	No comments

<table>
<tr><td></td><td>as per Regulation 55.2.</td><td></td></tr>
<tr><td>55.6</td><td>A cyber audit specifically to detect malware targeting Industrial Control Systems (ICS) shall be conducted at critical plants and substations after any abnormal event.</td><td>No comments</td></tr>
<tr><td>55.7</td><td>A dedicated team of IT Personnel for cyber security of substations shall be developed and proper training for the team members shall also be conducted regularly by the respective organizations to upgrade their skills.</td><td>No comments</td></tr>
<tr><td>55.8</td><td>SLDC shall monitor the case of cyber security incidences and discuss them at State level and take necessary action as deemed fit.</td><td>No comments</td></tr>
<tr><td>55.9</td><td>GCC shall ensure that third party cyber security audits shall be conducted periodically (period to be decided at GCC) and appropriate measures shall be implemented to comply with the findings of the audits. The audits shall be conducted by CERT-In certified third party auditors.</td><td>No comments</td></tr>
<tr><td>56</td><td>Guidelines or Procedures to be issued by different Entities</td><td></td></tr>
<tr><td>56.1</td><td>Following entities shall be responsible for preparation, consultation and finalisation of the Guidelines/Procedures required under these Regulations:
a) SLDC shall prepare Guidelines on “Interfacing Requirements" in terms of Regulation Error! Reference source not found.
b) STU shall prepare Procedure on “Centralized supervision for quick fault detection and restoration" in terms of Regulation Error! Reference source not found. and on “Maintenance and testing of communication system" in terms of Regulation 50 of these Regulations;
c) GCC shall prepare Guidelines on “Availability of Communication System" in terms of Regulation 53.</td><td>In recently notified CEA(Technical Standard for Communication system in Power System Operation) Regulation 2020 , following clauses deals with Interface requirement, Centralised supervision & Maintenance and testing of communication system.
<table><tr><td>Particulars</td><td>Relevant Clause</td></tr><tr><td>Interfacing Requirements</td><td>5</td></tr><tr><td>Centralized supervision</td><td>19</td></tr><tr><td>Maintenance and testing</td><td>20</td></tr></table>
It is suggested that that reference of CEA regulation shall be added , so that concern shall reference CEA Technical standard while preparing relevant procedure</td></tr>
<tr><td>56.2</td><td>All the entities shall post the draft guidelines/procedure on its website and invite comments from the stakeholders and finalise the guidelines after considering the comments received from them. The entities, while submitting the final procedures/guidelines to the Commission, shall submit a statement indicating its</td><td>It is suggested that stakeholder meeting shall be conducted at Commission level , so that stakeholder shall have chance to put his comments/suggestions in more specific way which will enable the commission to know the importance of any suggestion from</td></tr>
</table>

	views on the comments received from the general public and stakeholders.	stakeholder point of view also.
57	**General**	
57.1	STU shall be the nodal agency to ensure implementation of protection schemes in accordance with the provisions of the Regulations specified by the Authority and in co-ordination with WRPC.	No comments
57.2	Electrical equipment or part of electrical equipment shall be allowed to remain connected to the InSTS only if it shall be provided by minimum specified protection aimed at reliability, selectivity, speed, stability and sensitivity.	No comments
57.3	All Users shall cooperate with STU to ensure correct and appropriate settings of the protection system to achieve effective, discriminatory removal of faulty equipment within the time for target clearance specified in these Regulations and as amended from time to time.	No comments
57.4	Protection system settings shall not be altered, or protection relays bypassed and/or disconnected without consultation and agreement between all affected Users and Nodal agency. In a case where protection is bypassed and/or disconnected by an agreement, then the cause shall be rectified and the protection is restored to normal condition as quickly as possible. If agreement has not been reached, the electrical equipment shall be removed from service forthwith.	No comments
57.5	PCC shall decide the date from which the existing protection provided in STU and/or User systems not meeting the minimum requirement as stipulated in this code is required to be changed.	No comments
57.6	User shall receive the protection system, checked/tested/inspected by STU if STU confirmed that the protection system of User does not comply with the norms.	No comments
57.8	STU in consultation with PCC shall prepare Protection Manual within three months from the notification of these Regulations. STU also shall consult with the stakeholders and GCC and also consider the on-field experience and operational best practices followed in other states while developing the Protection Manual.	No comments
57.8	STU shall ensure that the provisions of the Protection Manual shall be consistent with the following and as amended from time to time: a) Protection Philosophy; b) CEA (Technical Standards for Connectivity to the Grid) Regulations,2007 and	CEA has recently notified CEA(Technical Standards for Communication system in Power System Operation) Regulation 2020. This technical standard also included communication system standard required for protection. Hence in said list,

	as amended time to time; c) CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) 2010 and as amended time to time; d) CEA (Grid Standards) Regulations, 2010 as amended from time to time; e) Protection standard adopted by WRLDC/WRPC; and f) System Requirement and past field experience of STU.	CEA(Technical Standards for Communication system in Power System Operation) Regulation 2020 shall be included
57.9	The Protection Manual prepared by the STU shall contain provisions for the following: a) Role and responsibility of STU/SLDC and Users; b) Protection System for Generators; c) Protection System for Transmission Lines including HVDC; d) Protection System for substations and Transmission to Distribution interface; e) Compliance monitoring of the protection code by the Users; f) Calibration and testing of the equipment and Relays used in the protection system; g) Type of communication required for protection system; h) Protection Audit; and i) Any other provisions that STU deem fit as required for the system.	No comments
58	**Revision in the Protection Manual and Best practices Guidebook**	
58.1	Transmission Licensees shall prepare share the best practices of protection system development, operations and safety practices. PCC shall coordinate and formulate a forum of technical experts from industry and academia for continuous improvement in the knowledge of protection systems, preventive measures, monitoring and reporting of best practices.	No comments
58.2	The events of protection system/switchgear/relay/device failure as well as the events leading to successful operation of the protection system/switchgear/ relay/device should be recorded and deliberated during PCC meetings.	No comments
58.3	Review of the Protection Manual for upgradation/modification shall be undertaken at least once in a year. Such review would cover the important developments/events at national/regional level, need for periodic review due to upgradation of technical standards for switchgear/devices, technological innovations, use of IT tools/practices, training and capacity building requirements.	No comments

	Based on the review, the PCC shall recommend suitable modifications/amendments to Protection Manual which shall be duly incorporated in timebound manner upon following due stakeholder consultation process.	
59	**Objective**	
59.1	The objective of this Code is to list out all the data required to be provided by the Users to the STU and the data required to be provided by the STU and SLDC to the Users, in accordance with the provisions of these Regulations.	No comments
60	**Responsibility**	
60.1	All Users are responsible for submitting up-to-date data to STU/SLDC in accordance with the provisions of the Grid Code.	No comments
60.2	All Users shall provide the name, address and telephone number of the person responsible for sending the data to the STU and SLDC.	No comments
60.3	STU shall share the name, address and telephone number of the person responsible for receiving data with the SLDC and Users.	No comments
60.4	STU shall provide up-to-date data to the Users as provided in the relevant schedule of the Grid Code.	If possible , such data shall also be made available through Web portal/cloud
60.5	Responsibility for the correctness of data rests with the concerned User providing the data.	Responsibility for the correctness of data shall rests with STU as STU as per clause 60.4 also required to provide data to User
61	**Data Management and Sharing**	
61.1	All the data required by STU and SLDC shall be provided by the Users and the data required by the Users shall be provided by STU and SLDC as specified in these Regulations.	No comments
62	**Data Categories and Stages in Registration**	
62.1	Data required to be exchanged has been listed in the appendices of this section under various categories with a cross-reference to the concerned sections.	No appendices is attached with this draft grid code stating Data required to be exchanged. Hence same may please be included in State Grid code
63	**Changes to Users Data**	
63.1	Whenever any User becomes aware of a change to any items of data that are registered with STU, the User must promptly notify STU of the changes. STU on receipt of intimation of the changes shall promptly update the database. This shall	No comments

	also apply to any data compiled by the STU regarding its own system.	
64	**Methods of Submitting Data**	
64.1	The data shall be furnished in the standard formats for data submission and such format must be used for written submission of data to SLDC/STU.	No comments
64.2	Where standard formats are not enclosed these would be developed by SLDC/STU in consultation with the Users.	No comments
64.3	The User must submit all the data under the Schedule(s) periodically to the SLDC/STU or to such other department and/or address as notified by the STU. The name of the person who is submitting each schedule of data must be indicated.	No comments
64.4	Where a computer data link exists between a User and SLDC/STU, data may be submitted via this link. The data shall be in the same format as specified for paper transmission except for electronic encoding for which some other format may be more suited. The User shall specify the method to be used in consultation with the SLDC/STU and resolve issues such as protocols, transmission speeds etc. at the time of transmission.	No comments
65	**Data Not Supplied**	
65.1	Users are obliged to supply data as referred to in the individual Code of MEGC. In case any data is missing and is not supplied by any User, STU or SLDC may acting reasonably, if and when necessary, estimate such data depending upon the urgency of the situation. Similarly, in case any data is missing and is not supplied by the STU, the concerned User may acting reasonably, if and when necessary, estimate such data depending upon the urgency of the situation. Such estimates will in each case, be based upon the corresponding data for similar plant or apparatus or upon such other information, the User or STU or SLDC, as the case may be, deemed appropriate.	No comments
66	**Special Considerations**	
66.1	STU and SLDC and any other User may at any time make a reasonable request for additional data as necessary.	No comments
66.2	STU shall supply data, required/requested by SLDC for system operation, from the data bank.	
67	**Load-Flow Studies**	

67.1	STU shall carry out periodic load-flow studies of the network to facilitate future expansion and augmentation of the network. The study shall encompass both transient as well as steady state studies. The transmission licensees shall mandatorily use the latest load flow data while proposing any additional infrastructure.	The latest load flow data shall be taken meter data of T-D & G-T interface, so that actual load flow study can be possible. It was observed in past that some network elements were not mapped in Simulation software i.e PSSE (Power System Simulation for Engineers developed by Siemens Germany) for which MSEDCL made constant follow up with STU. It is suggested that Load flow studies report shall be discussed in MTC meeting and software file of Load flow study shall be made available by STU on its website or website where data exchange between various user & STU is proposed.
67.2	SLDC will also conduct load-flow studies for operation planning. Such studies shall be based on historical as well as real-time data. The STU and SLDC shall take the requisite measures to enhance the capacity building measures for such studies so that the personnel engaged in planning and operation are adequately trained.	Load flow studies shall alos be carried out by SLDC for Transmission outage management. At RLDc , there is separate team which deals with system study and recommend outage to be approved, precaution to be taken while taking said outage if any critical element is involved and also gives it input on Transmission planning.
68	**Data Acquisition**	
68.1	The following real-time data is required by SLDC for effective control of the power system: a) MW and MVAr generated or absorbed in each generating station; b) MVAr imported or exported from the external connections; c) Voltages in all the system busbars; d) Frequency in the system; e) MW & MVAr flow in each Transmission element; f) Weather Data Viz. Temperature, Wind Speed & Direction, Humidity etc.; and g) Tap position of Transformer, Breaker/ Isolator status points.	The Realtime data of all interface points as per metering code definition is required to monitor individual Entity Deviation from actual . Hence same shall be also included in this list
68.2	The generating companies shall provide necessary RTU or interface point for the transmission of the above data from their generating stations to Sub-SLDC/SLDC.	No comments
68.3	STU/CTU/Transmission Licensee shall similarly provide necessary RTU or interface point from SCADA for the transmission of the above data from their receiving stations and substations to Sub-SLDC/SLDC.	The timeline needs to be specified for STU/transmission licensee as presently only about 20% Power Transformer , RTU is installed for SCADA data and in absence of all T-D interface (which is

		basically LV side of power Transformers) , MSEDCL drawal is derived from state generation . Presently in SCADA screen of SLDC, State Generation also includes some generation points which are connected at Distribution substation like 33/11 KV substation i.e Distributed generation but still those generation are counted as State generation at STU peri. Hence MSEDCL T-D drawal is wrongly being computed as stated earlier.
68.4	STU shall establish a suitable data transfer link between Sub-SLDC to SLDC and SLDC to WRLDC for exchange of operational data transmission	The STU shall also provide access of such data to DISCOM in case such data related to such DISCOM
68.5	The RTU/SCADA facility should have Geographical Positioning Systems (GPS) time synchronization and time stamping facility on all data communicated to Sub-SLDC. GPS may be used for time stamping of the trip information at the respective stations.	No comments
68.6	At all the 765/400 kV lines/HVDC and important 220 kV lines, disturbance recorders shall be installed and recorder data shall be made available at SLDC for post event analysis of the disturbances.	No comments
69	**Dispute**	
69.1	In the event of any dispute regarding the interpretation of any provision of the MEGC or rules and procedures notified under the provisions of the MEGC, the matter may be referred to the GCC constituted under these Regulations for its decision. If the dispute is not resolved, the GCC may refer to the Commission with its suggestions/recommendations.	In case matter is resolved in GCC meeting, GCC convenor shall appraise the said matter to Hon'ble Commission.
70	**Compliance**	
70.1	STU shall be responsible for monitoring the compliance of the Users and Transmission System Licensees with the provisions specified in Part-B, Part-C, Part-F, Part-G and Part-H in these Regulations and procedures developed under such provisions.	No comments
70.2	SLDC shall be responsible for monitoring the compliance of the Users and Transmission System Licensees with the provisions contained in Part-D and Part-E	No comments

	of these Regulations and with the rules and procedures developed under such provisions.	
70.3	In case of persistent non-compliance with the provisions of MEGC and/or with the rules and procedures developed under such provisions, such matter shall be reported to the Commission.	No comments
70.4	All directions issued by the WRLDC to any Transmission Licensee or any other Licensee of the State or generating company (other than those connected to ISTS) or substation in the State shall be issued through the SLDC and the SLDC shall ensure that such directions are duly complied with the licensee or generating company or substation.	No comments
70.5	SLDC may provide directions and exercise supervision and control as may be required for ensuring integrated grid operations and for achieving the maximum economy and efficiency in the operation of the power system. Provided that any non-compliance of such directions shall attract the penalty as specified in Section 33(5) of the Act.	No comments
70.6	Every Transmission Licensee and User connected with the operation of the power system shall comply with the direction issued by the SLDC under these Regulations.	No comments
70.7	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 these Regulations, it shall be referred to the Commission for decision: Provided that pending the decision of the Commission, the direction of the SLDC shall be complied by the Transmission Licensee or User.	No comments
70.8	Consistent failure to comply with the provisions of the MEGC or with the rules and procedures developed under such provisions, by the User or Transmission Licensee, may lead to disconnection of plant and/or apparatus of such User or Transmission Licensee.	Prior to any Disconnection in respect of any user or transmission licensee, the persistent non-compliance issue shall be discussed in OCC/MTC/PCC/MCCC meeting or GCC meeting and issue shall be also brought to notice of Hon'ble commission by SLDC. Thereafter SLDC shall issue notice to concern defaulting Entity for Disconnection from Grid.
70.9	Nothing contained in Regulation 72 to 78 of these Regulations 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	No comments

	the MEGC and with the rules and procedures developed under such provision.	
	Annexure-3: Detailed Procedure for Demonstration of DC of InSGS	
1	**Nodal Officer for DC Demonstration**	
1.1	Executive Engineer Shift In-Charge of SLDC shall be the Nodal Officer in consultation with the Chief Engineer (SLDC).	
1.2	All the Distribution Licensees and Generating Stations in the State shall designate a Nodal Officer, for the purpose of DC demonstration and intimate to the SLDC.	In case of Distribution Company, 24x7 Hrs control centre is presently working where in each shift there is an Executive Engineer who is a Shift Incharge. In each shift there is different Executive Engineer and its absence, other senior Engineer works as Shift Incharge. Hence it is suggested that Nodal Officer shall be Shift Incharge of Distribution control centre or any other person nominated by Distribution Company.
2	**Request for DC Demonstration From Distribution Licensees**	
2.1	The Nodal Officer of Distribution Licensee shall submit the request for DC Demonstration to SLDC in the prescribed format attached as **Format-1 (Annexure-3).**	No comments
2.2	Distribution Licensee shall request a demonstration of DC of their contracted Generating Units only under Long Term and Medium Term Contracts.	No comments
2.3	The reason for requesting DC demonstration shall be specified in the application.	No comments
3	**DC Demonstration on SLDC's Observation**	
3.1	SLDC, as per the provisions in the State Grid Code, shall request any Generating Unit in the State to demonstrate the DC.	No comments
3.2	Superintending Engineer (Operation), SLDC, on daily basis, for the previous day, shall certify the DC tracking of Generating Stations in accordance with the provision of this procedure. Format for the same is attached as **Appendix-A.**	No comments
4	**Procedure for Implementation of DC Demonstration**	
4.1	Request for demonstration shall be submitted to SLDC Nodal Officer at least six-time blocks before, including the time block in which physical implementation of ramping-up of generation is to be initiated.	No comments
4.2	SLDC, in two-time blocks, shall verify the details and based on the current load	No comments

<table>
<tr><td></td><td>generation balance and sign reversal scenario as per the MERC DSM Regulations and shall take appropriate decision for effecting the demonstration implementation.</td><td></td></tr>
<tr><td>4.3</td><td>Instructions for ramping-up of the Generation for demonstration shall be issued by SLDC to the concerned Generating Unit in the 4th time block which will be effective from 6th time block.</td><td>Here clarity is required that generating station has to ramp up from 6th time block counting first one from time block in which request is given by Distribution company. However in case SLDC Suo-moto want to issue instruction of DC demonstration, said demonstration shall be from 4th time block counting first time block in which SLDC instructed for DC demonstration.</td></tr>
<tr><td>4.4</td><td>Concerned Generating unit shall not revise DC once an application for demonstration of DC has been received by the SLDC Nodal Officer till demonstration process is completed.</td><td></td></tr>
<tr><td>4.5</td><td>5th time block shall be reserved for Generator to take necessary actions for ramping-up of the Generation.</td><td></td></tr>
<tr><td>4.6</td><td>Actual increase of generation shall commence from 6th time block and the maximum period for attaining DC shall be as per the ramping rate. During the demonstration period, the Generating unit shall maintain average generation at per the declared DC and shall maintain the same during the demonstration period which shall be maximum12-time blocks. The line lines for DC demonstration activities are provided in Table 1 below:
Table 1: Time lines for DC Demonstration Activities
<table>
<tr><th>Time Block</th><th>Time</th><th>Particulars</th></tr>
<tr><td>1st Block</td><td>12:00 to 12:15</td><td>• Application for DC Demonstration from the Nodal Officer of Distribution Licensee to the Nodal Officer of SLDC.
• No request of Generator for change of DC shall be entertained till DC Demonstration procedure is completed.</td></tr>
<tr><td>2nd and 3rd time block</td><td>12:15 to 12:45</td><td>• Verification and appropriate action such as alternate Generation Peaking, maintaining Grid stability, etc will be carried out.</td></tr>
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<tr><td></td><td>
<table>
<tr><td>4th time block</td><td>12:45 to 13:00</td><td>• Convey instructions and required injection based on the application of the Distribution Licensee/SLDC to the concerned Generator for demonstration by SLDC.</td></tr>
<tr><td>5th time block</td><td>13:00 to 13:15</td><td>• Reserved for the Generator for taking necessary actions for ramping-up of the Generation.</td></tr>
<tr><td>6th to nth Time block</td><td>13:15 onwards</td><td>• Commencement of the physical ramping-up of generation for attaining DC.
• From 6th time block, actual increase in the generation shall commence. nth time block shall be as per ramping rate.</td></tr>
<tr><td>nth to n + 12th time block</td><td>---</td><td>• DC demonstration period will be 12-time blocks; however, it may vary depending on the system condition.</td></tr>
<tr><td colspan="3">Concerned Generator shall maintain an operational logbook with the details of activities to be carried out during DC demonstration.</td></tr>
</table>
</td><td></td></tr>
<tr><td>4.7</td><td>During the demonstration period, the earlier Schedule of the Generating Unit under demonstration shall be replaced by the actual generation. The generator will submit the revised DC for remaining time blocks of the day after completing the DC demonstration.</td><td>Under DC demonstration, generator has to prove its DC declaration in order to declare same faithfully. In case generator declares “X” MW DC and request is given to demonstrate DC, then schedule of DISCOM shall be DC declared by generator i.e “X” which DISCOM requested to demonstrate. If generator fails to generate as per DC, it shall be penalised through two commercial way
1. Fix charge penalty
2. Deviation charges penalty.
The schedule of DISCOM shall not be revised by actual generation. If there is any shortfall on account of less DC than declared, SLDC can schedule Hydro generation (with permission of contracted DISCOM) or pick up any other generation as per MoD.</td></tr>
<tr><td>4.8</td><td>Any commercial impact due to DC Demonstration shall be borne by the respective Distribution Licensee/Buyer.</td><td>Being DC demonstration is being done by Distribution Company as a check on wrong DC declaration as during past it is observed that many times generators declare higher DC on dayahead basis and</td></tr>
</table>

		also higher DC during night time /backdown period and fail to achieve same during pick up period. MSEDCL on several occasions has requested SLDC for instructing generator to demonstrate DC but on most of occasion no action is initiated. The MSEDCL has already bear commercial impact of such wrong DC which has mainly hamper next day power planning and also higher Fix charge claims from Generators and moreover DC deviation of generator through FBSM bills. Hence it is requested that henceforth commercial impact of DC demonstration shall not be passed on to buyer or Distribution company and same to be borne by generating company only.
5	**Procedure for Data Recording and Certification**	
5.1	Injection data of the generating unit under demonstration shall be maintained from 4th time block, i.e., the time block in which instructions have been issued by the SLDC till 'n + 12th time block'.	No comments
5.2	Nodal Officer of the generating station shall submit the meter data (MWh) and SCADA data recorded at Generating Station to SLDC within 24 hours from the date of demonstration in the prescribed format attached as **Format-2 (Annexure-3)**. The copy of Operating Logbook maintained during DC demonstration period shall be submitted to SLDC.	There is no need of SCADA data . Only meter data shall be taken to check DC demonstration.
5.3	STU shall also submit meter data (MWh) at interface point (Ex-bus point) to SLDC within two working days from the date of the demonstration.	No comments
5.4	SLDC shall verify the data and issue Certification of DC Declaration in attached **Format-3 (Annexure-3)** within four working days from the date of the demonstration to the Nodal Officer of Distribution Licensee and Generating Company.	No comments
5.5	The details of DC demonstration shall be uploaded on the website in the prescribed format on a monthly basis on 5th of every month for the preceding month.	No comments
1	**Annexure-4: Mechanism for Compensation for Degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil Consumption Due to Part Load Operation and Multiple Start/Stop of Units of Intra-State Generators Connected to InSTS in Maharashtra State**	

	(Refer Regulation No. 34.3(f) **Introduction**	
	The detailed operating procedure of Compensation Mechanism is based on following code/regulation and guidelines; i. MERC DSM Regulations, 2019. ii. MERC Scheduling and Despatch Code and MERC DSM Procedure approved by MERC dated 11 November 2019 State Grid Code, 2006. iii. MERC MYT Regulation 2019. iv. CERC IEGC 2010 and subsequent amendments and provision in Fourth Amendment. v. CERC order No. L-1/219/2017-CERC dated. 05 May,2017 vi. CERC Tariff Regulations 2019.	No comments
2	**Applicability**	
	This Compensation Mechanism is applicable to Coal/Gas based InSTS connected Generating Stations: a) Whose tariff is determined by the Commission. b) Whose tariff is adopted by the Commission. c) In case of generating stations, whose tariff is neither determined nor adopted by the Commission but which is a State Entity, selling power in Short Term Open Access (STOA) to an Intra-State buyer above 25 MW (Except captive transaction) they shall be required to make appropriate provisions in their PPAs or any other supplementary agreement in light of the proposed Compensation Mechanism. d) The effective date of implementation of this procedure shall be notified separately by the Commission.	In case of power purchase under STOA from any merchant generator said compensation mechanism shall be made applicable. The reasons as under 1. Merchant generator is expected to bid considering all market & operating threats like scheduling. 2. Under standard document for STOA Purchase by PFC, there is provision of penalty in case total take from generator ie less than 85%. 3. If there is no sufficient schedule to merchant generator to meet its Technical Minimum, generator take out unit from grid. If this is considered as Zero schedule (as DISCOM schedule become zero after lapse of contract period), then DISCOM will also required to pay compensation to merchant generator 4. At present, mechanism of compensation for part loading at central level , in respect of generator whose tariff is not determined by CERC, there is no clarity whether PPA is under Long term, medium term. But there are many

		LTA/MTOA whose tariff is not determined by CERC, like in case of Maharashtra GMR Warora (EMCO) . Now as per this mechanism also, said generator is not covered as it is not InSTS connected generator. The said generator at present not following ISGS provision of 55% Technical Minimum. In view of same, it is proposed to delete clause (c) shall be deleted
3	**Definitions and Abbreviations**	
3.1	In this Compensation Mechanism, unless the context otherwise requires: a) **"AUL of the Station"** (in %) means loading of the station during the Calculation Period determined as follows: $$\text{Average Unit Loading (AUL) in\%} = \frac{Effective\ Generation\ of\ Station\ (in\ MWhr)}{Effective\ capacity(in\ MWhr) \times (1 - Normative\ Auxiliary\ Consumption)} \times 100$$ b) **"Calculation Period"** means the period for which compensation calculation shall be carried out. Generally, there shall be 12 calculations during the financial year. The calculation month will start from 16th day of the month to 15th of the subsequent month. The second calculation shall be done by considering cumulative of two months and so on. (The calculation period is considered to match with monthly MOD period.); c) **"Comp (F)" –** Final Compensation means reconciled compensation in rupees to be received by a generator during the calculation period based on the actual and normative parameters including degraded SHR and AEC based on AUL; d) **"Comp (P)"** Compensation payable means compensation in rupees computed for the calculation period based on the normative parameters and actual degraded SHR and AEC based on the AUL;	**calculation period:** The bills are prepared by generator on basis on actual energy generation during a month which start for 1st Day & end on last day of Month. Hence any calculation of compensation shall be on monthly basis with 1st day as start & last day of month shall be considered as end of month. This is because PLF & PALF of generating unit is calculated on Financial year basis. The state energy account will also contain total schedule energy during a month as well as total availability during month. Hence looking into ease in accounting & process of accounting being followed at central sector level, it is proposed to consider start of Month as 1st Day & End of Month as Last day on said month. **Effective Generation of station :** The purpose of this mechanism is to compensate generator for degradation of Heat rate , APC & secondary Oil consumption due to part loading. If generator schedule due to bilateral sale or collective transaction is not considered then generator in effective capacity also said quantum needs to subtracted. Otherwise generator will unduly get advantage of compensation mechanism. For clarity on this issue we consider a hypothetical case

e) **"EC (A)"** means total energy charges in rupees computed for a designated generating station during the calculation period on actual parameters of SHR and AEC;

f) **"EC (N)"** means total energy charges in rupees computed for a designated generating station during the calculation period on normative parameters considering degraded SHR and AEC based on the AUL;

g) **"Effective Capacity"** in MWhr means maximum possible generation from a station during calculation period and shall be calculated as:

Total Installed Capacity of the designated generating station (in MWhr) - Installed Capacity (MW) of the Unit(s) of the said station under outage (planned or forced outage) and under RSD / ZS during the calculation period X outage time.

h) **"ECR (Comp)"** means an increase in normative Energy Charge Rate in rupees/kWh for the calculation period considering degraded SHR and AEC based on the AUL;

i) **"ECR (DC)"** means Energy Charge Rate in rupees/kWh based on degraded SHR and AEC considering average DC as AUL during the calculation period;

j) **"ECR (SE)"** means Energy Charge Rate in rupees/kWh based on degraded SHR and AEC considering the AUL of generating station during the calculation period;

k) **"Effective Generation of the Station"** in MWhr means the actual generation (ex-bus) of the designated station or the Schedule generation excluding bilateral sale/collective sale under open access during the calculation period whichever is higher;

Installed capacity	500MW
Normative Aux.10%	50MW
Net EX Bus	450MW
DISCOM LTA	300MW
Balance capacity under STOA	150MW
Considering avg.10 Hrs TM schedule from DISCOM, total schedule energy for month	166500Mwh
Assuming Avg 100MW schedule under STOA, total schedule energy under STOA	72000Mwh
Effective capacity considering no outage	3,60,000Mwh
Effective generation as per definition K, say actual generation as per schedule	1,66,500
Effective Capacity x (1-APC)	3,24,000
Avg Unit Loading	51.39% (166500/324000)
IF effective generation is considered incl. schedule from bilateral /collective	2,38.500

	l) **"Tariff Regulations"** means Maharashtra Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations,2019 as amended from time to time or any subsequent enactment thereof;	<table><tr><td>Avg. Unit Loading under above case</td><td>73.65% (238500/324000)</td></tr></table> Hence it can be seen that due to non-consideration of generation due to bilateral/collective transaction, Average unit loading comes very less & generator needs to be compensated for higher Heat Rate & APC. Hence it is suggested that said bilateral /collective transaction shall also be considered.
4	**Mechanism for Working Out Compensation**	
4.1	**Compensation for Degradation of Heat Rate (SHR) and AEC** a) The mechanism is based on relevant provisions of State Grid Code and Tariff Regulations of the Commission, as notified from time to time. b) The Compensation shall be worked out for a month on a cumulative basis considering degradation in SHR and AEC based on AUL, subject to reconciliation at the end of the year. c) The Normative Auxiliary Consumption of competitively bid projects shall be considered based on the normative AEC of similar units as per the Tariff Regulation of the Commission or the difference between the Installed Capacity and the ex-bus Contracted Capacity as a percentage of installed capacity of the generating station, whichever is less. d) For Gas based generating stations, degraded SHR and AEC shall be decided based on the characteristic curve provided by the manufacturer. In case if the characteristic curve is not provided for the entire range of operating, i.e., up to 55% of module rating, the curve provided by OEM shall be extrapolated up to 55% of module loading. e) AUL shall be used to increase SHR and AEC in accordance with the Regulations and for gas based generating station as per Step 4 above:	

	Provided that no compensation for SHR degradation or increase in AEC shall be payable if the AUL for the generating station for the computation period works out to be more than or equal to 70%. f) Based on the values of increased SHR and AEC arrived at Step 5, Energy Charge Rate (ECR) for AUL, i.e., ECR (SE) for the station whose tariff has been determined by the Commission under ***Section 62*** of the Act shall be calculated using the formula specified in Tariff Regulations of the Commission: Provided that for generating stations, whose tariff has been adopted by the Commission under ***Section 63*** of the Act, the ECR (SE) shall be worked out as per the following formula: **i. Where ECR is quoted without specifying SHR and AEC:** ECR (SE) = quoted ECR or quoted Variable Charge x (1 + percentage of degradation in heat rate based on unit loading corresponding to Effective Generation / 100) / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to Scheduled Energy / 100). **ii. Where ECR is computed based on the normative net Heat Rate and PPA already provided for energy charge payment corresponding to the degradation in net station heat rate:** ECR (SE) = ECR worked out based on net station heat rate (without the percentage of degradation in heat rate based on unit loading) corresponding to effective generation) / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to effective generation / 100). **iii. Where ECR is computed based on the normative net Heat Rate and PPA does not provide energy charge payment corresponding to the degradation in net station heat rate:** ECR (SE) = ECR worked out based on the net station heat rate x (1 +	

	percentage of degradation in heat rate based on unit loading corresponding to effective generation / 100) / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to effective generation / 100). a ECR corresponding to average DC, i.e., ECR (DC) for the calculation period shall also be calculated using the formula specified in Tariff Regulations of the Commission and used as a reference for calculating compensation. This is because, the effect of less declaration (with respect to normative ex-bus Installed capacity), if any, on the SHR and AEC should be to the account of InSGS: Provided that for generating stations whose tariff has been adopted by the Commission under Section 63 of the Act, the ECR (DC) shall be worked out as per the following formula: b **Where ECR is quoted without specifying Heat Rate or Aux Consumption:** ECR (DC) = ECR quoted or variable Charge quoted x (1 + percentage of degradation in heat rate based on unit loading corresponding to DC/100) / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to DC / 100). c **Where ECR is computed based on the net Heat Rate and PPA already provided for energy charge payment corresponding to the degradation in net station heat rate:** ECR (DC) = ECR worked out based on net station heat rate (without the percentage of degradation in heat rate based on unit loading) corresponding to DC / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to DC / 100). d **Where ECR is computed based on the normative net Heat Rate and PPA does not provide for energy charge payment corresponding to degradation in net station heat rate:**	

ECR (DC) = ECR worked out based on net station heat rate X (1 + percentage of degradation in heat rate based on unit loading corresponding to DC / 100) / (1 – percentage of degradation in Aux Consumption based on unit loading corresponding to DC / 100).

h) **The compensation to be paid to InSGS for the calculation period ending nth month shall be the difference in ECR (SE) and ECR (DC) for that period.** ECR (Comp) for the calculation period ending nth month shall be calculated as:

$$ECR_n(Comp) = ECR_n(SE) - ECR_n\ (DC)$$

Provided that the ECR (Comp) shall be worked out separately for each PPA of the station by the Generator but annual reconciliation shall be on the overall consideration of PPAs.

i) The compensation *Compn (P)* payable to InSGS for the calculation period ending nth month shall be calculated as below:

Compn (P) = (Total Generation Schedule (Energy) to its original beneficiaries excluding bilateral sale / collective sale under open access) * ECRn (Comp)

j) ECRn (A) for the calculation period shall be calculated using actual values of SHR and Aux Consumption furnished by InSGS at the end of the calculation period and normative secondary fuel oil consumption as per the prevailing Commission order for which the requisite information shall be submitted by the generating station to beneficiaries.

Similarly, ECRn(N) shall be calculated using normative values of SHR and Aux Consumption and normative secondary fuel oil consumption as per provisions of the Tariff Regulations of the Commission furnished by InSGS.

Provided that in case of generating stations whose tariff has been adopted by the Commission under **Section 63** of the Act, ECRn(N) shall be

calculated using normative net SHR or the ECR quoted for the relevant month as the case may be.

k) The following values shall be calculated:

i. Total Energy Charges payable to InSGS based on actual parameters:

ECn (A) = ECRn (A) x (Total Generation Schedule (Energy) to its beneficiary excluding bilateral sale / collective sale under open access during the calculation period ending nth month)

ii. Total Energy Charges payable to InSGS based on Normative parameters:

ECn (N) = ECRn (N) x (Total Generation Schedule (Energy) to its beneficiary excluding bilateral sale / collective sale under open access during the calculation period ending nth month)

l) **Compensation payable** for the calculation period ending nth month to InSGS would be decided based on the following criteria:

i) <u>If ECn</u> (A) is less than or equal to EC<u>n</u> (N):

i. No compensation shall be payable to InSGS

m) Final Compensation payable by kth beneficiary for the calculation period ending nth month

i. No compensation shall be payable by beneficiaries if it has requisitioned at least 70% of its entitlement during the calculation period.

ii. The compensation amongst other beneficiaries shall be shared in the ratio of un-requisitioned energy below 70% of their entitlement, i.e., the compensation payable by kth beneficiary for the calculation period ending nth month.

$$FCB_{kn} = Comp_n(F) \times \frac{UE_{kn}}{\sum_k UE_{kn}}$$

Where UEkn is un-requisitioned energy of kt^h beneficiary below 70% of

	its entitlement during the calculation period ending nth month (if applicable). n) However, adjustments shall be carried out for compensation already paid for calculation period ending (n-1) th month. Net compensation payable/receivable by kth beneficiary for the nth month NCBkn=FCBkn – FCB k(n-1) If NCBkn is negative, this is the amount payable by InSGS to the beneficiary and vice versa. This way reconciliation would automatically take place at the end of the Financial Year.	
5	**Calculation for Secondary Fuel Oil Consumption** a) No compensation for degradation of SHR for secondary fuel oil consumption is payable for the year if total number of start-ups is equal to or less than 7 X No of units in the generating station or the actual Secondary Fuel Oil consumption is less than normative fuel oil consumption. b) Compensation (in terms of KL of Secondary Oil) shall be payable to InSGS for the year due to degradation of secondary fuel oil consumption shall be calculated by multiplying no of start-ups exceeding 7 per unit and solely attributable to reserve shut-downs with the appropriate value of additional secondary oil consumption specified in the Regulation. c) Compensation payable to InSGS shall be restricted such that Oil consumption based on the norms plus compensation calculated does not exceed actual secondary fuel oil consumption for the year. d) Compensation in terms of Rupees shall be calculated by multiplying compensation in terms of KL as calculated and average landed price of Secondary fuel oil for the year. e) Each start-up due to reserve shutdown shall be attributed to the concerned beneficiary of the seller. f) Compensation (in terms of Rupees) shall be shared amongst the beneficiary (s) in the following manner.	Compensation for secondary fuel oil consumption shall not be worked out for unit/station from which power is purchased under STOA or merchant generator shall not be included in this compensation mechanism as suggested in clause 2 of this procedure

	$Compensation\ payable\ by\ beneficiary\ i = (N_i \times \frac{A_i}{\sum(N_i \times A_i)}) \times \text{Compensation payable to CGS/ISGS}$ Where N_i= Number of start-ups attributable to the beneficiary i. A_i= Weightage Average Percentage share of the beneficiary in the generating station g) The InSGS shall take all due care to keep the check on secondary oil use during part operation and during start ups to the extend possible.	
6	**Generating Station Running Below Technical Minimum** In case generating station runs below the technical minimum schedule, it shall be entitled for compensation corresponding to technical minimum schedule.	
7	**Calculation of Compensation, Billing and Submission of Data by the Generator** a) Generating station shall calculate the compensation as specified in these procedures and bill the same to beneficiaries along with its monthly bill which shall be subject to the adjustment based on the implemented schedule issued by SLDC. b) Generating station shall submit the requisite data along with compensation calculation to beneficiaries as prescribed in Schedule-1 for a month by 30th day of the month for the previous calculation month (16th to 15th) and so on. Payment terms to be decided by the buyer and seller. c) SLDC shall provide necessary implemented schedule for the period of calculation by 22nd day of the month to Generating company as well as to concerned Distribution Licensee.	As proposed earlier compensation statement shall start from 1st of each month & ends on last day of month. The compensation statement shall be issued by generating company
8	**Issuance of Compensation Statement** a) The generating company will issue the compensation statement to the beneficiary with a copy to SLDC. b) In case any anomaly or discrepancy is noticed by any buyer, the same may be brought to the notice of the seller within 15 days of issuance of Compensation Statement.	As SLDC is responsible for State Energy accounting, the responsibly of issue of Compensation stamen shall also be with SLDC. At regional level RPC are assigned duty of issue of compensation statement. The SLDC shall take necessary parameters from concern generator & shall prepare compensation statement. The SLDC is having data of available capacity including capacity

		under RSD/Zero schedule, actual generation and schedule data of each buyer . This will also lead to uniform way of computation if single point responsibility is given to SLDC instead of each generator publishing its own compensation by interpreting provisions in the regulation in its own way.
9	**Review of the Procedure** The Procedure shall be reviewed by the Commission after six months of its notification based on the feedback from buyer, seller and SLDC.	
1. Preamble	1.1. As per Regulation 70 of MERC (Multi-Year Tariff) Regulations, 2019, generating station shall inject/absorb reactive energy into the grid on the basis of machine capability as per the directions of SLDC. Reactive energy exchange, only if made as per the directions of SLDC, for applicable duration (injection or absorption) shall be compensated/levied by SLDC to the generating station, as specified in the MEGC.	
2. Applicability of the Mechanism	2.1. Mechanism shall be applicable to all the TSUs' and all generator(s) (including wind and solar generating stations) connected to InSTS directly or through common pooling substation in the State. 2.2. Mechanism shall be implemented in the State after the installation of Special Energy Meters (SEMs) at all interface points in the State and from the date to be separately notified by the Commission	
3. General Principle	3.1. Reactive Power compensation and/or other facilities shall be provided by the Users, as far as possible, in the low voltage systems close to the load points thereby avoiding the need for exchange of Reactive Power to/from the InSTS and to maintain the InSTS voltage within the specified range. 3.2. Suitable Line Reactors shall be provided to control temporary overvoltage within the limits as per the system study carried out by the STU. 3.3. Additional reactive compensation shall be provided by the TSUs as indicated by the STU.	During last several OCC meeting, issue of faulty Reactor is being reviewed under Agenda point " Reactors under prolonged outage". Inspite of repeated review at Regional Level meeting, the serious of issue is not being taken by STU which results in high voltages at several 400KV Nodes and SLDC/RLDC needs to takes majors such of opening of EHV lines. Further high voltages also creates undue stress on insulation of all protection gears & thereby danger safety of equipment as well personals. The some of which are out of service since long period are listed below. 1) 400KVCHANDRAPUR-GCRPARLI-M-3 L/R@

	3.4. Switching in/out of 765/400 kV bus and line Reactors throughout the InSTS shall be carried out as per the instructions of SLDC. Tap changing of all 765/400/220 kV ICTs' shall also be done as per the instructions of SLDC.	CHANDRAPUR-GCR - 400KV since 21-09- 2016 2) 400KV-KARADLONIKHAND-1 L/R@ KARAD - 400KV since 14-09- 2017 3) BHUSAWAL - 400KV B/R 1 since 10-11- 2018 4) BABLESHWAR - 400KV B/R 2 since 26-06- 2019 On one hand these Transmission companies are claiming Transmission cost for such failed equipment and on other hand are not providing quick service in attending fault. Presently there is no Standards of performance for STU or Transmission licensees which results in lack of seriousness on their part in attending the such important issues. Hence there is urgent need for framing SOP for Transmission company so that it will keep reactive compensation on priority list. The SOP shall not only include attending reactive compensation but shall also include give timeline for attending fault, attending communication related issue of SCADA etc.
4. Methodology for Accounting and Settlement	4.1. To discourage VAr drawl/injection by the TSUs and Generating Unit, VAr exchanges with InSTS shall be priced as follows: • The TSUs and Generating Unit shall **pay into the Pool for any VAr drawl** when the voltage at interface metering point is **below 97% of the bus voltage at which the TSU and Generating Unit is connected.** • The TSUs and Generating Unit shall **get paid from the Pool for any VAr injection** when the voltage at metering point is **below 97% of the bus voltage at which the TSU and Generating Unit is connected** The TSUs' and Generating Unit shall **pay into the Pool for any VAr injection** when the voltage at metering point is **above 103% of the bus voltage at which the TSU and Generating Unit is connected.** Provided that there shall be no charge/payment for VAr drawl/return by a TSU except Generating Unit on its own line emanating from a Generating Station. Provided further that reactive energy exchange, only if made as per the directions of	Generator shall not be paid for reactive compensation until it provide requisite reactive compensation within its capability curve as generator does not provide said compensation by virtue of its loss of active power. Under IEGC-2010 also there is provision under clause 6.6.6, wherein RLDC are empowered to direct generators connected to Regional grid to generate or absorb reactive power within capability limit of respective generators that is without sacrificing on active power required at that time. It is also mentioned in said clause that no payment shall be made to generating companies for such VAr generation/absorption. In view of above, if any generator is providing any reactive compensation as per instruction of SLDC, which said generator by virtue of provision in grid code has to provide, then there is no need for any payment to generator ; provided said compensation is

<table>
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<td>SLDC, for applicable duration (injection or absorption) shall be compensated/levied by SLDC to the generating station, as per following conditions:
<table>
<tr><th>Voltage/Condition of TSU and Generating Unit</th><th>VAr Drawl from InSTS</th><th>VAr Injection into InSTS</th></tr>
<tr><td>Vmeter < 97 % of Vbus</td><td>Pay into the Pool</td><td>Get paid from the Pool</td></tr>
<tr><td>97% < Vmeter < 103%</td><td>No payment</td><td>No payment</td></tr>
<tr><td>Vmeter > 103 % of Vbus</td><td>Get paid from the Pool</td><td>Pay into the Pool</td></tr>
</table>
</td>
<td>provided as per its capability curve. No one shall be benefited merely following regulation on instruction of SLDC/RLDC.</td>
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<td></td>
<td>4.2. The charge for kVArh (injection / drawal) to be levied shall be 13.00 paise/kVArh or such other rate as may be stipulated by Commission from the date of applicability of implementation of reactive power compensation mechanism in the state and the same shall be escalated by 0.50 paise/kVArh annually in subsequent years unless otherwise revised by the Commission.

4.3. Notwithstanding the above, SLDC may direct TSUs' and Generating Station to curtail its VAr drawl/injection in case the security of the grid safety of any equipment is endangered.

4.4. The Generating Stations connected to InSTS shall generate/absorb reactive power as per the system conditions without any specific instructions of SLDC, within the</td>
<td>It is observed that may times, Koyna is kept on condenser mode to maintain voltages within vicinity area within limit. For taking hydro machine on condenser mode before during synchronisation some water discharges required. Further for condenser mode operation, machines takes active power from grid to rotate motor. If continue on same mode long time hot water need to discharge so that normal water takes its place for better cooling. Presently energy consumed by Koyna is net off against generation. Thus there is direct loss to MSEDCL on account if its water quantum wasted for taking condenser mode and active power use for condenser mode operation. At present Hydro generating station mainly Koyna is receiving fix lease rent from MSEDCL. Hence MSEDCL needs to be compensated for its water as well as ist active</td>
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	Capability Curve limits of the respecting Generating Units, that is without sacrificing Active Generation required at that time. SLDC shall monitor the Injection/Absorption of Reactive Energy by Generators during Real time and issue instructions during Voltages beyond 97% and 103% only to specific default Generators. The operation of any hydro generation under condenser mode is a specific requirement depending up on system requirements. Hence, the operation of any hydro generation under condenser mode shall be with the instructions of SLDC only. SLDC shall maintain records for such operations.	power lost in condenser mode. The MSEDCL shall be compensated for such loss either by making payment (Reactive charges) due to Koyan or any other Hydro station on account of condenser mode directly ot MSEDCL or such revenue shall be used to reduce lease rent payable
	4.5. During major grid disturbances, the bus voltages may deviate beyond set points. In such case, SLDC shall declare details of such incidence along with period, which may be excluded from accounting, however, it shall be the responsibility of the TSUs' and the Generating Stations located in the affected area, to provide necessary active and reactive support as per the instructions of SLDC. SLDC shall maintain records of such instances and instructions 4.6. In case TSUs' and/or Generators have been levied penalty for four consecutive weeks then an additional charge of 20 % of total weekly Reactive Charges arrived at 4th week, shall be levied to the concerned TSU or Generator.	Additional penalty of 20% is proposed in case penalty for four consecutive weeks is levied. In this regard, it is submitted that this mechanism is new and presently there is no time blcokwise data which DISCOM can study to take corrective action. Further even if corrective action is identified by DISCOM, it will not be possible to take corrective steps by installing Capacitor bank or Reactor immediately. Hence it is suggested that there shall be deliberation in GCC or OCC on such point on which DISCOM needs to take action. Further being new concept, additional penalty shall not be levied. Moreover in case of Transmission licensees, once any EHV substation is reported as high voltage node by SLDC then that T<>D point shall be excluded from reactive charges accounting till rectification is done by transmission licensee by taking necessary action like installation of reactor
5. Accounting and Settlement	5.1. It shall be the responsibility of STU to install SEMs' at all the G<>T and T<>D interface points in the InSTS along with AMR facility. 5.2. It shall be the responsibility of STU/Transmission Licensees to provide meter data of the Reactive Energy recorded for a week to SLDC for accounting and computation	The timeline for submission of meter data shall be inline with that for DSM accounting as same meters will record the said data.

of Reactive Energy	within 10 days of the successive next week. 5.3. It is the responsibility of SLDC to maintain State Reactive Energy Pool Account. 5.4. SLDC shall prepare and issue provisional weekly Statement of VAr charges for all the TSUs and Generating Stations in the State who have net reactive energy drawl/injection under low/high voltage conditions within ten (10) days from the receipt of AMR from all the TSUs'. 5.5. The Reactive Statement shall broadly contain following information: • Details of day-wise net Reactive Energy Injection/Drawl during low Voltage (<97%) and high Voltage (>103%) for each TSU; • Summary of weekly total net Reactive Energy Injection/Drawl during low Voltage (<97%) and high Voltage (>103%) for each TSU; • Summary of Reactive Charges payable/receivable by the TSU; • Any other details which SLDC feels necessary to complete the Statement	
	5.6. The Reactive Energy Settlement shall be carried out as per following procedure: ***Nomenclature:*** • **Regional Reactive Charges (RRC):** RRC Payable (+) / Receivable (-) by the State to Regional Reactive Pool Account. • **State Reactive Charges Payable (SRC) (P):** (+) by TSUs'. • **SRC Receivable (R): SRC (R)** (-) by TSUs'. • **Reactive Reserve Amount (RRA):** RRA available in State Reactive Energy Pool Account (i.e., surplus balance amount after settlement of all earlier Reactive	

	transactions) **(a) CASE – I:** **RRC is payable (+) by the State and [RRC+SRC (R)] <SRC (P):** Balance amount shall be kept as reserve (RRA) after paying out RRC and SRC (P). **(b) CASE – II:** **RRC is payable (+) by the State and [RRC+SRC (R)]>SRC (P):** Surplus amount available in reserve (RRA), if any, shall be withdrawn to match [RRC+SRC (R)] and SRC (P). If there is no reserve or if it is inadequate to meet the gap, SRC (P) and SRC (R) shall be apportioned to match the total payables and total receivables. **(c) CASE – III:** **RRC is receivable (-) by the State and [RRC+SRC (P)] >SRC (R):** Balance amount shall be kept as reserve (RRA) after paying out SRC (R). **(d) CASE – IV:** **RRC is receivable (-) by the State and [RRC+SRC (P)] < SRC (R):** Surplus amount available in reserve (RRA), if any, shall be withdrawn to match [RRC+SRC (P)] and SRC (R). If there is no reserve or if it is inadequate to meet the gap, SRC (P) and SRC (R) shall be apportioned to match the total payables and total receivables. **(e) CASE – V:** **No RRC for the State, No SRC (P), only SRC (R) and no RRA:** No Reactive Charges shall be paid to TSUs'. **(f) CASE – VI:** **RRC is payable (+) by the State, No SRC (P), SRC (R) and no RRA:** The amount available in the State DSM Pool Account may be utilized for payment to the Regional Reactive Pool purely on temporary basis. In such instances, once the balance is made in the State Reactive Pool Account, the same shall be transferred in the State DSM Pool Account.	

	The illustration for above cases is shown below as **Appendix-1** to this procedure.	
	5.7. These payments shall be paid on priority by TSU and Generators to State Reactive Energy Pool Account within 10 days of issue of statement. 5.8. TSUs' who have to receive amount on account of VAr charges would then be paid out from within one week from the receipt of payment in the Reactive Pool Account. 5.9. If payments against the VAr charges is delayed by more than two days, i.e., beyond 12 days, from the issue of Statement, the defaulting TSU shall pay simple interest @ 0.04 % for each day of delay. Persistent payment defaults, if any, shall be reported by SLDC to the Commission for initiating remedial action. 5.10. The amount remaining in the Reactive Pool Account after pay-out of all the VAr charges up to 31st March of every year shall be utilized as decided by the Commission from time to time. 5.11. SLDC shall place a complete statement of State Reactive Energy Pool Account before the GCC meeting on quarterly basis.	The surplus amount can be utilised for reactive power management projects like consumer awareness drive, installation of reactor/capacitor etc.