



**FICCI Representation on
'Indian Electricity Grid Code (IEGC)
Regulation, 2010 and other related issues'**

Submitted to:

Central Electricity Regulatory Commission



Recommendations on Indian Electricity Grid Code (IEGC) Regulation, 2010 and other related issues

- 1) Central Electricity Regulatory Commission (CERC) has constituted an Expert Group to review the Indian Electricity Grid Code (IEGC) and other related issues. Further to this, CERC had invited comments/suggestions from the stakeholders on the changes/modifications to be made in the existing IEGC in light of large-scale integration of renewable and changing power sector scenario in the country vide Notification No. ENGG/2012/1/2019-CERC, due for submission by 12th July 2019.
- 2) In this regard, we have solicited the feedback of our industry members. Based on the feedback, FICCI’s comments/suggestions are the following:

| S.No. | Clause/Regulation | Observations/ Comments / Suggestions |
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| 1 | <p>6.4(2) (c)(iii)</p> <p><i>If a generating station is connected both to ISTS and the State network, scheduling and other functions performed by the system operator of a control area will be done by SLDC,, only .if state has more than 50% Share of power ,The role of concerned RLDC, in such a case, shall be limited to consideration of the schedule for interstate exchange of power on account of this ISGS while determining the net drawal schedules of the respective states. If the State has a Share of 50% or less, the scheduling and other functions shall be performed by RLDC.</i></p> | <p>Necessary clarification is required in IEGC whether the Regulation 42(3) of CERC Tariff Regulations 2019 shall also be applicable or not to the generators whose tariff is determined by CERC but falling under the control area of SLDC as per IEGC Regulation 6.4(2)(iii).</p> |
| 2 | <p>6.5.19</p> <p><i>Notwithstanding anything contained in Regulation 6.5.18, in case of forced outage of a unit of a generating station (having</i></p> | <p><i>“To discourage frivolous revisions, an RLDC may, at its sole discretion, refuse to accept schedule/capability changes of less than two (2) percent of previous schedule/capability. The schedule of thermal generating stations indicating fuel shortage while intimating the Declared Capacity to the RLDC shall not be revised</i></p> |



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| <p><i>generating capacity of 100 MW or more) and selling power under Short Term bilateral transaction (excluding collective transactions through power exchange), the generator or electricity trader or any other agency selling power from the unit of the generating station shall immediately intimate the outage of the unit along with the requisition for revision of schedule and estimated time of restoration of the unit, to SLDC/RLDC, as the case may be. The schedule of beneficiaries, sellers and buyers of power from this generating unit shall be revised accordingly. The revised schedules shall become effective from the 4th time block, counting the time block in which the forced outage is declared to be the first one. The SLDC/RLDC as the case may be shall inform the revised schedule to the seller and the buyer. The original schedule shall become effective from the estimated time of restoration of the unit. However, the transmission charges as per original schedule shall continue to be paid for two days.</i></p> | <p><i>except in case of forced outage of generating unit. Provided that in case of gas based ISGS, for optimum utilization of gas, this shall be permitted, i.e. in case of tripping of a unit, this gas may be diverted to another unit using the same gas.”</i></p> <p>Issue: If revision of capability below two percent of previous capability is not allowed, then the generator shall be forced to violate in the sign change requirement as per the 5th amendment of CERC DSM Regulations & shall be liable to pay additional charges for failure to adhere to sign change requirement.</p> <p>Suggestion: In order to adhere to sign change requirement as per the 5th amendment of CERC DSM Regulations, revision of capability below two percent of previous capability, should be allowed.</p> |
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| <p>3</p> | <p>Part 3 Planning code for Interstate Transmission</p> <p>3.5 Planning Criterion</p> <p>General Philosophy</p> <p><i>(a) The planning criterion are based on the security philosophy on which the ISTS has been planned. The security philosophy may be as per the Transmission Planning Criteria and other guidelines as given by CEA.....</i></p> | <p>Suggestion:</p> <p>Transmission system planning and development is undertaken based on prospective requirement, lead time for development of the infrastructure considering area specific issues. Therefore, it is imperative to develop the system anticipating the future demand and the assets put to use only in phased manner. Therefore, it may happen during early days after commissioning of the assets the loading / utilization of the bays will be lower and which is unavoidable phenomenon, hence Transmission Licensee shall not be held responsible for creation of excess assets.</p> <p>CERC / SERC do not allow the CAPEX/O & M till assets are put to use i.e. capitalization is considered post utilization. This will affect the Transmission network development and reliability of the network, therefore it is suggested that above perspective should be covered under the proposed amendment of IEGC such that the Transmission network development is undertaken in holistic manner.</p> |
| <p>4</p> | <p>3.5 (a) i) a</p> <p>General Philosophy</p> <p><i>(a) The planning criterion are based on the security philosophy on which the ISTS has been planned. The security philosophy may be as per the Transmission Planning Criteria and other guidelines as given by CEA.....</i></p> <p><i>i. As a general rule, the ISTS shall be capable of withstanding and be secured against the following contingency outages</i></p> | <p>Suggestion – Following criteria to be added under planning</p> <p>While planning of transmission network in Megacities, Metro cities, Urban area etc., it is to be based on N-1-1/ N-2 Criteria without load shedding.</p> <p>Rationale: Important METRO cities and Capital cities need reliable Transmission Network and continuity of supply is of very much importance considering economic, Law & Order considerations. Therefore, there is need for differentiation for Transmission planning for METRO cities. It is suggested that at least N-2 criteria should be mandatory for METRO cities / major load centres.</p> |

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| | <i>(a) Without necessitating load shedding or rescheduling of generation during Steady State operation</i> | |
| 5 | <p>3.6 Planning Data</p> <p><i>Under this Planning Code, the Regional entities/STUs/State Generating companies/PPs/licensees are to supply data in accordance with the detailed procedures mentioned in the Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-state Transmission and related matters) Regulations ,2009...</i></p> | <p>Suggestion: System base case/ network simulation studies may be shared with all Transmission Licensees to facilitate system planning activities on need basis.</p> <p>Rationale: Presently planning data / base case is not shared with all Transmission licensees, hence if any of the Transmission Licensee likes to undertake study of the network related to its Transmission assets or future development it is not possible to study or provide meaningful inputs in view of already planned / proposed network.</p> |
| 6 | <p>IEGC Part 5 – Operating Code</p> <p>5.3 Demand Estimation for Operational Purpose</p> <p><i>(a) This section describes the procedures/responsibilities of the SLDCs for demand estimation for both Active Power and Reactive Power.</i></p> <p><i>(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.</i></p> | <p>Suggestion: Each Regional Entity, SLDC and Intrastate DISCOM should develop and implement Statistical based scientific Demand forecasting system which considers historical demand data, weather data econometric analysis and other parameters for effective operational planning and operations of the Grid this will ensure LGB as well as effective contingency planning.</p> <p>Rationale: Above provisions are already part of existing IEGC, however as can be seen, demand estimation is not very scientific at all levels and there is need for adopting a robust statistical system for demand estimation which will help operational planning. These provisions need to be implemented in timely manner and NLDC / central agency may be given a task to review the implementation progress. This is also the need of the hour in line with the operating frequency band tightening being undertaken through DSM Regulations.</p> |
| 7 | 5.4 Demand Management & Demand disconnection | Suggestion: Monitoring of demand and deviations w.r.t schedules of Regional entities and State entities should be based on real time AMI/AMR data based on |



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| | <p><i>This section is concerned with the provisions to be made by SLDCs to effect a reduction of demand in the event of insufficient generating capacity, and inadequate transfers from external interconnections to meet demand, or in the event of breakdown or congestion in intra-state or inter-state transmission system or other operating problems (such as frequency, voltage levels beyond normal operating limit, or thermal overloads , etc.)</i></p> | <p>instantaneous meter parameter of Active power and Reactive power in addition of SCADA data as per current practice. To ensure back-up and accuracy of data, meter wise SCADA data should also be used in such a way that in case of non-availability of some of the meter data due to failure of communication or some other issue, SCADA data can be employed as both systems are independently communicating to the Control centre. Monthly report of the SCADA data and Meter data should be published by all control centres.</p> <p>Rationale:</p> <ol style="list-style-type: none"> 1. Under the DSM Regulations the State / Participants are subjected to stringent limits and penalty is applicable if the deviations are higher. It is observed that the real time operation and decision making is done based on the SCADA data whereas the billing is based on the SEM data. There are large variations observed in both data which has financial implications on Pool participants. On many occasions there are operational issues between RLDC and SLDC's as there is difference in the data at the interface. Therefore, there is need for accurate online data with back-up plan. This can be achieved with the implementation of the AMI with real time data refresh. This will not only help to reduce financial burden it will also help in improving the Grid Operations. Hence this should be mandated through IEGC for effective implementation and uniform policy for all stakeholders. 2. Redundancy of data source is also important; if one of the meters is not communicating, the data source can be replaced with SCADA data to avoid major difference in data. This will ensure that the operations and settlement are done on same data and decisions taken by System Operators are based on correct data. |
| 8 | <p>IEGC Part 6 – Scheduling & Despatch Code</p> | <p>Integrated scheduling software need to be made available wherein communication (revision of schedules) between RLDC, SLDC, Generators and Discoms etc. becomes seamless. This is the need of hour in the current scenario and is expected to provide a major benefit in case of any contingency scenario especially in the case of outage of any major generating station.</p> |



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| | | Further, time for processing of Intraday contingency applications, which is presently of 3 hours and for all practical reasons is not less than 4 hours, need to be minimised to 4 time slots by way of integrated consent management software. Presently, it can be seen that all RLDCs publish approximately 150 - 200 revisions in a day. Tracking these many revisions may not be feasible by any Discom. |
| 9 | IEGC Part 6 – Scheduling & Despatch Code | <p>Real Time Data on NLDC/RLDC/SLDC website:</p> <p>a) One of the key to success of any market is data transparency and timely dissemination of such data. In case of power market, the symmetric access to transmission and power system data help stakeholders to take informed decisions regarding generation sighting decisions, likely constraints in generation despatches thereby affecting buy/sell decisions. Particularly real time data of power system and transmission capacity are not available on NLDC, RLDCs and SLDCs website which are essential for market stakeholders for their transactions.</p> <p>b) Therefore, it is suggested that NLDC/RLDC/SLDCs should publish Real Time Generation and line loading data on its website. The TTC and ATC data on real time basis should also be displayed on the website so that stakeholder can take informed decision.</p> |
| 10 | <p>6.5.19 Revision request</p> <p><i>....The schedule of beneficiaries, sellers and buyers of power from this generating unit shall be revised accordingly. The revised schedules shall become effective from the 4th time block, counting the time block in which the forced outage is declared to be the first one. The SLDC/RLDC as the case may be shall inform the revised schedule to the seller and the buyer. The original schedule shall become effective from the estimated time of restoration of the unit. However, the transmission charges as per original schedule shall continue to be paid for two days....</i></p> | 01 revision for next Day for all ISGS being available on respective RLDC's website does not take into consideration the tripping status of the plant, if any and generally depicts the full DC of the plant for the next day. This need to be updated based on the present running condition and outages so that proper planning for the next day can be done by Discoms. |



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| <p>11</p> | <p>6.5.19 Revision request <i>Notwithstanding anything contained in Regulation 6.5.18, in case of forced outage of a unit of a generating station (having generating capacity of 100 MW or more) and selling power under Short Term bilateral transaction (excluding collective transactions through power exchange), the generator or electricity trader or any other agency selling power from the unit of the generating station shall immediately intimate the outage of the unit along with the requisition for revision of schedule and estimated time of restoration of the unit, to SLDC/RLDC, as the case may be. The schedule of beneficiaries, sellers and buyers of power from this generating unit shall be revised accordingly. The revised schedules shall become effective from the 4th time block ...</i></p> | <p>Schedule of Short term, medium term and long-term Open Access consumers should be made available to the respective SEBs/ Discoms well in advance for optimisation of power purchase.</p> |
| <p>12</p> | <p>IEGC 4th Amendment 6.3 B Technical Minimum Schedule for Operation of Central Generating Stations and Interstate Generating Stations <u><i>....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:</i></u></p> | <p>1. As per CERC Order No. L-1/219/2017-CERC dtd. 5th May 2017 Clause 4.1 (ii) The Compensation shall be worked out for a month on cumulative basis considering degradation in SHR and AEC based on Average Unit Loading, Subject to reconciliation at the end of the year. Submission: Compensation for degradation of Heat Rate (SHR) and Auxiliary Energy Consumption (AEC) needs to be considered based on existing time Block of 15 Min basis instead of averaging at the end of month and finally at the end of year since any loss in a given time block is already incurred by the Generator and shall not be offset by better operation of the plant in subsequent time blocks. The Compensation is the consideration which is to be paid to the Generator for something which has been lost, which is required to be measured on time block basis since the operations at low load will be given on time block basis and not on cumulative basis for entire year, hence, it is imperative that performance shall be measured and compensate on time block basis only.</p> |



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| | | <p>2. As per CERC Order No. L-1/219/2017-CERC dtd. 5th May 2017 Clause 4.2 (i) No compensation for degradation of 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.</p> <p>Submission: Thermal power stations running at 55% are vulnerable for tripping of boilers due to improper flame condition in case of poor coal quality or any tripping of coal mills. Due to this additional oil support will be required for flame stabilization to avoid tripping of Unit thereby ensuring reliability of power supply. The oil required for such incidences is not considered for any compensation in this order and compensation is only considered for solely attributable to reserve shut-downs.</p> <p>Also, if loading is not allowed for say more than 100 - 120 hrs of continuous operation at 55% loading, the Unit may be forced to carry out wall soot blowing with oil support.</p> <p>Hence, it is requested that appropriate provision may be incorporated for compensation for both the above cases.</p> <p>3. As per CERC Notification No. L-1/18/2010-CERC dtd. 6th April, 2016 Clause 6.3B – 3 (vii) 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.</p> <p>Submission: This clause is discouraging to the power stations which are implementing the efficiency improvement measures and reducing the actual Stations heat rate &</p> |
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| | | <p>Auxiliary Energy Consumption for the same output. ADTPS in the past has consistently over performing the efficiency norms and thereby sharing the efficiency gains with the consumers, however, with such onerous condition, it might be possible that entire efficiency gain will be lost. It is submitted that compensation shall also be provided to protect the efficiency gains for performing Generating Stations.</p> <p>The efficiency gain can be compensated by stipulating the condition that in case of part load operation, the degraded Stations Heat Rate and Auxiliary Consumptions shall be considered as the normative parameters and it shall be compared with the actual parameters for computing the efficiency gains / losses.</p> |
| 13 | Other Comments | <p>Integration of high amount of renewable energy will also require instantly available balancing power. Battery Energy Storage Systems (BESS) can provide a major advantage over the other sources of balancing power such as pump storage hydro plants. The BESS installed at network nodes will help reduce transmission congestion as well as enable capex deferral. BESS with the advancements in technologies is expected to be available round the clock, throughout the year at low cost and hence be cost effective. The following measures are suggested with regards to the Battery Energy Storage Systems (BESS):</p> <ul style="list-style-type: none"> a) Battery Energy Storage System should be recognized as a grid connected entity, say at a threshold voltage level. b) Relevant rules for wholesale market participation and Despatch procedures to be applicable to BESS along with specific ramp rate requirements. |
| 14 | Other Comments | <p>Existing provisions of Ancillary Services Regulations may be extended to balancing the market due to large variation in the schedule from actual generation of Wind/ Solar generators.</p> |

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| | | This will provide clarity for charges on account of usage of the auxiliary power from transformer tertiary terminal. |
| 15 | Other Comments | <p>Gate Closure:</p> <ul style="list-style-type: none"> a) Presently, IEGC Regulation doesn't define the 'Gate Closure' for open access transactions. b) The paper issued by Hon'ble Commission on Real Time Market envisages 'Gate Closure' for intra-day market. c) As per international parlance, gate closure is time between maturing a transaction through a platform or otherwise and final delivery after incorporating it in schedules. d) We may define the term "Gate Closure' |
| 16 | Other Comments | <p>With DSM 5th Amendment in place, any change in actual generation by a renewable energy plant, without an automated intimation platform wherein any change in schedule by RE generator is known to Discoms, may lead to sustained violation penalties. Automation of the scheduling process with compatible application software is also to be implemented to enable gate closure operations as per specified time limits.</p> <p>Power systems, especially those with a high share of RE, require access to sufficient flexible resources (e.g., demand response, gas turbines, hydroelectricity, etc.) to ensure continued stability of the grid at each moment. Currently, there are no mechanisms in India to ascertain the amount of balancing resources needed and how these can be procured and dispatched.</p> |
| 17 | Other Comments | <p>Provisions of Load shedding for demand management should be last resort:</p> <ul style="list-style-type: none"> a) The country is witnessing total installed capacity of 350 GW and average peak of only 175 GW (June'19), therefore it can be comfortably concluded that the country has enough surplus capacity available to cater the demand of States. |



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| | | <ul style="list-style-type: none"> b) IEGC provides provisions of demand management through load shedding in case Discoms are overdrawing from the Grid. c) IEGC provisions were made during early periods of shortages in 1999 and now since last few years, we have added substantial capacity and also day-ahead and intra-day markets have become quite liquid, load shedding should be made last resort for discoms to manage deviations or shortages. d) Therefore, it is suggested that inline with the broad objective of ensuring 24x7 supply of power to consumers, suitable provisions in the IEGC may be incorporated, so that instead of resorting to load shedding, the Discoms meet their obligation of uninterrupted power supply by sourcing through day-ahead and intra-day markets. The load shedding should be last resort to manage demand by the Discoms. e) Towards achieving this objective, IEGC needs to streamline the Standards of Performance for ensuring adequate redundancy and preventive maintenance so as to ensure that the vision of 24 x 7 power for all becomes a reality. f) Optimal utilisation of generation and transmission assets would also be achieved through these SOPs. |
| 18 | Other Comments | <p>Allow Purchase by Generators:</p> <ul style="list-style-type: none"> a) As per present framework, in case generator is not able to supply power due to unforeseen event than such generator is exposed to the high penalties under DSM and scheduled buyer has to face stress. b) To avoid such situation, it is suggested that the generators should be allowed to buy power to fulfil its contractual obligations. This provision will not only help generators to avoid penalties but also help Discoms to manage its demand efficiently. |
| 19 | Other Comments | <p>Scheduling and Despatch of Intra-State RE Generators selling Power outside the State:</p> |



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| | | <ul style="list-style-type: none"> a) In India, out of 35 GW of Wind and 28 GW of Solar installed RE capacity, more than 95% is connected to State Grid and more capacity is in the pipeline at the State level. b) Presently, IEGC provides scheduling of Solar and Wind generators which are Regional Entities, however there is no procedure for inter-State scheduling of Solar and Wind generators which are intra-state entities. This restricts State connected RE generators to participate in the national market. c) Therefore, it is suggested that inter-state Scheduling and Despatch of Intra-State RE Generators should be incorporated in the IEGC to enable state-embedded RE generators to participate smoothly in the national market and also enable states to dispose of surplus RE power in the market. |
| 20 | Other Comments | <p>Provision for Captive Power Plants and mandatory open access to them:</p> <ul style="list-style-type: none"> a) The Captive Power Plants (CPPs) and their connected load should be assimilated as part of the grid at no extra cost. b) Captive plants supply power to loads which are generally greater than 1 MW. c) Standing Open Access grant should be given to CPPs by respective LDCs so that the pool of power in the power exchange increases thereby bringing down the costs for the consumers / DISCOMs. |