

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

**Coram: Dr. Pramod Deo, Chairperson
Shri S. Jayaraman, Member
Shri V.S. Verma, Member
Shri M. Deena Dayalan, Member**

Date: 6.3.2012

In the matter of

Central Electricity Regulatory Commission (Indian Electricity Grid Code) (First Amendment) Regulations, 2012

Statement of Objects and Reasons

1. Introduction

1.1 The Commission, in exercise of the power under section 79(1)(h) read with section 178(2)(g) and in compliance with the requirement of previous publication under section 178(3) of the Electricity Act, 2003 (the Act), published the draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) (first amendment) Regulations, 2011 vide public notice No. L-1/18/2010-CERC dated 16.8.2011 to amend the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, hereinafter referred to as "the Principal Regulations" inviting suggestions and comments from the stakeholders/public on the draft regulations.

1.2 In all, comments/suggestions were received from 19 stakeholders which included Generators, State Transmission and Distribution Utilities, Trading Companies, Power System Operation Corporation Limited (POSOCO), Regional Power Committees (RPCs) and beneficiaries as individuals, etc. The list of stakeholders who submitted their comments is enclosed as

Annexure-I. The Commission also heard the stakeholders in a public hearing on 19.10.2011.

1.3 The Central Electricity Regulatory Commission (Indian Electricity Grid Code) (First Amendment) Regulations, 2012 have been finalized after detailed analysis and due consideration of the various issues raised by the stakeholders. The comments/suggestions received from various organizations, statutory authorities and stake-holders and the decisions of the Commission thereon have been discussed in the succeeding paragraphs. The amendments for which no comments have been received have been incorporated in the final Regulations, as they are, without any discussion.

2.0 Regulation 2.3.2 (d) :

2.1 In the amendment the words "Metering and data collection" were proposed to be substituted by "Meter data Processing". Mr S.K. Bhatnagar has suggested that in line with provisions in the Electricity Act, 2003, the words "metering and data collection" may be substituted by the words "keeping the accounts of the quantity of Electricity transmitted within a control area". We are of the view that the "Meter data processing" is more appropriate and therefore, the proposed amendment has been retained.

3.0 Regulation 5.2 (f):

3.1 In the amendment after clause (iii) of sub-regulation (f) of Regulation 5.2 of Principal Regulations, following proviso was proposed to be inserted.

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

- 3.2 NTPC Ltd. suggested that the terms “RGMO” and ‘Free Governor Mode of Operation’ need to be defined and explained in the IEGC Regulations. In this regard it is observed that the features of RGMO are described in Regulation 5.2 (f) and FGMO is a well known term in Power System Operation. Therefore, we are of the view that there is no need of including explanation/definition of RGMO and FGMO in Regulations.
- 3.3 NTPC Ltd. has further submitted that when a vast majority of the machines in the system are operating on RGMO, it would not be possible to operate the rest on FGMO. It has also been submitted that as the specified mode of operation is not technically possible, these generators will be seen to be perpetually violating IEGC. NTPC has suggested that the proposed amendment may be dropped.
- 3.4 We feel that if the generator is unable to carry out the RGMO in its units, then it should provide grid support through FGMO. It is clarified that the provision is made in view of the difficulties faced by certain generating companies to modify the machines to make them capable of operating in RGMO automatically. The proposed revision intends to allow the generators to operate the units in RGMO with manual intervention till the machine is modified for RGMO operation. We are of the view that the proposed amendment should be retained. We are also conscious of the fact that ultimately machines have to be operated in FGMO for which the progressive narrowing down of frequency band will help.
- 3.5 Neyveli Lignite Corporation (NLC) has submitted that the existing provision of Regulation 5.2 (f) (ii) stipulates "there should not be any reduction in generation in case of improvement of grid frequency below 50.2Hz". NLC has submitted that the frequency "50.2 Hz." may be replaced by "50.0 Hz." in view of the following reasons:

- a) As the rated grid frequency is 50 Hz, the fuel conserved by backing down generation beyond 50 Hz could be used for stabilizing generation during fuel shortage period.
- b) The rise in frequency not only affects the Turbo Generators but also the industrial equipments in the grid.
- c) Only if controlling measures are initiated at rated frequency, high frequency duration can be controlled in effective manner.

3.6 In this regard, it is clarified that no amendment was proposed on this issue. Hence this provision cannot be amended as suggested by NLC.

4.0 Regulation 5.2 (j):

4.1 In sub-regulation (j) of Regulation 5.2 of Principal Regulations, the following provision was proposed to be added at the end:

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

4.2 . Transmission Corporation of Andhra Pradesh Ltd. (APTRANCO) has suggested that the revision of quantum of sudden variation in generation/load by user equal to 1% of regional peak demand or average demand may be considered.

4.3 It is clarified that the quantum of generation/load variation has already been specified in the existing Regulations and no amendment in this regard was proposed. The existing Regulations of CEA were finalized after detailed deliberations and consultation with stake holders. Therefore, we are of the view that there is no occasion of revisiting of this matter and hence the proposed amendment is retained

5.0 Regulation 5.2 (m):

5.1 In the amendment, the narrowing down of frequency band from “49.5-50.2 Hz.” to “49.7-50.2 Hz” was proposed.

5.2 Comments on this issue have been received from many stake holders. While, the Power System Operation Corporation Ltd. (POSOCO) has

welcomed the step, other stakeholders have suggested that the frequency narrowing down should be deferred.

- 5.3 Neyveli Lignite Corporation (NLC) submitted that the narrowing down of frequency range from 49.5 –50.2 Hz to 49.7 to 50.2Hz will definitely ensure higher grid security and increased efficiency of equipment. However, this may lead to increased load shedding by the distribution companies. Therefore, this may be implemented after commissioning of Nuclear and Thermal Power stations in Southern Region.
- 5.4 Shri S.K. Bhatnagar has suggested that the narrowing down of frequency band may be deferred for at least one year as slow down of Power Generation Growth is eminent in view of rise in imported fuel cost and likely impasse and delaying of UMPPs due to viability reasons.
- 5.5 Transmission Corporation of Andhra Pradesh Ltd. (APTRANCO) has suggested that the narrowing down of frequency band may be deferred for some time keeping in view the huge power shortage ranging from 10 to 20 percent, shortage in coal and gas, delay in generation capacity addition, increase in UI charges liabilities to DISCOMS and likely increase in load shedding.
- 5.6 Maharashtra State Electricity Distribution Company Ltd. (MSEDCL) has also suggested that the narrowing down of frequency band may be considered at a later date, if deemed necessary.
- 5.7 Northern regional Power Committee (NRPC) has submitted that there is need to tighten the frequency band. However, prior to introducing the proposed frequency band, implementation of the existing provisions of IEGC, particularly those relating to generator/demand response need to be ensured. The tightening of frequency band may be done after operation is stabilized in the present frequency band.

- 5.8 Shri Padamjit Singh has submitted that the upper frequency limit of 50.2 should be reduced in order to avoid wastage of fuel at high frequency.
- 5.9 We have considered the views of stakeholders and it is noted that no one has denied the fact that frequency band is to be narrowed down. Many of stakeholders have suggested deferring the decision for the time being due to various reasons including insufficient generation growth, possibility of increased load shedding, shortage in fuel supply, increase in UI liability of distribution companies etc. On the other hand, POSOCO has welcomed the change and NLC, a generating company has acknowledged the importance of narrower frequency band for safe and reliable power system operation.
- 5.10 The issue of tightening of frequency band was discussed threadbare in the 15th meeting of the Central Advisory Committee (CAC) held on 7.3.2011 at New Delhi. There was consensus among the members of the CAC for tightening the frequency band. The relevant paras of the minutes of this meeting are extracted as under:

" There was a general consensus that the UI frequency band should be reduced not only in the interest of grid security but also to encourage the distribution companies to procure power through contracts in the organized market.

The concern that shrinkage of UI frequency band might lead to increase in instances of demand not being met was noted. However, there was a consensus that this could not be a valid argument for endangering grid security.

As more and more generation capacities getting added, dependence on UI should reduce. In fact, the distribution companies should encourage contracting power through long term, medium term and short term market. The solution lies in contracting capacities in advance."

- 5.11 We share the concerns of the stakeholders. However, we feel that in view of the growing complexity as well as size of the power system in the country, stable frequency operation within a narrow band is a must for its reliability. The present NEW grid has a peak demand of about

1,00,000 MW, and after synchronization with SR grid, this would increase to about 1,30,000 MW. Apart from the country's own power system development, interconnection of the Indian power network with neighboring countries like Nepal, Bhutan, Bangladesh, Sri Lanka etc. is existing/under implementation/proposed which would result in increasing the size and complexity of the power system. Moreover, the new frequency band is proposed to be put into operation w.e.f. 2.4.2012, by which time about 6000 MW more generating capacity is expected to be synchronized with the grid.

5.12 The integration of renewable generation with the grid would increase the possibility of sudden generation variations which could affect the grid stability. Reasons behind the proposal for frequency band tightening has been explained in detail in the Explanatory Memorandum for the draft amendment to UI Regulations and the draft amendment to IEGC Regulations.

5.13 Regarding the possibility of increased load shedding and UI liability, it is observed that with advance planning and using the power market platform, including power exchanges effectively, the distribution companies can manage load-generation balance effectively, rather than through over-drawal by the UI mechanism. Moreover, with the tightening of frequency band and stricter UI regulations, there would be improved operation of existing generating units and rotating machines connected to the load would give a higher output and operate more efficiently. Therefore, we are of the view that the frequency band should be reduced from 49.5-50.2 Hz. to 49.7-50.2 Hz.

5.0 Regulation 5.2 (r):

5.1 This amendment was proposed to revise time line of "one week" for submitting information/ data including disturbance recorder/sequential event recorder output to concerned RLDC for the purpose of analysis

of any grid disturbance/event to " 24 hours", to make it in line with the Grid Standards.

5.2 NTPC has suggested that the time line as given in the principal regulations may be retained. APTRANSCO has suggested that the time period may be revised to two days instead of one day. West Bengal State Electricity Corporation Ltd. (WBSETCL) has submitted that since disturbance recorder/event logger reports from all generating stations and sub-stations are not readily available at SLDC control room, 24 hours time is inadequate. It has been suggested that the regulation may be modified to the extent that primary information/data shall be sent within 24 hours and detailed report shall be sent within one week.

5.3 We appreciate the concern of stakeholders. However, since the time line given in CEA standards are to be adhered to, we are of the view that the proposed amendment should be retained.

6.0 Regulation 5.7.4:

6.1 The amendment in this regulation was proposed to advance the outage plan report process by one month in order to get the information in time for Point of Connection charges calculation in accordance with the Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010.

6.2 NTPC has submitted that shutdown plan of NTPC stations for the forthcoming financial year gets finalized only in the month of November. Change of any Shutdown planned during and up to October-November will only be available by then. Hence the date for submission of outage plan may be retained as 30th November as per existing regulations. WBSETCL has submitted that the earlier time limit was more logical and it should not be changed. Southern Regional

Power Committee (SRPC) has submitted that to have more clarity, a sentence may be inserted to make the provision for LGBR compilation in MW and MU terms for regional peak and off-peak conditions. A new clause may be inserted for prescribing time frame for various activities by different agencies in annual outage plan and LGBR. POSOCO has suggested to amend sub-regulation (a) and (d) of Regulation 5.7.4 of principal regulations in line with the proposed amendments in sub-regulation (b) and (c).

- 6.3 We have considered comments and suggestions of the utilities and SRPC. Since the time for outage plan was proposed to be revised to make the provisions in line with the Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010, we are of the view that the proposed amendments regarding revised time line should be retained. Regarding the submission of NTPC, we feel that NTPC is at liberty to start the process for outage plan in advance so that the information about the outage plan is available within the specified time limit. As regards the suggestions by SRPC, we are of the view that the Load Generation Balance Report (LGBR) is important for the advance planning by different utilities and time line for preparing LGBR should be included in IEGC. Therefore, the regulations have been amended accordingly.

7.0 Regulation 6.4.10 :

- 7.1 A new sub-regulation regarding injection of infirm power into the grid during testing was proposed to be inserted.
- 7.2 Several comments have been received on the issue. However, this matter has been dealt with in the amendments to the Central Electricity Regulatory Commission (Unscheduled interchange charges and related matters) Regulations, 2009 and Central Electricity

Regulatory Commission (Grant of Connectivity, Long Term Access and Medium Term Open Access in inter-State transmission and related matters) Regulations, 2010. The comments/suggestions of the stakeholders have been dealt with in the above mentioned regulations.

8.0 Regulation 6.5.19:

8.1 In the amendment it was proposed that in case of forced outage of the unit the schedule of all the long-term and medium-term beneficiaries and the buyers under short-term bilateral transactions, getting power, directly under long-term Power Purchase Agreements or through sale by trader or any other agency or by generator itself under short-term open access, from the generating station of which the unit has gone under forced outage, shall be reduced on pro-rata basis. The second amendment was proposed to make provision that in addition to generator, a trader or any other agency selling power from the generating unit can approach RLDC for revision of schedule. The proposed Regulation as per amendment is as under:

“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) selling power under Short Term bilateral transaction, the generator or trader or any other agency selling power from this 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 all the long- term and medium-term beneficiaries and the buyers under short-term bilateral transaction, getting power, directly under long-term Power Purchase Agreements or through sale by trader or any other agency or by generator itself under short-term open access, from the generating station of which the unit has gone under forced outage ,shall be reduced on pro-rata basis. The schedule of beneficiaries, sellers and buyers of power from this generating station 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 RLDC shall inform the revised schedule to the seller and the buyer. The original schedule shall become effective from the estimated time of restoration of the unit. However the transmission charges as per original schedule shall continue to be paid for two days.

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

- 8.2 POSOCO has submitted that the revision in schedule for Short Term Open Access transactions would distort the market. The curtailment/cancellation of one scheduled bilateral transaction would lead to revisions of requisition of the buyer entity for another seller entity and thus would cause a cascading or ripple effect in whole market which is undesirable. Revision in schedule of STOA would also result in change in unscheduled interchange liability from the supplier to buyer and thus the financial liability of the seller party as per contract would be getting obviated. Linking the STOA portfolio to specific generators and linking STOA revision of Long term and Medium term contracts could make the whole thing complex and difficult to implement. In case of tripping of a unit, other avenues like Power Exchange and Short Term Bilateral are available to the sellers to purchase power and make good the shortfall. It has been suggested that the revision of schedule of Short Term Open Access transactions should not be allowed and sub-regulation 19 of Regulation 6.5 should be deleted. Moreover, even in case of the present practice to allow one revision of Short Term Bilateral Transaction by the generators should be with consent of buyer, seller and trader (if any).
- 8.3 Adani Power Ltd(AEL) has submitted that individual generators have executed commercial agreements with beneficiaries which

incorporate such exigencies. The concerned generator must be given the option to revise schedule and inform the RLDC for revision, if any. AEL has suggested that in case the proposed amendment is decided to be implemented, the generators must be given the option to offset the loss of generation due to outage with surplus availability from other units, if possible.

- 8.4 MB Power (Madhya Pradesh) Ltd. Has submitted that while it agrees with the rationale of immediate intimation of forced outage of a unit along with requisition of revision of schedule and estimated restoration time; however MB Power has requested to relax the restriction of reduction/revision of schedule of long-term, medium-term and short-term beneficiaries on "Pro-rata" basis and such reduction/revision of schedule may be left at the generator's discretion. JSW Power Trading and Regulatory Research India (R2I) has also suggested that the decision for revision of schedule should be left to the generators.
- 8.5 Regarding the comment by POSOCO, Adani Power, MB Power, JSW Power Trading and R2I, it is observed that the objective of this Regulation is to provide proper signal to all concerned utilities in case of forced outage of the unit by revising the schedules. We are of the view that if generation is reduced from the generating unit, then there is no point in keeping the original schedule which would give wrong signal for the buyer as he would continue overdrawing from the grid even though the generation is reduced and affect the grid security.
- 8.6 The pro-rata reduction in the schedule is proposed to avoid any gaming by the generator in case of multiple contracts from the same unit. The decision of reduction in schedule for the contracts should not be left to the generator as the schedule for the buyer with less rate of contract may be curtailed only. We are of the view that the schedule for all contracts should be reduced on a pro-rata basis, whether due to

reduction of schedule on account of partial outage or total outage or for any other reason. The regulation has been modified accordingly.

- 8.7 MSEDCL has submitted that as per PoC Charges Regulations, the demand customers are required to pay PoC charges for approved drawal even if the withdrawal is less than the approved withdrawal quantum. Therefore, demand customers should not be loaded with the injection node charges if the injection by the generator is less than the approved/scheduled injection. In case of forced/planned outages, the short-term access should be curtailed first and schedule of short-term contracts should be immediately revised and short-term charges should be reimbursed to them. In this regard, it is clarified that this Regulation intends to facilitate maintaining the load generation balance as per actual grid conditions in case of forced outage of the units. The effect of revision on schedule would be very small on the total injection/drawal charges under PoC. Therefore, we are of the view that there is no need of any change in the present methodology under PoC Regulations. Further, in the amendment, the pro-rata revision of the schedule is proposed to avoid any gaming by the generator. The proposed amendment has been retained.
- 8.8 Tata Power Trading Company Limited has supported the proposal and PTC India has hailed the proposal as a progressive step.
- 8.9 APTRANSCO, ERPC and NRPC have submitted that presently only one revision is allowed. They have suggested that provision may be made for multiple revisions. In this regard, it is clarified that multiple revisions would make the whole process very complex and unpredictable. Therefore, we are of the view that the present practice of one revision should be continued and the original schedule shall be resorted in accordance with the time intimated by the generator/seller/trader while requisitioning for schedule revision after tripping of the unit.

- 8.10 Torrent Power Limited has sought clarification as to whether the short-term transactions through power exchanges are not considered for pro-rata reductions. It is clarified that the transaction through power exchanges shall not be subjected to revision under this Regulation.
- 8.11 It may be mentioned that this provision is already existing in the IEGC. The rationale has been explained in para 43.10 and 43.11 of the "Statement of Objects and Reasons" to the IEGC 2010 which are extracted as under:

" 43.10 On draft Regulation 6.5.19, CEA has suggested the following:

"In case of a forced outage all generating stations irrespective of their nature of PPA, whether long term, medium term or short term, should be allowed to revise their schedule with the exception of schedules for day ahead collective transactions cleared through a power exchange. If large number of generating stations supplying power under long term, medium term and short term bilateral contracts are not allowed to revise their schedule under forced outage, it may result in serious grid imbalances."

CEA also submitted that in the UI Regulations, 2010, a limit has been put on under injection by the generator. To do so, the generators must have facility to revise their declaration in case of forced outages. However, this Regulation of proposed IEGC allows only generator with two part tariff and long term contract to revise their schedule in case of forced outage. Therefore to have a level playing field and to enable generators to generate close to their schedule, generators supplying through bilateral transactions under open access should be given right to revise declaration in case of forced outages. Since such events are not so common in a well maintained generating station, a limit say once per day may also be specified for this purpose.

43.11 We are in agreement with the views of CEA. The issue of handling Grid imbalance is important and Regulation 6.5.19 has been modified to allow revision of schedules to a generator of capacity of 100 MW or more, in case of short term bilateral transactions, in case of forced outage, with the objective of not affecting the existing contracts, the revision of schedule shall be with the consent of the buyer till 31.07.2010. Thereafter, consent of the buyer shall not be a prerequisite for such revision of schedule."

- 8.12 It is clarified that the present amendment is only an extension of the existing provision to the traders and the States like Himachal Pradesh with equity power, etc. whose source can be traced to a particular generating unit. We are of the view that the traders and the State Governments need to be brought on an equal footing w.r.t. this

provision. However, in order not to disturb the existing contracts, which may be structured in accordance with the existing Regulations through advance scheduling mechanism of short-term open access, which can be up to three months in advance, we stipulate that this provision for traders and the State Governments would come into effect from 1.7.2012.

9.0 Other comments:

10.1 The Commission has received some comments/suggestions on the issues which were not covered under the proposed amendments. However, these suggestions would be considered in next amendment of the Grid Code.

Sd/-	sd/-	sd/-	sd/-
(M.DEENA DAYALAN) MEMBER	(V.S.VERMA) MEMBER	(S.JAYARAMAN) MEMBER	(Dr. PRAMOD DEO) CHAIRPERSON

Annexure-I

List of Stakeholders who submitted comments on the Draft Amendment

Sl. No.	Organization / Individual Name
1	Adani Power Ltd.
2	Eastern Regional Power Committee (ERPC)
3	JSW Power Trading Company Ltd.
4	Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)
5	Moserbaer power (Madhya Pradesh) Ltd.
6	National Hydroelectric Power Corporation Ltd. (NHPC)
7	Neyveli Lignite Corporation Ltd. (NLC)
8	National Thermal Power Corporation (NTPC)
9	Power System Operation Corporation Ltd (POSOCO)
10	PTC India
11	Regulatory Research India (R2I)
12	Southern Regional Power Committee (SRPC)
13	Shri Subodh Kumar Bhatnagar (Commentator as Individual Expert)
14	TATA Power Trading Company Ltd. (TPTCL)
15	Torrent Power
16	Transmission Corporation of Andhra Pradesh Ltd Vidyutsoudha (Hyderabad) (APTRANSCO)
17	West Bengal State Electricity Transmission Company Limited (WBSETCL)
18	Northern Regional Power Committee (NRPC)
19	Shri. Padamjit Singh, (Individual)