

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

- 1. Shri Ashok Basu, Chairman**
- 2. Shri K.N.Sinha, Member**
- 3. Shri A.H. Jung, Member**

**In the matter of**

Maintenance of Grid Frequency in the Southern Region

**And in the matter of**

Show cause notice dated 12.2.2000.

**And in the matter of**

1. Department of Energy, Govt. of Karnataka, Bangalore
2. Chairman and Managing Director, Karnataka Power Transmission Ltd, Bangalore ...**Respondents**

**The following were present:**

None for the respondents

**ORDER  
(Date of Hearing: 9.6.2005)**

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The Commission is bestowed with the function to “regulate”, inter alia, inter-state transmission of electricity. As held by the Apex Court in K. Ramanathan Vs State of Tamil Nadu (AIR 1985 SC 660), power to regulate carried with it full power over the thing, which is the subject matter of regulation. The Apex Court further held that the power to regulate included adoption of rule or guiding principle to be followed or making of rule with respect to subject to be regulated. The Indian Electricity Grid Code (IEGC), published under the authority of the Commission passed in discharge of the statutory functions of regulation of inter-state transmission contains the guiding principles relating to inter-state transmission of electricity. The IEGC has been accorded statutory recognition by Regulation 95 of the Central Electricity Regulatory Commission (Conduct of Business)

Regulations, 1999 framed under Section 55 of the Electricity Regulatory Commissions Act, 1998 (since repealed) (hereinafter referred to as “the repealed Act”) according to which, “the Commission shall approve the code concerning planning, development, connection/use of Inter-State Transmission System integrated operation and grant of transmission licence which shall be notified as Indian Electricity Grid Code (IEGC)”. The principles contained in the IEGC are considered binding on all the entities involved in or associated with inter-state transmission of electricity.

2. The IEGC provides as under so far as maintenance of grid frequency is concerned:

Para 4.6 (b)

“Frequency Variation

Rated frequency of the system shall be 50.0 Hz and shall normally be controlled within the limits as per Indian Electricity Rules, 1956 (IE Rules) as amended from time to time.”

Para 6.4.2

“As mentioned elsewhere, the constituents shall endeavour to restrict their net drawal from the grid to within their respective drawal schedules whenever the system frequency is below 49.5 Hz. When the frequency falls below 49.0 Hz, requisite load shedding (manual) shall be carried out in the concerned State to curtail the over-drawal.”

Para 7.4.4

“Provided that the States, through their SLDCs, shall always endeavour to restrict their net drawal from the grid to within their respective drawal schedules, whenever the system frequency is below 49.5 Hz. When the frequency falls below 49.0 Hz, requisite load shedding shall be carried out in the concerned State (s) to curtail the over-drawal.

3. Southern Regional Load Despatch Centre, Bangalore, (hereinafter referred to as SRLDC) had filed Petition No.93/2000 (SRLDC Vs Transmission Corporation of Andhra

Pradesh and others) on 28.9.2000 seeking directions, inter alia, to the respondents therein to restrict their drawal from the grid within the drawal schedule prepared by it and to maintain the grid frequency at 48.6 Hz. and above at all times. SRLDC sought certain other directions to the respondents therein to faithfully follow the instructions of the petitioner as an apex body under the law and adhere to the provisions of the IEGC. Subsequently, a number of other Petitions and Interlocutory Applications (IAs) pointing out the aberrations in the conduct of the beneficiaries in Southern Region, in maintenance of grid frequency and disobedience of the provisions of the IEGC were also filed by SRLDC. All these petitions and IAs<sup>1</sup> were heard on 27.7.2001 and were finally disposed of by the Commission through a common order dated 3.8.2001. The Commission gave the following specific directions to the respondents in those petitions:

“Accordingly, we direct that the beneficiary states shall schedule their drawals from the Regional Grid in such a manner that during the first three months i.e. from 1<sup>st</sup> August 2001 to 31<sup>st</sup> October 2001 the frequency of the Regional Grid shall not be allowed to fall below 48.5 Hz. Thereafter, during the next three months, that is up to 31<sup>st</sup> January, 2002, the frequency shall be maintained above the level of 49.0 Hz by taking suitable measures to comply with the provisions of IEGC. The measures adopted may be to increase the generation within the region or import of power from neighbouring regions or through proper load management and load shedding. We want to make it clear that these directions shall not be construed to absolve the respondents of their liability to pay Unscheduled Inter-change charges under the ABT regime. We also point out that non-compliance of these directions shall invite penal action under Sections 44 and 45 read with Section 47 of the Electricity Regulatory Commissions Act, 1998 and the Chief Executives of the utilities and/or concerned divisions of the same, shall be made personally liable. A copy of this order be sent to each of the Chief Executives, etc. by name for his personal information and appropriate action, in addition to the copy to be sent in the normal course.”

4. As a corollary of the above directions, SRLDC, the petitioner in Petition No.93/2000 and other petitions, was directed to file affidavits by 15.11.2001 and 15.2.2002, placing on record the frequency profile of the regional grid and state of drawal

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<sup>1</sup> Petitions No. 93/2000, 94/2000, 98/2000, 103/2000 & 106/2000.  
IA Nos. 15/2001, 16/2001, 18/2001, 35/2001 & 39/2001 in Petition No. 93/2000

by the constituent States in the Southern Region for the period ending 31.10.2001 and 31.1.2002 respectively to enable the Commission to take an appropriate view on compliance of the Commission's directions.

5. The Karnataka Power Transmission Corporation Ltd. (hereinafter referred to as "the second respondent" filed an application (No.80/2001) for review of directions contained in the order dated 3.8.2001. The review application was dismissed vide Order dated 6.11.2001 as the grounds for review urged in the application were outside the scope of order XLVII of the Civil Procedure Code.

6. Three "one-member" benches of the Commission visited various Regional Electricity Boards, including SREB, Bangalore on 2.11.2001 for an on-the-spot study of the status of maintenance of the regional grids. In the Southern Regional Grid, representatives of SREB and SRLDC were heard by the one-member Bench. During the process, the one-member Bench noted that the frequency position in the Southern Region had worsened as compared to that in the corresponding months in 2000. The one-member Bench noted that the load shedding plans finalised at Operation Coordination Committee of the Southern Regional Electricity Board meetings were not followed by the state utilities in the region. Based on material adduced before the one-member Bench, it concluded that the low frequency operation in Southern Regional Grid led to a grid disturbance on 11.9.2001 at 12.54 hrs in which Andhra and Karnataka States were affected severely resulting in total black out of the systems for many hours. The report submitted by the one-member Bench was considered by the Commission.

7. In view of the directions as noted above in para 4 above, an affidavit was filed on behalf of SRLDC on 15.11.2001 stating that the beneficiaries in the Southern Region,

which included the second respondent, continued to overdraw at a low frequency and that they were reluctant to shed load when so advised, as a result of which, the grid frequency of the region remained below 48.5Hz.for 78.9% of time in August 2001, 83.21% of time in September 2001 and 43.4% of time in October, 2001. Another affidavit was filed by SRLDC on 31.12.2001. The status of overdrawals by the constituents of Southern Region during August 2001 to December 2001 as contained in the two affidavits filed on behalf of SRLDC is as under:

**OVERDRAWALS AT LESS THAN 48.5 HZ/49.0 HZ (In MU's):-**

<b>Month</b>	<b>APTRANSCO</b>	<b>KPTCL</b>	<b>KSEB</b>	<b>TNEB</b>
Aug. 2001	11.44	36.26	7.49	45.53
Sep.2001	12.25	24.63	10.53	25.42
Oct.2001	2.02	43.72	5.64	39.02
Nov.2001	7.91	78.26	7.94	19.60
Dec.2001 (up to 23.12.2001)	4.96	44.79	8.32	15.32
<b>TOTAL</b>	<b>38.58</b>	<b>227.66</b>	<b>39.92</b>	<b>144.89</b>

8. Meanwhile, another application (No.24/2002) filed by the second respondent on 8.1.2002 for review was also dismissed vide order dated 21.3.2002 in view of the provisions of Rule 9, order XLVIII of the Code. However, this application disclosed that the State Government of Karnataka (Energy Department) (hereinafter referred to as "the first respondent") through G.O. No.DE: 188 Feb. 2001 dated 23.10.2001 issued under Rule 133 of the Indian Electricity Rules, 1956, (hereinafter referred to as the Electricity Rules), notified under the Indian Electricity Act, 1910 (hereinafter referred to as the Electricity Act) had permitted the second respondent to operate the grid at a frequency of 50.0Hz.  $\pm$  4%. In other words, GO dated 23.10.2001 authorised the second respondent to operate the grid, (which is an integrated transmission system of all states in the Region) within the frequency variation band of 52.0 Hz to 48.0 Hz.

9. Through affidavits filed by SRLDC, it was made out that second respondent was over drawing heavily from the regional grid. On consideration of the above noted facts, particularly those brought out in paras 6 and 7 supra, a show-cause notice was issued to CMD, Karnataka Power Transmission Corporation Limited, on 14.2.2002 (hereinafter referred to as "the show cause notice dated 14.2.2002") directing him to explain why action under Section 45 read with Section 47 of the repealed Act be not taken for repeated non-compliance of the provisions of Indian Electricity Grid Code (IEGC) and the directions of the Commission contained in its order dated 3.8.2001 in Petition No.93/2000 and other related petitions, filed by SRLDC. The State Government was also directed to explain the circumstances leading to issue of GO DE: 188 Feb 2001 dated 23.10.2001. The show-cause notice was listed for hearing on 21.3.2002.

10. While issuing show-cause notice, Officer-in-charge SRLDC was directed to supply copies of the affidavits filed on behalf of SRLDC to the respondents. It was confirmed on behalf of SRLDC that the copies of the affidavits were actually furnished to the respondents.

11. The respondents were granted liberty to file their replies in response to the show cause notice and the officers at appropriate level were directed to be present at the hearing on 21.3.2002. No reply was filed by either of the respondents. The officers directed to be present in person had also not appeared on 21.3.2002. Shri S. S. Naganand, Advocate appeared before the Commission on the date fixed but the absence of the concerned officers was not explained by the learned counsel. Shri Naganand informed that the second respondent had filed a petition before the Hon'ble High Court of Karnataka against the show cause notice dated 14.2.2002.

12. The Commission's records reveal that on 21.3.2002, the representative of SRLDC demonstrated that the respondent overdrew power from the regional grid during August 2001 and onwards. He stated that during the month of March, 2002 itself there were huge overdrawals by the second respondent, despite the fact that the frequency was hovering around 48.0 Hz; much below that prescribed in the IEGC or as directed by the Commission. The representative of SRLDC stated that in March, 2002, there occurred five grid separations in the region because of operation of the grid at a low frequency and any one of them could prove to be disastrous as the system almost came at the edge of a major grid disturbance.

13. In the civil writ petition filed under Article 226 of the Constitution of India before the Hon'ble High Court of Karnataka against the show cause notice dated 14.2.2002, which was stayed by the Hon'ble High Court by its order dated 22.3.2002. In view of the stay order, further proceeding before the Commission were held in abeyance. The Hon'ble High Court by its order dated 9.2.2005 has since dismissed the civil writ petition filed by the second respondent and has further directed the Commission to dispose of the proceedings initiated pursuant to the show cause dated 14.2.2002 after giving a reasonable opportunity to the concerned parties. In pursuance of the directions of the Hon'ble High Court, the show cause notice was taken up for hearing on 19.4.2005 after serving fresh notice, when Shri D.K. Sarkar, Advocate appearing for the second respondent requested for four weeks time to file reply to the show cause notice dated 14.2.2002. Time prayed for was allowed and hearing of the matter was fixed on 9.6.2005. This was also separately communicated to the respondents. No reply has been filed by

either of the respondents despite the opportunity afforded. None has appeared on their behalf on 9.6.2005. Therefore, we have proceeded ex parte in the matter.

14. First we consider the impact of the notification dated 23.10.2001 issued by the first respondent. The notice of the Commission has been drawn on a well-established principle of statutory interpretation that the statutory provisions are to be interpreted harmoniously so as to avoid any conflict between different statutory provisions and to give effect to all the provisions. This principle pre-supposes absence of any conflict while construing the statutory provisions. When so interpreted it can be safely concluded that regulation of inter-state transmission falls within the exclusive jurisdiction of the Commission. It is the regulation of transmission, distribution and supply of electricity within the State that falls within the powers of the State Government/State Commissions. On this consideration, the drawals of electricity from the integrated regional (inter-state) grid are to be regulated by the principles prescribed by the Commission in the IEGC and not under the Electricity Rules or the GO dated 23-10-2001 issued by the first respondent. In case, however, the first respondent considers it appropriate to operate the State Grid at a frequency beyond the standard frequency, it is required to be isolated from the regional grid and operate its system on “stand alone” basis in which case it will be deprived of power generated by the Central sector generating stations. This may cause further scarcity of power in the State.

15. Yet another principle of statutory interpretation that was brought to the Commission’s notice was that “generalis specialibus non derogant”, which means that the general provisions yield to specific provisions. This is based upon the reason that in passing a special Act, Parliament devotes its entire consideration to a particular subject. The Indian Electricity Act, 1910 is a law of general nature, which dealt with the provisions



relating to transmission, distribution and supply of power by the licensees within the limited areas in the State and whose object is to lay down law “relating to the supply and use of electrical energy”. The 1910 Act did not confer any powers on the State Government in relation to operation of the grid. On the contrary, the repealed Act contains special law, which, inter alia, confers power of regulation of inter-state transmission of electricity on the Commission. Based on this consideration either, the provisions of the IEGC approved by the Commission for regulation of inter-state transmission or other directions given by the Commission on the subject, override the Electricity Rules or the GO issued thereunder. In fact, this aspect is made explicit by Section 52 of the repealed Act, which mandates that “save as otherwise provided in Section 49, the provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act”. Section 49 of the repealed Act provided that the provisions of the repealed Act were not applicable where the provisions of Consumer Protection Act, 1986 and Atomic Energy Act, 1962 apply.

16. On consideration of the above noted position, the Commission came to the conclusion that the rules regulating the inter-state transmission system contained in the IEGC prevail over the notification issued under the Electricity Rules, in case of conflict. All the players involved in the inter-state transmission of electricity including the second respondent are mandated by law to be bound by provisions of the IEGC, including those reproduced at para 2 hereinabove.

17. On perusal of the material on record and referred to hereinabove, we are satisfied that the second respondent has failed to comply with the provisions of the IEGC extracted under para 2 hereinabove. We further find that the second respondent has not

complied with the directions contained in the Commission's order dated 3.8.2001 *ibid.* We are satisfied that the second respondent has made itself liable for penalty under Section 45 of the repealed Act.

18. Sustained low frequency operation or permitting the frequency variation in a wide range causes damage to the electrical equipment of power plants as well as that of the consumers. In power plants, such operation may cause damage not only to the auxiliary equipment like motors and pumps but also to turbines and generators. Last stage blades of the turbine are particularly susceptible to damage due to sustained low frequency operations. It is because of this reason that manufacturers do not recommend operation for turbo-generators at frequency beyond the standard frequency. Several cases of damage to turbines have been reported in the country due to sustained low frequency operation. We were told that a large number of the generating units, particularly the old ones might develop problems within a short duration thereby pushing power shortage in the region to an unmanageable level. A wide cross-section of society from domestic and commercial consumers to farmers and industrial consumers use electricity for operating a variety of electrical and electronic equipments. These equipments are also liable to damage on account of variation in frequency/voltage of electric supply. Quality of products of a number of process industries like rolling mills is heavily dependent on the quality of power supply. Poor quality of power supply not only results in reduced life of equipment but also in poor quality of products. In case of irrigation pumps, the total operating hours of the pumps are to be increased for pumping same amount of water if the frequency of operation is low. Thus, cumulative effect of sustained low frequency operation may have substantial bearing in safe and sustained operation of assets which are difficult to be created in a resource constrained economy, like that of India.

19. Another aspect of low frequency operation which was brought to our notice is, that the level of grid security takes nose-dive as the frequency gets lower and lower. With the reduced level of grid security, even a small perturbation like outage of a generating unit or transmission line is sufficient to cause a grid collapse leading to failure of power supply in the region. The restoration time of the grid normally varies from few hours to a day causing colossal amount of financial, industrial, economic and societal damages, directly or indirectly.

20. On these considerations, we direct that the second respondent shall pay a penalty of Rs. one lakh for the contraventions noted above. The amount of penalty shall be deposited by the second respondent in the Commission's office through a Bank Draft in favour of Assistant Secretary, Central Electricity Regulatory Commission latest by 15.7.2005.

21. We may state that the repealed Act has been replaced by the Electricity Act, 2003, with effect from 10.6.2003. However, the proceedings initiated under the repealed Act have continued by virtue of Section 185 (2) of the 2003 Act read with Section 6 of the General Clauses Act, 1897. Incidentally, the 2003 Act in Sections 146 and 149 contains provisions analogous to Section 45 and 47 of the 1998 Act.

22. With the above directions, the proceedings initiated by the show cause notice dated 14.2.2002 stand concluded.

Sd/-  
**(A.H.JUNG)**  
**MEMBER**

Sd/-  
**(K.N. SINHA)**  
**MEMBER**

Sd/-  
**(ASHOK BASU)**  
**CHAIRMAN**

New Delhi dated the 21<sup>st</sup> June, 2005