

GRID CODE ORDER

 Draft Order IEGC

 Organisational Issues

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 Planning Code of IEGC

 Connection Conditions

 Operating Code for Regional Grids

 Scheduling and Despatch Code

 Management of IEGC

ORDER*

(Heard on 20th, 21st and 23rd July, 1999)

A.R. RAMANATHAN, MEMBER:

1. PRELIMINARY

The Central Electricity Regulatory Commission (hereinafter called the Commission) issued on 31.3.1999 certain directions to the Central Transmission Utility (CTU). In April 1999, Powergrid Corporation of India Ltd. (Powergrid) in its capacity as the CTU submitted a Draft Indian Electricity Grid Code (IEGC) in compliance of the directions of the Commission, laying down an operating code specifying the policy and procedures to be followed by various participants (agencies) in the Inter-State Transmission System (ISTS).

1.2 As per the directives, the CTU, having jurisdiction for supervision and control over the Inter State Transmission System, was to submit a draft IEGC not later than 7th April, 1999 for approval. Though there was no formal petition, this submission has been considered as a petition in accordance with the provisions of Regulations 24, 25 and 26 of the Commission's Conduct of Business Regulations (CBR). Accordingly, the Commission designated Powergrid as a Petitioner in this case to present the matter before the Commission. After the submission of the Draft, on 11th June, 99 Powergrid submitted an application proposing certain charges for reactive energy to be considered by the Commission along with the draft IEGC. This application was admitted by the Commission the same day and it was decided to hear the same along with draft IEGC.

1.3 The Commission directed CTU to issue a public notice announcing the submission of the draft IEGC, inviting all interested persons to file objections, if any. Simultaneously, the Commission also directed CTU to send copies of the draft along with a copy of the application for approval of reactive energy charges, to all

the present participants in the ISTS, so that they could file their objections if any within the time limits prescribed by the Commission. Replies were to be submitted by all parties concerned in conformity with the relevant provisions of Conduct of Business Regulations (CBR). CTU was also directed to file its Rejoinder to the replies within the prescribed time. The hearing on this petition was fixed for 20th, 21st and 23rd July, 1999, for which notices were duly sent to all parties concerned. At the time of hearing, it was noted that replies have been received from 34 parties in respect of IEGC, and 15 parties in respect of reactive energy charges, which were all dealt with by CTU in its Rejoinder filed on 19th July, 1999. The written pleadings having been completed, the matter was taken up for hearing as per the schedule referred to above. At the hearing, parties referred to as per the list contained herein were represented and made their submissions as per their pleadings. At the request of some of the Respondents, further opportunity was given to make written submissions by 5th August, 1999 and CTU was also given the opportunity to respond to these written submissions. At the end of the hearing, the Commission directed CTU that in the written submissions it should categorically specify reasons where objections/suggestions from Respondents have not been accepted, whether partly or fully. CTU was also directed to file a revised draft of the IEGC within two weeks after 5th August, 1999 i.e. by 19th August, 1999. The present order therefore covers all the written submissions and oral submissions of parties along with the final draft IEGC which was submitted by CTU on 30th August, 1999. The delay in submission was condoned by the Commission based on an application for condonation of delay.

1.4 Before dealing with the draft IEGC, it is necessary for the purpose of record to state that:

(a) since the directives dated 31.3.1999 were also circulated along with the Draft IEGC, certain comments were received from few respondents on the directives as well. Some respondents have also stated that CTU has not solicited objections from interested parties before submitting the draft IEGC, as per the directive of the Commission. CTU in its reply has submitted that, considering the number of Utilities in India, it would be able to interact with only one representative from every State and it would be the responsibility of this representative to interact with all concerned parties in the State. Though this is a proposal, the fact remains that in the preparation of the present draft, CTU had not been able to interact with even one agency from each State. However, taking into account the strict time schedule and the fact that opportunity was provided by the Commission to all concerned to react, the complaint of not soliciting objections from interested parties is of little consequence. In any case, on the compliance or non-compliance if any of the directives, the Commission would itself be seized of the matter as we go along and this matter need not be dealt with by us in the present order, so long as such matters do not relate to the draft IEGC. In other words, we shall confine ourselves to the draft IEGC per se.

(b) Shri R.N. Srivastava, Ex.Officio Member of the Commission did not associate himself with these proceedings on the ground that the Central Electricity Authority (CEA) of which he is the Chairman has

offered comments/objections on the draft IEGC.

We should at the outset, make it clear that the IEGC in the final form as approved by the Commission, shall be construed as a document of the CTU. Hence, it should ensure that adequate care is taken to make the Code practical and implementable. This aspect has also been confirmed by CTU in its letter dated 9th April, 1999 while enclosing a copy of the Draft IEGC.

*All abbreviations used in this order are as per the Draft IEGC.

2. GENERAL – CHAPTER 1 OF DRAFT

Chapter 1 of the Draft serves as a Preface to IEGC. This Chapter consist of five sub-paras viz., 1.1: Introduction; 1.2: Objective; 1.3: Scope; 1.4: Structure of the IEGC; 1.5: Glossary & Definitions.

2.1 With particular reference to the contents of this Chapter, certain replies are relevant viz., (a) CEA has suggested the exclusion of the Planning Code from IEGC and instead suggested a separate Code indicating clearly the role of CEA in Transmission Planning; (b) UPSEB and certain others have suggested the deletion of transmission licensing from IEGC and instead to issue it as to make it a separate regulation; (c) There has also been a suggestion for expansion of all abbreviations as well as for shortening of some of the definitions; (d) a large number of amendments to the definitions have been suggested.

CEA has suggested the deletion of the Chapter on the Planning Code. Reasoning of CEA for this suggestion and reaction of CTU as well as our conclusions on this issue are being dealt with in the Chapter on Planning Code and hence are not being dealt with in detail here.

2.2 As regards the proposal for deletion of the Chapter on Transmission Licensing the reply of CTU is that this Chapter has been included in compliance of the Directive dated 31.3.99. A reference to the directives shows that the Commission did direct the inclusion of the following in the IEGC:

- a. Procedures for soliciting proposals – technical and economic; evaluation of bids and selection of developers for the construction, maintenance and operation of any ISTS; and
- b. The procedures for submission of application and approval of a transmission license to any person which will authorise the licensees to construct, maintain and operate any ISTS under the direction, control and supervision of CTU.

Keeping in view the urgent need for huge investment in transmission, and the need to mobilise private and public resources, it is necessary to examine in depth the licensing policy and procedures so that private investment in transmission is effectively and expeditiously introduced. It has been argued by some respondents that CTU as a commercial enterprise already engaged in the business of transmission may have its own interest in putting forward the draft proposals on the procedures for licensing. In some countries the functions of load despatch, transmission operation and investment approvals, are separated. Private investment applications have to be examined in the right perspective. On a scrutiny of the replies to the Chapter on Licensing, we find that

adequate attention has not been given by the respondents to the contents of the draft. This is probably because of the lack of exposure of the respondents, or their lack of interest in this area. At the same time, the Commission, on its own, pursued with the CTU the policy and procedures right from the stage of conception of the project for investment, till the choice of the private party, and issue of the license. Though CTU had submitted an initial paper on the procedures, the Commission found the same to be perfunctory, and hence called for more detailed break up of the procedures. Since this process is taking a longer time to finalise, we consider it appropriate to postpone the inclusion of this Chapter in the IEGC for the present. We are, however, of the view that in the ultimate analysis, the whole process of transmission investment along with the details of the Terms of the Transmission Service Agreement (TSA) and other procedures, has to be a transparent one and will have to constitute a part of the IEGC, which is a public document. The Commission will make all endeavours to get the CTU to submit the procedures expeditiously to the Commission so that they can be notified separately. Pending the finalisation of the entire procedure with regard to licensing, keeping in view the objective of promoting private and public investment in the transmission sector, we direct that CTU shall invest on new lines by adopting a transparent process. Accordingly, CTU shall make a public announcement of its intentions to make investment on any new lines, setting out in full the details of such investment including the cost, time and the task involved. The announcement shall be made atleast in two national dailies. It shall also allow atleast a month's time for objections/alternative proposals to be submitted to it. In case any objections/alternative proposals are received within the prescribed time, the same shall be submitted to the Commission for consideration and final disposal before taking up the new investment. This arrangement shall be in force till a new chapter on transmission licensing is incorporated or announced separately by the Commission.

2.3 Regarding the modification of the definitions and expansion of abbreviations, which are contained in Chapter 1 under the heading 'Glossary and Definitions', we find that CTU has dealt with all these suggestions appropriately in the revised draft. Further in our view the purpose and objective of the Glossary and Definitions is only to make the Code self explanatory and not bind parties based merely on definitions. We also do not find any of the definitions being used in an extra-ordinary sense. Still keeping in view the various suggestions and the amendments carried out by CTU, we direct that the following definitions be reconsidered:

(a)	Bulk Power Supply Agreement (BPSA)	The words 'capacity and energy' to be replaced by 'power'.
(b)	Capacity	To be deleted as it is explained in the main text in correct context.
(c)	Central Generating Station (CGS)	To be deleted as it is replaced by ISGS.
(d)	Central Transmission Utility (CTU)	To be reworded as "The Utility notified by the Central Government under....."
(e)	Connection Condition (CC)	To be deleted.
(f)	Distributor	Delete as not used in main text.
(g)	Data Acquisition System (DAS)	The words "during an event" to be deleted.
(h)	Five Year ISTS Plan	To be deleted.

(i)	Forced Outage	Replace the words `or otherwise' by `or other reasons.'
(j)	Generating Company	The statutory definition to be reproduced.
(k)	Generation Schedule	Same as `Despatch Schedule' and hence to be omitted.
(l)	Grid	Omit as reference is always to regional grid.
(m)	Indian Electricity Grid Code (IEGC)	The words `formal' and `mandated' to be deleted.
(n)	Licensee	The statutory definition to be reproduced.
(o)	Net Injection Schedule	Same as `Despatch Schedule' and hence to be omitted. Care also to be taken to use one term in the text.
(p)	Planning Code	To be omitted.
(q)	Regional Electricity Board (REB)	The statutory definition to be incorporated.
(r)	Regional Energy Account (REA)	The word `notional' to be omitted and include Reactive Energy Charge also in the scope.
(s)	Regional Load Despatch Centre (RLDC)	The statutory definition to be incorporated.
(t)	Site Responsibility Schedule	The main text to be expanded as given in Definitions. To be deleted from here.
(u)	Spinning Reserve	The words `Unutilised.....capacity' to be replaced by `Part loaded generating capacity with some reserve margin....'
(v)	Standing Committee for Transmission Planning	Add the words `and associated intra state systems' at the end.
(w)	SCADA	To be omitted as not used in the main text
(x)	System	Replace by `Power System'
(y)	Transmission Planning Criteria	Replace `ISTS' by `Transmission System'.
(z)	Transmission Tariff	To be omitted

In addition to the above, commonly used terms like Active Power, Reactive Power, Reactive Energy Charge and State to be deleted from the list.

With the above observations and directions, Chapter 1 of the revised Grid Code stands approved.

ORGANISATIONAL ISSUES - CHAPTER 2 OF THE DRAFT

A crucial issue to be addressed with regard to the smooth integrated grid operation at each region is the existence of a clear cut organisational set up with duties and responsibilities neatly delineated. The draft grid code in Chapter 2 has set for itself the basic task of defining the roles of the concerned organisations and their linkages so as to facilitate smooth operation of regional grids and the national grid. Chapter 2 defines the functions of the organisations whereas the linkages

have to be found in Chapters 6 and 7 of the Draft.

3.2 In order to appreciate the above said provisions, it is necessary to set out the organisational arrangements as contemplated by law before and after the Electricity Laws Amendment Act, 1998. In the pre 1998 situation, though both REB and RLDC were on the scene, there was no CTU in existence. The Electricity (Supply) Act of 1948 defined REB under section (2) 9A as

"Regional Electricity Board means any of the Boards as constituted immediately before the commencement of the Electricity Laws (Amendment) Act, 1991 by a resolution of the Central Government for ensuring integrated operation of the constituent system in the region."

The above definition has to be contrasted with the revised definition as per the Amendment Act of 1998 which reads as follows:

"Regional Electricity Board means a Board constituted by a resolution of the Central Government for a specified region for facilitating the integrated operation of the power system in that region."

3.3 The above change in the perception of law with regard to REBs has to be read in the context of further changes in the legal provisions with regard to the role of RLDCs in the integrated operation of the power system. The pre 1998 definition of RLDC as contained in section 2 (9-B) of the Electricity Supply Act of 1948 read as follows:

"Regional Load Despatch Centre means the Centre so designated where the operation of each of the Regional Electricity Grid constituting the country's power system is coordinated."

The 1998 Amendment redefines it as follows:

"Regional Load Despatch Centre means the Centre so designated for a specified region where the operation of the power system in that region and the integration of the power system with other regions and areas (within the territory of India or outside) are coordinated."

Thus the only substantial change is that the scope of co-ordination is extended to interaction outside the Region and the Country.

3.4 Though the description of RLDC has practically remained the same, the status and functions of RLDC in ensuring (which indicates the shifting of onus from REB to RLDC) integrated grid operations have been changed by the Amendment Act. Prior to the amendment, Section 55 of the Electricity (Supply) Act, 1948 contained the following:

- i. The Section contemplated State Electricity Board giving reasonable directions to licensees for the purpose of achieving maximum economy and efficiency in the operation of any undertaking or any part thereof.
- ii. It also contemplated Regional Electricity Boards giving directions to the licensees or generating companies, which they were obliged to follow.

- iii. Any dispute with regard to reasonableness of the above two directions was to be referred to the Central Electricity Authority whose decision shall be final, but pending the decision, the directions shall prevail in the interest of smooth operation of the grid.

3.5 The above Section was totally revamped by the 1998 Amendment Act to provide as follows:

- (i) The Central Transmission Utility shall operate the Regional Load Despatch Centres.
- (ii) The Regional Load Despatch Centre shall be the apex body to ensure integrated operation of the power system in the concerned region;
- (iii) RLDC may give such direction and exercise such 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.
- (iv) Every licensee, SEB, generating company, generating stations, sub-stations and any other person connected with the operation of the power system shall comply with the directions issued by RLDC.
- (v) All directions issued by RLDC to other than those connected to the inter-State transmission system, shall be routed through the State Load Despatch Centre.
- (vi) Subject to the above said provisions, REB in a Region may mutually agree on matters concerning the smooth operations of the grid and economy and efficiency, in which case, every person concerned in the operation shall comply with the decision of the REB.
- (vii) The RLDC shall enforce such decisions of the REB i.e., the decision as referred to in the above clause.
- (viii) Subject to the regulations of the Commission, any dispute with reference to the operations of the power system, shall be referred to the Central Electricity Authority for decision.
- (ix) Pending the decision of CEA, directions of RLDC shall be complied with.
- (x) The Central Commission may by notification, specify the fees and charges to be paid to RLDCs for undertaking load despatch functions.

3.6 In the background of the legal provisions amended as above by the 1998 Amendment Act, the replies of various respondents who appeared before us during the hearings on the Grid Code and made specific observations relating to the role of REB and RLDCs in the operation of the power system at the regional level have to be considered. The general tenor of submissions made by respondents is that since RLDC is operated by the CTU viz., Powergrid and since the latter has a commercial interest in as much as it is engaged in the business of transmitting power against charges, RLDC or CTU cannot be neutral in the operation of the power system. There is need for a neutral authority to control and give directions for the smooth operation of the integrated power system at the regional level. The above views were also aired during the hearings. These views can be broadly summarised in a nutshell:

- i. Energy Accounting to continue being done by REB;
- ii. CTU and RLDC should be insulated from Powergrid;
- iii. REB to exercise overall surveillance of RLDC.
- iv. Outage scheduling to be done by REB whereas re-scheduling in exceptional cases could be done by RLDC after joint discussion with REB;
- v. REB should continue to discharge responsibilities of operational planning, overseeing implementation, facilitation of commercial arrangements for inter-utility trading, etc.

3.7 The above views have come from the following Respondents:

- i. TNEB;
- ii. Andhra Pradesh Transmission Corporation;
- iii. Neyveli Lignite Corporation;
- iv. Bihar State Electricity Board;
- v. Damodar Valley Corporation;
- vi. West Bengal State Electricity Board;
- vii. National Thermal Power Corporation;
- viii. Central Electricity Authority;
- ix. Nuclear Power Corporation.

3.8 During the hearing, some of the respondents in particular, NTPC argued that since RLDC is obliged to enforce the decision of REB as per Section 55(8) of the Electricity (Supply) Act, 1948 the load despatch centre has no other option. This argument, however, does not hold good in as much as sub-section (7) & (8) contemplate mutually agreed decisions and enforcement of such decisions (see the words in sub-section (8) "shall enforce the decision". Hence RLDCs obligation to enforce any decision of REB can only be confined to mutually agreed decisions. Again, to phrase "mutually agreed decisions" makes it abundantly clear that if there is any decision per se but not a mutually agreed one, such a decision is not contemplated in sub-section (7). Hence a mutually agreed decision has to be necessarily a unanimous decision.

3.9 Another difficulty in accepting the above arguments is the presence of the phrase "subject to the above provisions of this section" in sub-section (7), which makes the provisions of sub-section 7 conditional upon the provisions of sub-sections (1) to (6). Sub-sections (1) to (6) provide for the status and powers and duties of the RLDC. In other words, the mutually agreed decisions of REBs as contemplated in such-section (7), are subject to, or in other words subordinate to, the status and powers of RLDC. The mutually agreed decisions of REB should be strictly speaking, without prejudice to the status and powers of RLDC as contemplated in sub-sections (1) to (6). This casts a responsibility on REBs to bring about mutually agreed decisions since sub-section (7) of section 55 is subject to sub-sections 1 to 6 without in any way prejudicing the status and powers of the RLDC. Hence, caution has to be exercised while the REB makes mutually agreed decisions. So long as the decisions under sub-section (7) have satisfied the condition for such decisions as set out in that sub-section, the RLDC is obliged to enforce the decisions of REB.

3.10 The Central Electricity Authority, in its reply, has observed that the roles of various organisations in the draft are not quite in line with the provisions of Indian

Electricity Act and the Electricity (Supply) Act. The functions of REBs are an important interface between the SEBs, STUs, RLDC and these have not been reflected correctly and some of the functions of REBs have been proposed for being carried out by CTU/RLDC. CEA has also pointed out that REB has to do operational planning and coordination with the sub-Committees of the REB. The decisions taken by REB, TCC and its sub-Committees have to be enforced by RLDC. Similarly, preparation of regional energy accounts has to be within the domain of REB. As regards the role of CEA it has also been pointed out that it is a nodal agency for overall planning of the transmission grid of India including inter-State transmission system. It is also stated that CEA has full role in advising the SEB generating companies and other agencies in improving the operation and control of the power system. It is further pointed out by CEA that the scope of CTU as per the draft has been extended to the entire grid, which is beyond its jurisdiction, and it has to be limited to the operation of inter-State transmission system only.

3.11 We have carefully considered changes brought about in law by the Amendment Act of 1998, submissions made by various respondents, the role played so far by organisations like Regional Electricity Boards, Regional Load Despatch Centre and the Central Electricity Authority. On a consideration of the legal provisions and the submission made by Respondents, the following conclusions with regard to the legal provisions are inevitable:

- i. Under the then existing system (prior to the amendment), none of the authorities in the inter-State transmission system viz., CEA, REB or RLDC has been squarely made responsible for supervision and control of ISTS.
- ii. The RLDC as an apex body, is now entrusted with the responsibility to ensure integrated operation of the system in the region and the REB is relieved of this responsibility.
- iii. RLDC is empowered to give directions and exercise supervision and control to ensure integrated grid operation and to achieve maximum economy and efficiency in the operation.
- iv. Every constituent of the system shall comply with the directions issued by RLDC.
- v. REB may take mutually agreed decisions on matters concerning smooth operation of the system which shall facilitate the smooth operation of the system without prejudice to the status and powers of RLDC.
- vi. Such decisions of REBs shall be enforced by RLDCs.
- vii. Role of CEA as a dispute redressal forum continues, subject to regulations to be framed by CERC in this regard.
- viii. CTU is made responsible for the superintendence and control of ISTS at the national level, with the Commission as the overall regulating authority.
- ix. Role of CEA in transmission planning and its advisory role as contemplated in section 3(1) remain unchallenged. Thus CEA's role is to provide strong technical support and advice without any role in the day to day operations.

3.12 The above conclusions have been arrived at on a comprehensive reading of the relevant legal provisions, which is essential in order to interpret the meaning and purpose of the amendment. Any reading of the provisions in disjointed fashion can only lead to compartmental interpretations, which is bound to miss the message conveyed by the amendments. The rule that a statute must be read as a

whole is now firmly established. This rule is referred to as a "elementary rule" and "compelling rule" by English courts. This has also been described as a "settled rule" by the Supreme Court in various judgements.

3.13 While recognising the intent and purpose of the law as amended, in the discharge of our responsibilities to regulate the inter-State transmission of Power, we have also to see whether the grid code has contemplated a workable organisational set up for the smooth functioning of system. It is no doubt true that there are a number of players in the power system viz., the generation utilities, the transmission agency, transmission licensees, licensees under the 1910 Act, the Electricity Boards and other persons connected with the operation of the system. The operation does involve a host of functions like –

- i. System operation and control in real time;
- ii. Scheduling and re-scheduling of generation;
- iii. Intra State and Inter Regional trading;
- iv. Operational planning;
- v. System planning;
- vi. Metering and data collection;
- vii. Energy accounting, settlement and billing;
- viii. Administration of pool account.

3.14 While analysing the above functions, it is evident that some of them do constitute an integral part of the operations and has been contemplated as the exclusive role of the RLDC. These functions are –

- i. System operation on real time basis;
- ii. Re-scheduling of generation and inter-State and inter regional transfers of power;
- iii. System restoration following grid disturbances;
- iv. Metering and data collection;
- v. Compiling and furnishing data pertaining to system operation.

As regards other functions, which go to facilitate the smooth operation of the system like planning of outages/lines, systems status, coordination of protection system, energy accounting, exploring possibilities of inter-State/Regional transfers etc., these are all functions which go to facilitate the operation of the system. Viewed from the revised definition of REB functions, as per the Amendment Act, the above functions, which go to facilitate smooth operation of the system can and should be assigned to the REBs. This conclusion is in line with the submission of CEA.

3.15 While the above demarcation of the functions between REB and RLDC has been considered appropriate, we are convinced that the two entities viz., REB and RLDC cannot function in exclusive compartments. As has been established in practice so far, the REB and RLDC have been functioning together in a coordinated manner with the objective of smooth functioning of the system. In fact, the two are located in the same premises to facilitate close interaction and coordinated functioning. We are therefore convinced that in future as well, within the

framework of the legal provisions the two entities have to function in coordination with each other and in unison, in order to achieve the objectives.

3.16 With the above delineation of functions, all concerned including the CEA should take cognizance of the changed legal provisions and act accordingly. The CTU and RLDCs should be allowed to play the role assigned to them and accept responsibility as per Law. The constructive role played by CEA in operation of ISTS is vested now on the CTU through statutory amendments. Similarly the role of REBs has also been redefined. All concerned should take note and act accordingly.

3.17 We have given our anxious consideration to the apprehensions of the constituents of the regional grids about the neutrality of RLDC, which is to function under CTU. Earlier RLDC was within the fold of the REB since as per law ensuring integrated operation of the grid was of the REB and now is under the CTU, which is, itself engaged in the commercial activity of transmission of power. It is difficult for us to state whether these apprehensions are well founded or not since there is no past experience of this kind of arrangement. We however, consider that any arrangement should be in conformity with the law and should not only be foolproof but should also appear to be so. Since there is a logic in the apprehensions expressed by the various constituents, we consider it appropriate to put in the IEGC a system within the provisions of law which shall be above board and reasonably acceptable to the constituents. It is not a workable proposition for the Commission to interfere on a continuous basis and monitor the working of RLDCs. Commission also recognises that the REB has a key role in the operation of ISTS but at the same time because of its size cannot be a monitoring group. Keeping in mind the subordinate role under REB played by RLDC in the past, we also consider it essential that the RLDC should now be manned by senior functionaries in order to enable it to discharge the independent responsibility shouldered by it. It is also our conviction that the CTU operations and the RLDCs should be under the charge of an independent full time Director of Powergrid so that it can be seen separately within Powergrid. Such Director shall have under him two senior level officers one in charge of CTU functions and the other in over all charge of all the RLDCs in order to view RLDCs separately. Each RLDC shall be manned by a person of the same status as that of a Member-Secretary of Regional Electricity Board who shall be able to inter act with the chief functionary of the REB on equal footing.

With the above status of the chief functionary of the CTU and RLDCs we also consider it appropriate that there shall be a Monitoring Committee at the CTU level covering all the 5 RLDCs. The functions of this Committee shall include periodic monitoring of the functions of RLDCs and review of RLDCs directions and their compliance/non-compliance by the agencies. The Committee shall consist of the following members:

- i. Chairman, Powergrid
- ii. Chairman of all REBs
- iii. One representative from the generating companies owned or controlled by the Central Government to be rotated annually.

The Chairman, Powergrid shall chair the Committee. Director (Operation), Powergrid shall be the Secretary of the Committee. The Members shall attend the meeting personally and no proxies shall be allowed. The quorum for the meeting

shall be 5 members. The Committee shall meet at least thrice in a year.

The Committee shall function in a transparent manner with Agenda and Minutes to be maintained on a regular basis. The Committee shall draw up its own Agenda of work keeping in view the special features of operations in the concerned region.

A qualified auditor shall independently audit the accounts of all RLDCs, which shall be considered as a branch audit for the purposes of Powergrid's main audit. The auditor's report shall be made available simultaneously to the Commission and to the Monitoring Committee.

There are valid justifications for the above conclusions with regard to the organisational arrangement, which we propose to place in position. A major justification as already stated is that many respondents have questioned the neutral functioning of the CTU in the context of it also being in the business of transmission. In many countries, the arrangement has been that the CTU functions of system operation incorporating those of RLDCs and REBs are performed by a non profit Independent System Operator (ISO). Our present legal frame work does not provide for this. It is therefore necessary to make the RLDCs, which are under the control of the CTU accountable to a collective forum. This is essential as it is observed from the past that no organisation was responsible or accountable for the smooth functioning of the ISTS. Moreover, the monitoring group should comprise of the CTU, which is operating the RLDCs. Considering all the above, it is appropriate to have representatives of the REB and the central generating companies. In addition, in order to generate authentic data for formulating the RLDCs charges, we have put in a position a system of submission of audited accounts to the Monitoring Committee.

3.18 Chapter II of the Draft has been used to define the role of various agencies in the context of regulation and operation of the Inter-State Transmission System. While discussing the Draft at the hearing, many Respondents pointed out the inadequate/inappropriate description and role of various organisations. In view of the comments received from various parties, CTU revised the definitions and reproduced the relevant legal provisions with regard to those organisations. On detailed consideration, we are of the view that in the operation of inter-State transmission system, it is not relevant to set out elaborately the role of the CEA as contained in the Electricity Supply Act, 1948, particularly in view of the changed legal provisions which contemplate specific roles on the operational side only to the RLDC, REB and the CTU. Hence the detailed description and the role of CEA in the Grid Code has no relevance. Similarly, as regards STUS, they have a very limited role in the operation of the ISTS and as such it is unnecessary to set out their role in the intra-State system in the Grid Code which deals with ISTS. As such, it is directed that paras 2.5, 2.8 and 2.9 be deleted.

As regards the role of the CERC the provisions contained in the ERC Act and the Electricity Laws Amendment Act apply irrespective of whether the same are incorporated or not in the IEGC. Hence it is unnecessary to repeat the same provisions. As such we direct that para 2.6 be also deleted.

The same analogy applies as regards para 2.10 that sections 55(3) and 55(4) of the Electricity (Supply) Act as amended already govern role of licensees etc. Hence

they need not be reproduced. Para 2.10 is also required to be deleted.

In the light of the above, conclusions, we direct Powergrid to:

- i. suitably amend Chapter 2 of the IEGC inter alia, by setting out the respective functions of the RLDC and REB;
- ii. make provisions for the Monitoring Committee for RLDCs and auditing of their accounts.

With the above directions, Chapter 2 of the Draft is approved.

PLANNING CODE – CHAPTER 3 OF THE DRAFT

The Central Electricity Authority in its reply to the petition has questioned the need for including a Chapter on the planning code for Inter-State transmission. It suggested that this Chapter may be excluded from the Grid Code, and a separate code for transmission system planning be brought out which, as per the provisions of the Electricity (Supply) Act, 1948, would be the responsibility of CEA. In its Rejoinder, CTU has justified the Chapter on Planning Code on the ground that it is as per the Commission dated 31.3.1999 and that CEA's observation for exclusion of this Chapter is not in accordance with the directives.

4.2 We have considered the reply and the Rejoinder on this issue. A reference to directive No. 3(i) of CERC's directives dated 31.3.1999 shows that there was a direction to include in IEGC the following: "The ISTS planning procedure and information exchange system necessary to identify and promote the requirements of the re-enforcement or extension of ISTS." The implication of the above directive is to spell out in the Code the planning "procedures" as opposed to the planning "policy" with regard to ISTS planning in order to identify and promote the requirements of re-inforcement or extension of the system. In this connection, CEA has drawn the attention of the Commission to section 3(1) of the Electricity (Supply) Act, 1948 to state that it has the jurisdiction to: (a) formulate short term and perspective plans; and (b) advise on operation and maintenance of power systems. CEA has also by implication pointed out that a separate code for transmission system may be brought out under the provisions of the Electricity (Supply) Act, 1948. It also raised the issue of jurisdiction of the Commission under section 13(c) of the ERC Act with regard to the direction for planning. According to it, the Commission's jurisdiction is confined to regulating the inter-State transmission of energy and does not extend to the power system as a whole. It is further pointed out that the role advising the SEB, generating company or other agency in improving the operation or control of the power system, continues to be with CEA.

4.3 A careful review of the relevant legal provisions shows that generally the Commission has a regulatory role with regard to inter-State transmission of energy, whereas the role of CEA regarding power system is advisory in nature. Further, regulation of inter-State transmission without an authority to regulate power system for inter-State transmission would be nugatory and ineffective. The ERC Act also provides the power under section 55 to the Commission to prescribe regulations in order to carry out the purposes of the Act. In pursuance of this power, read with the function of regulating inter-state transmission of energy the

directives were issued by the Commission to the CTU on 31.3.1999.

4.4 It is also to be noted that under section 27A of the Electricity Act, 1910 as amended in 1998, all function of planning and coordination as well as overall supervision and control relating to inter-State transmission has been squarely vested in the CTU, whereas CEA has not been vested with the power to supervise and control the inter-State transmission. No doubt Section 3(1)(ii) of the ES Act, 1948 does contemplate functions and duties relating to development of a national power policy and formulation of short term and perspective plans. However, by the 1998 Amendment of Indian Electricity Act, the function of planning and control of ISTS is conferred on the CTU. As a matter of rule, on any issue where there is a conflict of jurisdiction, a subsequent unambiguous legislation prevails over a prior legislation. On this principle also, section 27A of the Indian Electricity Act, 1910 as amended, having vested the jurisdiction with the CTU to discharge all functions of planning and coordination as regards ISTS, has to be given its due weightage. The role of the Commission in regulating, and of the CTU in planning supervision and control of ISTS is therefore established beyond doubt particularly in view of the overriding effect of the ERC Act over any other enactment. The attempt should be to synchronise the functions of both CEA and CTU particularly in view of the expertise and experience of CEA.

4.5 On a closer scrutiny of the contents of the draft planning code, we find that the planning policy contents do not in any way deny the role and prerogative of CEA with regard to Perspective Plans for the inter-State transmission system. It is also found that the provisions contained in the draft do stipulate that any planning by CTU should be in conformity with the Perspective Plan and the planning criteria and guidelines issued by the CEA. Thus it is evident that the prerogative of planning including the criteria and guidelines of CEA would still prevail even under the grid code as proposed.

4.6 We do recognise that CEA is the only organisation which has the expertise and experience in this sector. CEA's Planning in the past has been the guiding factor for developments in the power sector. Powergrid has been actually engaged in the development of transmission facilities for nearly a decade. In our view it would be ideal if CEA can play a pioneering role in laying down the policies and evolve Plans both on long term and short term basis. It shall be the responsibility of CTU to revalidate on an annual basis the studies in the short term of 5 years by incorporating realistic assessment of generation addition, load growth and delay if any in actual execution of transmission lines etc. The draft Code should and does aim at these complementary roles for CEA and CTU. In view of the above, read with para 3.5(a) of IEGC `CEA' shall be deleted from para 3.3 of the Draft.

4.7 Some other respondents, particularly WBSEB, have suggested a role for REB in planning and formulation of Annual Plans by CEA. These have been rightly refuted by the CTU in view of the provisions of Section 27A(2)(b) of Indian Electricity Act, 1910 as amended in 1998, which vests the CTU with this function. Planning as per the Code, however, will be a consultative process with all concerned including CEA and REBs. This consultative process which is contemplated under the new section 27A(2) is reflected in clause 3.4(d) of the Draft Grid Code which is in order. MPEB's suggestion of the concept of `Rolling Plan' has been accepted by CTU as is evident from 3.4(b), though the term has not been specifically used. Some objections challenging the powers of CTU for calling

information for the annual planning as in 3.4(d) have been rightly rejected by CTU as they have been raised without appreciating the amendments in the IE Act.

4.8 Respondents have also objected to the reference to the Intra-State system in the Draft Code. CTU has not conceded on this point on the plea that the planning of Inter and Intra State system cannot be delinked. We are not in full agreement with CTU since its jurisdiction cannot extend to the intra state systems, for which STUs are contemplated. However, in view of the definition of inter State transmission as found in the law, some of the lines of the intra state system would fall within the definition of the inter State system. All the same, specific reference to intra state system, per se, needs to be deleted. It is no doubt true and appropriate that such part of intra State system which constitute a part of inter state transmission system should fall within the jurisdiction of the CTU. Accordingly, the Grid Code shall be suitably modified by CTU by deleting specific references to intra state system per se except where the intrastate system specifically constitutes a part of the ISTS.

4.9 Both TNEB and WBSEB have made certain suggestions under clause 3.4(h) which go to restrain the CTU in its functioning as a dynamic planner of ISTS, which role has been squarely conferred on it by section 27(A)(2)(b) of the Indian Electricity Act as amended in 1998. Similarly, DVC has suggested to substitute clause 3.4(i) to say that each State utility should be free to carry out its own planning. Though doing their own planning is essential, such planning has to be dovetailed with the plans made by CTU. WBSEB has stated that CTU should formulate its plans based on the plans by STU. In the rejoinder, it has been rightly stated that the CTU's plans are in accordance with the long term plans of CEA, and coordinated with the plans of ISTS, and hence, the plans of STUs have to fall in line with the above. We agree with this contention of the CTU and hence no amendments are needed in this regard.

4.10 TNEB has proposed that in clause 3.5(b) which states that the ISTS shall be capable of withstanding the last of the most severe single system infeed transmission or generation, the responsibility has to be precisely defined. We do not consider the necessity of defining this in the Code. However, on any complaint, the Commission has the jurisdiction to fix the responsibility in any eventuality.

4.11 Nuclear Power Corporation has proposed that as regards 3.6 (b)(iii) the standard formats for submission of data for planning should be got approved from the Review Panel. This has not been accepted by CTU. We uphold the contention of CTU in as much as the review panel has a specific task of review of IEGC, which should not be extended. However, it may be open to Commission to seek the views of the review panel, if considered necessary.

4.12 In general, regarding the planning code, NTPC has proposed that provision be made for Central Generating Stations building up the transmission system to its direct consumers if the same are not available/envisaged in the ISTS. This suggestion has not been accepted by CTU on the plea that though building of transmission lines is not banned, any such line shall normally require an approval in the Standing Committee of CEA and would normally be constructed/got constructed by CTU. In view of CTU accepting such a possibility and in view of the lack of clarity in the rejoinder as to how such situation has to be dealt with, we consider it appropriate to make suitable provision in the IEGC itself. Accordingly,

we direct CTU to suitably modify the IEGC.

In the final analysis the Draft submitted by CTU as regards Planning Code is approved subject to the modifications as contained in para (4.8) and (4.12) above.

CONNECTION CONDITIONS – CHAPTER 4 OF THE DRAFT

There has been no comment from any of the Respondents on the "introduction" part of this Chapter and as such this part would remain as per the draft submitted by CTU.

5.2 The objectives of the connection conditions have also not been commented upon by any of the Respondents excepting NTPC, which proposed the inclusion of one more objective viz., that the connection conditions are designed "to ensure that the entire power from CGS is evacuated to the beneficiaries as a first priority". The justification given for this amendment is that ISTS has been primarily envisaged and set up for the combined benefit of central sector generation and regional constituents. In the reply, CTU had originally stated that the Indian Electricity Act, 1910 does not provide for any priority in respect of the evacuation of the generation of any generating station on the ISTS and hence the suggestion was not acceptable. In the final rejoinder, however, CTU has modified the reply to state that the proposal of NTPC to give first priority for evacuation of CGS power is already covered in Clauses 7.4.9 and 7.4.10. However, a reference to the above referred two sub-clauses shows that they do not contemplate any priority for evacuation of CGS power on a permanent assured basis. These clauses talk of the authority of RLDC to direct SLDCs/ISGCs to increase/decrease their drawal/generation in case of contingencies. They also talk of cooperation of all constituents in case of outages of generation and transmission system for best optimisation. Thus, no amendment based on NTPC's suggestion has been made. Irrespective of the reasons adduced by CTU, we are convinced that in accordance with the policy of liberalisation launched since 1991 and the consequent need to aim for open access for transmission, it can no longer be the prerogative of any particular generator to get priority in evacuation of its power. In fact, we should aim for a complete open access system. Further it is the intention of CERC to encourage and implement merit order despatch. No priority or exclusivity can therefore be allowed to any constituent. CTU must ensure that they do not permit any constraints that restrict merit order despatch and if there are such, they must be removed.

5.3 There have been a large number of comments on the `scope' of the connection conditions, particularly with regard to their applicability to generating units embedded in the intra State systems. Suggestions have been received from AP Transco, PSEB, RSEB, WBSEB, DVC and GRIDCO. CTU in the reply has stated that it accepts these suggestions that the connection conditions of the generating units embedded in the intra state system should be finalised by the SEB/STUs. Accordingly, it has modified the earlier proposal of applicability of connection conditions to generating units of 50 MW (10MW for NER) and above. In the revised draft, as regards applicability, it is stated that "the connection conditions for generating units embedded in the intra State systems shall be finalised by the respective STU/SEBs. Though we are partly in agreement with the modification carried out by CTU, it should be explicitly made clear that the exemption is

applicable so long as such generating units are not connected to the ISTS. Accordingly, a proviso should be added to this effect in clause 4.3 of the Draft Code. The scope of the connection code extends to the CTU as well in as much as it is also required to comply with various obligations contained herein. As such the clause shall also include CTU, apart from others.

5.4 The procedure for connection as contained in the draft Code has attracted comments from CEA, NLC, NPC, UPSEB, GRIDCO and WBSEB. UPSEB has suggested that the time limit by which the CTU shall normally make a formal offer to an Agency seeking connection/modification should be spelt out precisely instead of `a reasonable time' as in the Draft. We are in agreement with this suggestion since the distinct feature of the regulatory regime is that institutions should function with self-discipline. As such CTU should modify the draft so as to put a specific time limit on itself. In our view, taking into account similar provisions at the distribution level in Orissa as in the Orissa State Electricity Regulatory Commission's regulations, a limit of one month from the date of receipt of all the details should be specified. The Draft shall be amended accordingly.

5.5 NPC has suggested that the application for connection should be made to REB instead of CTU. Similarly, NLC has suggested that formal offer for connection should be given by REB instead of the CTU. This suggestion, however, has not been accepted. We are in agreement with CTU since the Electricity Laws (Amendment) Act of 1998 has vested the authority to exercise supervision and control of ISTS on CTU. However, CTU could ably discharge this function only in consultation and coordination with all concerned, particularly REBs, but the responsibility would be that of CTU. This being an inevitable mode of effective functioning it need not be spelt out at each and every stage.

5.6 The procedure for connections contemplates a separate dispensation for compliance of the conditions in respect of existing agencies already connected. In this context, the original draft contemplated relaxation for existing users upto five years, whereas CEA has suggested that the relaxation may be granted for a period of one year within which time, the connection agreements have to be finalised with them. The final draft has contemplated that the Commission may allow relaxation upto three years. NLC and WBSEB have proposed that the cost of any modifications which may be required to be carried out by existing parties for the purpose of the new agreement should be at the cost of CTU/Central funding. TNEB has suggested relaxation and continuation of existing connections as they are. A similar suggestion has been made by NTPC as well. NPC as well as WBSEB have also suggested total condonation of connection agreement instead of relaxation. NLC has suggested review of connection agreement at the end of five years. We have considered all the above suggestions. We are in agreement with CEA, which is a national level technical body familiar with the power systems in the country, that it is possible for the existing connections to be renegotiated within one year's time. Further, we are also convinced that in the interest of grid discipline, there should not be discrimination between the users of the system, though time may be allowed to the existing users for conforming to the discipline. Hence total relaxation is not justifiable. We also would not like each case of relaxation to be considered by the Commission individually and as such we consider an outer limit of one year from the date of coming into force of the Grid Code as appropriate for existing parties to renegotiate and finalise arrangements. In case of any hardship, further relaxation beyond one year's time may be considered by the Commission

on the recommendation of the CTU. As regards the cost of modification, if any, it is only fair and just, in order to be non-discriminatory between the users, that the cost of any modifications should be borne by the utilities concerned. Accordingly, CTU is directed to suitably modify the draft to allow a period of one year for re-negotiation, and providing for a petition to the Commission in case of any hardship.

5.7 UPSEB has suggested a clause prescribing penalty for noncompliance of the conditions. CEA and NHPC have suggested inclusion of a draft agreement in the IEGC. CEA has further suggested specification of obligations of the constituents towards security of ISTS and for achieving maximum efficiency and economy in the operation. There have also been suggestions for working out a mutual agreement with the involvement of the Commission. CTU has accepted that the draft of the Agreement would be approved by the Commission. However, considerable work and consultation may be required in making the draft, which will be annexed later, as an amendment. Taking into account the views of the respondents, as well as the reply of the CTU, we direct that a draft of the agreement be prepared on the lines suggested by CEA, and got approved from the Commission, which shall be annexed to the IEGC before its final release. CTU shall also suitably modify clause 4.5 to the effect that the draft of the Agreement is available in the annexure to the IEGC.

5.8 Clause 4.6(c)(ii) which deals with the responsibility of agencies connected in sub-transmission and distribution requiring that they do not depend upon ISTS for reactive support, has evoked some adverse comments. AP Transco has proposed the installation of SVC by CTU to take care of ICT losses. WBSEB has stated that full reactive compensation is not required in the AC net work, and that generating units should provide the reactive power. NLC has preferred that the agreement with regard to reactive power requirement should be with REB instead of CTU. In the reply, CTU has stated that it is not pragmatic for CTU to provide reactive support. More over, SVCs are costly and sophisticated and meant for special applications. However, in view of section 27(A)(2)(b) an agreement for reactive power requirement could be entered into with CTU. We find considerable logic in the reply of CTU and hence there is no need to modify this clause as suggested by respondents. NLC has also suggested a new clause under 4.6(d) to state that normal frequency of the operation of the system shall be 50 Hz with a tolerance of $\pm 0.5\%$. In this connection, we are of the view that the prescription as per Indian Electricity Rules, 1956, may be followed with the flexibility that this shall "normally" prevail.

5.9 The System Planning Studies carried out by CEA and CTU and finalised by the Standing Committee on transmission planning as detailed in Chapter 3 of the Draft will bring about the requirement of installation of reactors and capacitors by CTU in the desired time-frame. The actual programme of implementation of transmission lines, reactors and capacitors will be determined by CTU. It is essential that the completion of these works in the required time-frame be ensured by CTU so that the reactive requirement of the system to this extent is not adversely affected. A clause to this effect defining the responsibility of CTU shall be incorporated, particularly as the obligation of ISGS in this context is included in Clause 7.6.6 of Draft IEGC. The suggestion regarding installation of SVCs is dealt with hereinafter under para 5.15.

5.10 Clause 4.7 of the draft deals with the equipment at connection points of both

agency and CTU. In this connection, NLC and NPC have suggested for the specifications/short ckt capability to be specified by REB/CEA. CTU has replied that these are to be worked out through system studies and are to be specified by CTU in the connection agreement. Since these views have been taken note of by CTU and shall provide for the same in the connection agreement, we do not find any need for re-drafting.

It was pointed out during the hearing that the specified fault clearance times in clause 4.7(b) were not likely to be met in several installations particularly at 132 KV. It may not be necessary also to insist upon such stringency in relatively less important lines. The existing specified conditions for 220 KV and 132 KV lines falling within the purview of ISTS will be reviewed by CTU in consultation with REB accordingly.

5.11 As regards back up protection, NLC had suggested that in the provision for the generator, it should be mentioned that the generator shall withstand the fault within permissible limits of operation. CTU, however, has not modified the clause as suggested by NLC with the remark that "the intent is to enable the generating units to be adequately specified so that they can withstand without damage, power system faults". We are satisfied that the provision in this clause should remain as such.

As regards protection systems, the draft clause viz., 4.7(c), spells out the general characteristics of the system without going into the standards, specifications etc. A number of comments have been made, ranging from a suggestion for a separate Chapter (GRIDCO) to inclusion of general philosophy, standards etc., (CEA), and relay setting coordination by REB (NPC, UPSEB and TNEB). CTU, in reply has agreed to the suggestion of CEA to spell out the general philosophy, standards and guidelines. However, it proposed the same be included in the IEGC at a later date as an amendment. In view of the details to be considered and spelt out, we concur with the contention of CTU that the same may be set out in detail subsequently. However, since the contents of the connection agreement are to be approved by the Commission we direct CTU to include now in the IEGC to be issued a reference that the details of protection system will be spelt in the draft agreement so that it will come within the purview of the Commission before execution. We have also noted that CTU has accepted the suggestion of NLC and APTRANSCO that relay setting coordination shall be done at regional level by REB instead of the CTU.

5.12 Clause 4.8(a) states that a generating unit should be capable of continuously supplying its normal rated active/reactive output within the system frequency and voltage variation range indicated in para 4.6. NLC, NTPC and NHPC have stated that the provision should be subject to technical/design limitations, capability curve. CTU, in rejoinder, has stated that IEGC requires all generating units to utilise this capacity as may be considered necessary. According to NTPC, the reason for the suggestion for amendment is that generating units have design limitations stipulated by their manufacturers. In fact in the earlier rejoinder, CTU did agree that the clause would be suitably modified as per the suggestion of NTPC. Such a counter reply also appears against the reply of NLC. In the final rejoinder, however, CTU has not accepted the suggestion. We find logic in the suggestion of the respondents that design limitations stipulated by manufacturers have to be taken into account. Accordingly, we direct the CTU to modify this clause to accommodate provision for design limitations, if stipulated by manufacturers. As

regards provision of AVR, protective and safety devices as contained in clause 4.8(b), NTPC and NPC have suggested the deletion on the plea that CGS need not enter into connection agreement. CTU has replied that all agencies including NTPC shall enter into connection agreements and the details of the devices will be spelt out in the connection agreement. The deletion of this clause is not warranted. We would like to reiterate that all existing utilities shall negotiate and finalise connection agreements within prescribed time limits as per IEGC.

5.13 The question of operating each generating unit with turbine speed governor was considered by us with the support of our technical experts. A number of suggestions have been made by various respondents like (a) free governor shall be "normally in operation" in place of "always in operation"; (b) it may not be possible in existing units; (c) special treatment to nuclear units; and (d) exclusion of units embedded in the intra-State transmission system.

We are convinced that provision for free governor action in generating units is desirable for overall grid control. Though frequency control in the present conditions of the power system operation may not be possible with governor action alone and other means like load shedding, manual intervention etc. may also be necessary, yet the necessity of invoking the free governor action cannot be undermined. We also understand that governor is always an integral part of the turbine supplied to the generating unit. The problem really is that these governors have not been put to use by generating units. It is also understood that the problem of such discontinuation of use will be more pronounced in turbines of older vintage. Hence, activating existing governors in turbines of older vintage is a task for which suitable time may have to be allowed. We also understand that there should be no difficulty in activating the governor function on units of recent vintage. It is understood from CEA's publication of compendium of power generation plants - July 99 that the plants which are 200 MW size and above constitute about 46% of the total installed capacity. Most of these units have been installed in 1980s and later and shall have no problem in activating governors for frequency control. Accordingly we direct that to begin with the stipulation regarding free governor shall apply to thermal units with a capacity of 200 MW and above, with immediate effect. This condition will also apply to all reservoir based hydro stations. For N.E. region, this condition will apply to units of 10 MW capacity and above. Keeping in view the time required to activate free governors, CTU may separately announce the time limit by which all other units should put free governors in action. We also grant liberty to any particular unit to approach the Commission to get exempted from the provisions regarding free governor for valid reasons. As regards the plea of Nuclear Power Corporation to provide a separate dispensation in view of safety considerations and special characteristics of Nuclear Plants, we have considered the matter and it is appropriate that Nuclear Units be permitted to continue operating in 'turbine follow reactor' mode. Since Nuclear capacity is small compared to regional capacity, such special dispensation will not make any significant difference. CTU is directed to accordingly modify clause 4.8.c so that (a) thermal generating units of 200 MW and above (10 MW and above for N.E. region) and reservoir based hydro stations need only to be covered by this clause immediately; (b) for all other units CTU may separately announce time limits for putting free governor in action. As regards suggestion of substituting the words "always in operation" by the words "normally in operation", keeping in view the purpose of this provision and to get the advantage of governor action for frequency control, the words 'always' is more appropriate than the words

` normally in operation.'

5.14 Clause 4.8 (d) stipulates that each generating unit must be capable of instantaneously increasing the output by 5% for a minimum of 5 minutes when the frequency falls and when operating at any loading up to 105 % MCR, limiting to 105 % MCR. NLC has suggested that the words ` whenever possible' be included in this clause. We consider that there is no need for change, as any constraints in delivering full output may be mentioned by the generator during operation. As regards separate treatment for nuclear power stations in this connection, the contention of Nuclear Power Corporation was considered. According to it since the Nuclear Power Stations are basically base load stations, due to complexity of nuclear fuel plant design, instantaneous increase of output by 5 % for a minimum of 5 minutes will not be possible. It may adversely affect the performance of Nuclear fuel and reactor components due to undesired transients. Keeping in view the special characteristics of nuclear plants, we accept the suggestion of Nuclear Power Corporation. Accordingly, CTU shall modify clause 4.8(d) to provide for exception to nuclear plants.

5.15 NTPC, MPEB, KEB and ASCI have suggested suitable line reactors whereas AP Transco suggested installation of SVC. WBSEB suggested mutual agreement between CTU and constituents. According to CTU, switchable line reactors cannot control dynamic over voltage when they are switched off. The line reactors have therefore to be fixed type for control of dynamic over voltage. SVCs are costly equipments meant for special applications. These suggestions are therefore not acceptable. However, CTU has deleted the word "fixed" from clause 4.9(b) to indicate that the line reactors need not be fixed ones in order to enable provision of switchable line reactor in case there is no requirement of control of dynamic over voltages. With this amendment, we consider that CTU has taken care of the suggestions of utilities as well as ASCI.

5.16 Clause 4.9 on reactive compensation has evoked considerable reaction from respondents. CEA has suggested that the reactive compensation be decided by the REB whereas the draft contemplates reactive compensation to be provided by CTU in the connection agreement. WBSEB has suggested mutual agreement between CTU and the constituents, NLC has suggested the requirement to be indicated by REB. UPSEB has suggested the deletion of the words ` by CTU' so that in the reactive compensation CTU will have no role while TNEB has proposed fixing of responsibilities, if desired results are not achieved. The substance of all the suggestions is that CTU should not have a free hand in the determination of the compensation. We are of the view that since the quantum of reactive compensation requirement will vary depending upon the growth of the power system, the same should be reviewed at regular intervals, say on an yearly basis through studies to be carried out by CTU in association with the constituents and REB. A provision to this effect may be added after clause 4.9(c).

5.17 The earlier draft on communication lacked clarity. NLC, NTPC and NPC have suggested that communication facilities be provided by CTU at its own cost. WBSEB and NGC have proposed two way communication between RLDC and SLDC. No justification has been provided for the above suggestions regarding cost. The responsibility for communication should lie on both the CTU and the agency. The details of the facilities at the respective ends are proposed to be specified in the Connection Agreement, which shall come before the Commission in due

course. Grid operation is a collective effort in which all the participants have to play their assigned roles; hence there should be no reservation for establishing the facilities at their respective ends by the parties concerned. As rightly observed by some respondents, it is a two way process, which has to be appreciated by all the participants in the Grid. Northern Railway, as one of the Respondents, have proposed communication between traction control centres and RLDC/SLDC. Since Railways are a consumer of SEBs, their suggestion falls within the purview of SEB/STU. Hence no amendment in the draft is required as regards this clause.

5.18 Clause 4.11 deals with system recording instruments. On this clause there were basically two comments viz., that the system should be provided at the cost of CTU and that the requirements shall be specified by REB. These two comments are commonly found in other clauses as well. As already stated, the responsibility is joint but the prerogative of supervision and control being with CTU, clause needs no amendment. However, in the revised draft, provision has been made for specification of the instruments in the connection agreement, which shall come before the Commission in due course. We are also confident that CTU would finalise the contents of the agreement in consultation with the REBs. One important point to be considered is that for purposeful analysis of the information recorded by these instruments it is essential to achieve time synchronisation at all power stations, sub-stations, etc. There is no mention of this aspect in the IEGC. We direct CTU to include a clause on the scheme envisaged to provide time synchronisation and its plan of implementation in the Grid Code.

5.19 The most critical content of this Chapter relates to Operational Safety and the Responsibilities in this connection. In this clause responsibilities have been assigned on regional constituents/agency as well as assumed by CTU as proposed to be indicated in the site responsibilities schedules. This schedule is proposed to be produced by CTU and agency for which the format etc., shall be formulated by CTU. In this connection, NLC has suggested that the schedule as proposed should be finalised by REB. NTPC has suggested that the schedule be jointly prepared. CTU has stated in its reply that REB has no such role. Though strictly this may be the legal position, CTU should adopt the consultation process. In the counter reply finally submitted, CTU has stated that mutual discussions would be ensured and are implied to ensure transparency. With this statement of intent by CTU on the 'Consultation Process', we consider that there is no need for any further amendment on Site Responsibility schedules.

5.20 As regards site common drawings, NTPC has suggested that the Site Common Drawings will be prepared by CTU based on the detailed drawings for the agency portion at each connection point which will be furnished by the agency. This suggests an unilateral process of finalisation for Site Common Drawings whereas, the draft submitted by CTU reflects collaborative process in preparation and finalisation of the drawings. As such, we do not consider it appropriate to amend the draft any further. However, as suggested by the NTPC the draft has been amended to state that the necessary details shall be provided by the agencies to CTU.

No other significant comments have been received with regard to clause 4.13, 4.14 and 4.15 and as such there is no need for any amendment to these clauses.

With the various modification as stated above, the Chapter on Connection

Conditions' is approved.

OPERATING CODE FOR REGIONAL GRIDS – CHAPTER 6 OF THE DRAFT

The Chapter on 'Operating Code for Regional Grids' constitutes Chapter 6 of the Draft. This contains:

1. Operating Policy;
2. System Security Aspects;
3. Demand Estimation for Operational Purposes
4. Demand Control;
5. Periodic Reports;
6. Operational Liaison;
7. Outage Planning;
8. Recovery Procedures;
9. Event Information.

6.2 We have already observed under "Organisational Issues" that the linkages between the various entities can be found in the Chapter on 'Operating Code for Regional Grids'. This part of the draft code along with Chapter 7, constitutes the heart of the entire Code in as much as it describes the duties and obligations of all concerned, including of RLDCs in the actual day to day operation. One feature of the operating Code is that it prescribes the basic framework whereas the detailed procedures for each Regional Grid are contemplated as separate operating procedures. We understand that already there are certain operating procedures. RLDC shall in consultation with the REBs ensure that these internal operating procedures are consistent with the IEGC. We are in agreement that it is not necessary to set out detailed operating procedures in this Code, as suggested by CEA. However, maintaining uniformity, shall be the responsibility of the CTU in coordination with the RLDCs. It shall also ensure that compliance with the operating procedures is made obligatory by incorporating a clause to this effect in the connection agreement. These procedures shall be placed in position before the commencement of IEGC i.e. January 1, 2000.

6.3 In para 6.1 on 'Operating Policy', a suggestion was made by GRIDCO to the effect that the operating procedures shall be in conformity with the State Electricity Grid Code as well. This suggestion has not been accepted, as the responsibility of ensuring the required consistency between SEGC and IEGC is with all the respective SEB/STUs. We are in agreement with CTU; for the additional reason that it is impracticable to bring about conformity with differing SEGC. The suggestion of DVC for approval by the constituents of the operating procedures has been already taken care of, since the procedures will be developed in consultation with the constituents.

6.4 Para 6.2 of the Draft provides for 'System Security Aspects'. NLC has suggested that the process of isolation of a system and subsequent restoration shall be under the specific instruction of REB instead of RLDC. Such a view has also been expressed by NPC. It is not possible to accept this suggestion in view of the responsibilities assumed by RLDC in integrated grid operation. Certain views were expressed by MSEB and WBSEB with regard to deliberate opening or removal

from servicing of important elements of the regional grid without the instruction or knowledge of RLDC. Though CTU is in agreement with them that the systems have to be operated on a coordinated basis it does not feel the need for any amendment to the draft. We are in agreement with CTU in view of the responsibilities assumed by it. As regards intimation of any tripping of any element of the Grid some reservations have been expressed on the time limit of ten minutes within which the intimation is to be given. CTU, is not in favour of modifying this time limit on the plea that adequate flexibility is available. We are in agreement in the interest of grid discipline and hence no modification of this clause is required.

6.5 Clause 6.2(e) and (f) deal with free governor action and restriction on generating stations to suppress the normal governor action in any manner. Though clause (f) needs no amendment, clause (e) has to be suitably modified in view of our directions as already contained under clause 4.8(c) relating to free governor action including the exemption in case of nuclear stations. This takes care of the objections from NLC, NPC, NTPC, DVC, TNEB and WBSEB under these two clauses.

6.6 Considerable discussion took place on Clause 6.2(g) which stipulates that all generating units operating at/up to 100 % of their MCR shall normally be capable of (and shall not in any way be prevented from), instantaneously picking up 5 % extra load for at least 5 minutes or within manufacturer's technical limits when frequency falls due to a system contingency. Those units operating above 100 % shall also be capable as above when frequency falls suddenly. Any Unit not complying with the above shall operate only after obtaining the permission of RLDC. Gridco suggested exclusion of IPPs embedded in the intra State system from this stipulation. MPEB suggested the deletion of 'permission of RLDC'. NHPC has stated that this should be subject to design limitations of the generator/constituent. TNEB has stated that this is possible only after the implementation of availability tariff. WBSEB has stated that compliance of this stipulation shall depend on the capability of the Units. We have considered all the views in this connection. We observe that this clause has already been cautiously worded to stipulate that the Units operating upto 100 % shall normally be capable of picking up 5 % extra load; whereas, units operating above 100 % shall be capable of going at least up to 105 %. Secondly, for the extra load in case of first category of units, there is a further limitation of manufacturers' technical limits. Hence, given the operational flexibility, in the interest of better grid operations, the above minimum requirements have to be met. We however are inclined to consider the plea of NPC for exemption in view of the safety requirements for such stations. The above observations also apply to clause 6.2(h) as well which deals with the rate for changing the governor setting. The exemption from these clauses shall apply to Nuclear Units and the proposal of NPC for adoption of turbine follow reactor mode is accepted. The clauses shall be amended accordingly.

6.7 Clause 6.2(i) deals with back up action under emergency conditions. As per this clause, except under an emergency, no constituent shall suddenly increase his generation beyond certain limits nor increase his load beyond certain limits without the prior intimation and consent of RLDC. Some respondents have expressed reservations on this clause. We however consider this clause as essential in the interest of preventing any serious disturbance or damage to the system. Hence no modification is required.

6.8 The stipulation regarding automatic voltage regulators (AVRs) to be in

operation with appropriate settings is contained in clause 6.2(j). This clause is essential as AVRs play a vital role in the maintenance of voltage parameters. However, the amendment proposed by CEA regarding the tuning and checking of Power System Stabilisers (PSS) to have positive damping effect on local generator oscillations etc., is a welcome suggestion. Though the amendment to this effect has been made by CTU, we consider it necessary to stipulate that CTU shall carry out periodical tuning/checking. Accordingly, the last sentence should be re-worded as follows: "CTU shall carry out tuning/checking of PSS periodically and maintain appropriate records".

6.9 Regarding maintenance of grid frequency within the range of 49.0-50.5hz band, (Clause 6.2(l)) CTU has already justified it in the clause itself, to the effect that it is the range within which steam turbines conforming to the IEC specifications can safely operate. Representatives from Southern and Eastern regions have proposed modifications according to the conditions prevailing in the respective regions. The frequency band in the Draft is in line with the permissible variation in Declared Frequency as contemplated in Rule 55 of Indian Electricity Rules, 1956.

6.10 Clause 6.2(m) deals with automatic under frequency load shedding system. In order to keep the operating frequency within safe limits, this mechanism is essential. However, the plan should be finalised in the REB forum, than by RLDC unilaterally as proposed in the Draft, which may be amended accordingly. We however direct that CTU shall carry out periodic inspection of this system and maintain proper records of the inspection. A clause shall be added accordingly.

6.11 No substantial comments which warrant any amendment have been received in respect of clauses 6.2(n)(o) and (p) and hence no modifications are required.

6.12 Regarding maintenance of grid voltage (Chapter 6.2(q)) within operating range, certain objections have been received, particularly from TNEB, to the effect that these are not achievable and are not consistent with Indian Electricity Rules, 1956. We are convinced that the clause aims at making, in the interest of ISTS, positive efforts and as such should be acceptable. We have also verified that these stipulations are within the limits stipulated in the Indian Electricity Rules.

6.13 Para 6.3 deals with 'Demand Estimation for Operational Purposes'. The only operative portion of this clause is the procedure for demand estimation by each State/SLDC. Since this is a simple procedural clause, there is no need for any amendment, though certain reservations were expressed by some respondents.

6.14 Para 6.4 deals with 'Demand Control'. Under clause 6.4.2(b) in certain contingencies, RLDC may direct SLDC to decrease its drawal by a certain quantum and such directions shall be immediately acted upon. On this clause, TNEB has proposed that RLDC's directions should be to the system, which has deviated from schedules. WBSEB has proposed the word 'intimation' instead of 'direction'. We find this clause in conformity with the legal provisions and hence there is no need for modification. Clause 6.4.2(c) deals with arrangements for disconnection by constituents as instructed by SLDC. CEA has suggested detailed procedures some of which we understand are already in force. These procedures are in the nature of detailed region wise exercise and hence need not be set out in the IEGC. However they have to be modified, updated and corrected from time to time by CTU in the

normal course.

6.15 Para 6.5 deals with 'Periodic Reports'. The comments received in respect of this para have been substantially taken care of by CTU and hence there is no need for further amendment. However, we direct that in the weekly report, RLDC shall include 'instances of persistent non-compliance of Grid Code'. Further, a separate clause viz., 6.5.3 shall be inserted to state that 'the above reports are in addition to any information/report which can be called for by REB from the concerned RLDC which the latter shall be obliged to provide in the interest of smooth operation of ISTS. NTPC has proposed a daily performance monitoring report containing elaborate data to be made available through on line telemetry. CTU has not accepted this on the ground that these data shall come out of the weekly regional energy accounts. We consider the suggestion of NTPC worthy of examination in detail, if such daily reports could be a useful instrument for efficient operation of ISTS. CTU may examine this suggestion in detail and take up at the time of the next review of the IEGC.

6.16 Para 6.6 deals with 'Operational Liaison' between the RLDC and the Regional Constituents to facilitate quick transfer of information. The only suggestion relevant to ISTS is from NLC to the effect that RLDC shall give reasons of any event to the constituent whose system is likely to experience an operational effect. This has been rightly dealt with by CTU that since details take considerable time to establish, it is not always possible to set out the reasons for an event. However, such information should be available at a later date and can be accessed by the constituent.

6.17 Para 6.7 deals with the 'Procedure for Preparation of Outage Schedules'. A large number of respondents including the CEA have proposed that outage planning be done by REB. This has been accepted by CTU in total by suitably modifying clause 6.7.1(c). Further under clause 6.7.4, time schedules of 20 weeks and 48 weeks have been reconsidered in view of the objections both in writing and orally by the respondents suggesting addition of financial year. Accordingly, the more acceptable time schedule with reference to the financial year has been proposed. We consider these time schedules as more practicable and we approve the same. Other proposals not being practicable are not being accepted by CTU. We are in agreement with the outage planning process as incorporated in the final draft. However, this clause contemplates assumption of responsibility by REB for complete outage planning. Concurrence of REB is essential before incorporating this clause since REB as a body is not a party before us. We therefore direct CTU to obtain the concurrence of REBs before finally issuing the IEGC in case such arrangement does not exist.

6.18 Para 6.8 deals with 'Recovery Procedures' for Restoration of the Grid after partial or total blackout. WBSEB has proposed that these procedures be finalised by REB. The proposal for finalisation of procedures by REB is not accepted on the plea that it is the responsibility of CTU for integrated grid operations. Though this is true, CTU is advised to consult the REBs with regard to the procedures. As regards the suggestion of NPC and Railways this has been adequately taken care of in 6.8(c). As regards the suggestion of National Grid for a review, since this is a continuous process and has been already provided in the entire Grid Code, there is no need to incorporate the same once again.

6.19 Para 6.9 deals with 'event information'. The purpose of this section is to exchange information regarding reportable events in the system to all regional constituents and RLDC. Almost all the comments with regard to reporting events are accepted by CTU and have been incorporated in the final draft. NLC proposed system data to be agreed mutually. They have also proposed deletion of details on relay flags and remedial measures under written reports to be submitted to RLDC. These deletions have not been accepted, as these facts are required to facilitate an in-depth analysis of each event. However, CTU has reviewed the list of details before submitting the final draft. Still, we advise that these shall be done through mutual consultations wherever possible. We also direct CTU to include 'SLDC' under clause 6.9.1, which appears to be an inadvertent omission.

With the above directions the Chapter on 'Operating Code for Regional Grids' is approved.

SCHEDULING AND DESPATCH CODE – CHAPTER 7 OF THE DRAFT

The real time operation of the inter-State Transmission System is set out in Chapter 7 of the draft IEGC. This Chapter demarcates the responsibilities of the various constituents as well as the procedure for 'Scheduling and Despatch'. It also deals with the reactive power and voltage control mechanisms. The commercial mechanism which is complementary to the above is in the annexure to this Chapter. Many of the respondents have stated that the implementation of the commercial mechanism is to be linked with the system of availability tariff, which is under the consideration of the Commission. We are in agreement with all these respondents. CTU also agrees with this contention. We therefore direct that the Code under 7.1.d shall state that the Commission in course of time will separately announce the date of implementation of the commercial mechanism.

7.2 The draft under this Chapter leaves an impression as if RLDC's directions shall be confined only to the ISGS/SEBs and STUs only. However, the liberty of the constituents in the intra-State system has to be tempered by any possible adverse implications on the inter-State Transmission System. In this regard, RLDC has been empowered under the amended section 55 of the Electricity (Supply) Act of 1948 by which directions could be given through the SLDC to any transmission licensee of state transmission lines or any other licensee of the State or generating company or generating station in the State, and the SLDC shall ensure that such directions are duly complied with by these parties concerned. This power of RLDC to give directions in the interest of economy and efficiency in the operation of the power system in the region has been recognised by section 55(6). This authority has also been corroborated by the Solicitor General of India in reply to a query raised by NTPC through an opinion dated 5th October, 1999 which has been filed with the Commission. We are in agreement with this power of RLDC to give directions. As such it is appropriate that a suitable clause shall be added under para 7.2 to the effect that the provisions contained in this Chapter are without prejudice to the powers conferred on RLDC under section 55(6) of the amended Electricity (Supply) Act of 1948. This also takes care of the responses of some of the respondents with regard to coverage of RLDC's direction in the interests of economy and efficiency of operation of the Regional power system.

7.3 A number of suggestions have been received with regard to paras 7.4 and 7.5,

which consist of a number of sub-paras. The suggestion of DVC and NPC is that REB should be involved in the scheduling procedure. This has not been accepted by CTU apparently on the plea that the responsibility ultimately lies with RLDC. We, however, suggest that RLDC can interact with the REB with regard to the basic procedures. RSEB has suggested that SLDCs should be responsible for scheduling within the State, which has been conceded by CTU. Clauses 7.4.2 and 7.4.3 provide flexibility to the States for deviating from schedules but such deviations would be at a price. Any suggestion which would dilute the scheme of unscheduled inter change may not fit into the scheme of this Chapter. Hence all such suggestions have been rightly rejected by CTU. This applies to comments on clauses 7.4.2 to 7.4.6.

7.4 As regards 7.4.7 and 7.4.8, ASCI have suggested that the deviations by ISGS from the schedule cannot be kept as an open-ended operation. Similarly, Orissa Grahak Mahasangha has suggested that the central generating stations should desist from pumping more power in the Grid than what is needed. While these paras provide flexibility to ISGS to increase/decrease generation on their own depending upon frequency conditions, any unilateral increase under low frequency may encourage gaming, particularly, when such frequency conditions are persistent. Any unilateral increase of generation could be permitted only in one contingency i.e. when the scheduled generation is less than the declared availability, in which case, increases upto the declared level of availability could be permitted. Normally, all generators are expected to declare their availability without any margin. Consequently, clauses 7.4.7 and 8 need to be modified to prevent any possibility of gaming. This direction should take care of the suggestions of ASCI, Orissa Grahak Maha Sangha, TERI and PSEB in this regard.

7.5 Clause 7.4.9 deals with the powers of RLDC in case of contingencies. In this clause certain discretion is available with RLDC which is sought to be removed by NTPC. We consider that in a real time operation, such discretion is essential and hence the clause need not be modified. Clause 7.4.11 deals with agreements to be entered into for identifying the states' shares in ISGS purchase. Though there is no serious objection from any respondent as a matter of clarification, CTU shall specify that the identification of the states' shares is to be based on the allocations by the Government of India.

7.6 On clause 7.4.12, NTPC preferred that the merit order scheduling should be spelt out. WBSEB expects that the guidelines issued by RLDC shall have the approval of REB. In this connection, CTU has stated that guidelines shall be evolved by RLDC to be totally compatible with frequency linked UI pricing. In view of this proposal for guidelines, there is no need to modify this clause any further. However, it is directed that while evolving these guidelines, RLDC shall keep in mind our directions as already stated with regard to paras 7.4.7 and 7.4.8 of the draft.

7.7 Para 7.4.13 is an enabling clause so that the CTU shall be allowed to install special energy meters on all inter connections for recording of actual nett interchanges and reactive power drawal. There does not seem to be any serious objection to this para. However, the objection relates to the later part of this clause with regard to the role of RLDC in doing regional energy accounting. Since we have already expressed our views with regard to regional accounting under the Chapter on 'Organisational Issues', this clause shall be revised accordingly. While

on this subject, we also direct that the IEGC should under this para spell out the type of meters to be installed, metering scheme, metering capability, testing and calibration requirements, scheme for collection and dissemination of metered data.

7.8 Para 7.5 deals with the actual scheduling and despatch procedure. The various comments received from respondents in respect of this para which have not been accepted by CTU are as follows:

- (i) Separate provision for gas based stations with regard to the entitlement of each state should be included in clause 7.5.2 as in the case of hydro stations - NTPC.
- (ii) Preferential treatment for Delhi due to the extreme peak and off peak demand pattern - DVB.
- (iii) The entitlement to be issued by RLDC every day be done as per guidelines issued by Member-Secretary, REB - NPC.
- (iv) Time schedules should be compatible with SEGC - GRIDCO.
- (v) Beneficiaries should not be liable for oil support; scheduling should not result in frequent unit shut down; loss of generation due to spillage of water in the run of river projects should be treated as deemed generation - BSEB, NTPC, WBSEB, NHPC.
- (vi) Minimum guaranteed off take as per fuel supply agreement should be taken into account while scheduling - NTPC.
- (vii) The time block and the time gap for giving effect to revised schedule need modification - BSEB, NLC, and UPSEB.
- (viii) Any right of RLDC to check that resulting power flows do not give rise to any transmission constraints should not affect a legitimate drawal schedule of any constituent - WBSEB.
- (ix) Any dispute regarding final schedule and arising out of the procedure for scheduling to be resolved by REB Secretariat – WBSEB.

7.9 We have considered the replies of CTU on all the above responses. Regarding the possible energy limitations for gas based stations; the situation is not comparable to hydro stations. Hence no special provision has been made. Regarding DVB's suggestion the process of scheduling cannot involve a preferential treatment to any particular constituent. However, adequate freedom is available to the states to schedule their own generation, which has to be suitably planned by them. NPC's suggestion that the entitlement must be determined as per the guidelines of REB Secretariat may not be acceptable as the entitlement shall be determined as per GOI allocation and the same should be taken into account in this process. Regarding compatibility with state Grid Code as suggested by GRIDCO, this question has been already answered in a larger perspective. Regarding the comments on shut down and the cost of such shut downs as well as the suggestion for deemed generation in respect of water spillage, these aspects strictly speaking, are not relevant to IEGC. Hence CTU is directed to delete the second sentence under clause 7.5.7. Regarding NTPC's suggestion to give consideration for minimum guaranteed off take as in the fuel supply agreement, such a bilateral understanding cannot be given effect to in the Code. If scheduling results in breach of bilateral agreement, the consequences have to be borne by the respective parties. Regarding the suggestion for alteration of the time limits of one hour and four time blocks etc., the whole system has been designed in an integrated fashion and hence it is appropriate that the proposed system should be

given a fair trial. Regarding RLDCs exercise of authority in case of transmission constraints, as long as there is no unfairness, RLDC should be permitted to play its legitimate role. In case of any challenge to the scheduling or any dispute with regard to the procedure, the law has already provided for a dispute redressal process. As such, these legal provisions have to be followed. In view of the above, we do not consider it necessary to make any amendment to the draft IEGC excepting the direction already given in respect of clause 7.5.7.

7.10 Clause 7.6 as per the revised draft submitted by CTU deals with the reactive power and voltage control. This was contained in the original draft under para 7.7. There are two major observations on the reactive power viz., (a) the dead band for pricing of reactive power exchange be lowered from 97 %-103 % to 90 %-110 %.; (b) NGC considers it as inequitable as the beneficiaries have to pay or get back for reactive power but generating stations are not paid for it.

7.11 In reply to (a) above, CTU has taken the stand that the dead band should be such that corrective action for voltage improvement is taken at a point ahead of the limit of desirable voltage level, as set out in para 6.2(q) of the draft. In case the minimum acceptable voltage level is specified as 90 % of the nominal value, a gap of 7 % would be available. Hence CTU is directed to review this aspect and incorporate revised values of voltage levels discussed above. While on this issue, it is also necessary to note that clause 7.6.1 indicates that it is not mandatory to provide VAR compensation considering the present limitations. Instead it shall be stated that this condition of not drawing VAR from EHV grid is not being insisted upon considering present limitations. However, this non-insistence relates to only that line, which is not directly emanating from ISGS and feeding into the beneficiaries system. Suitable modifications shall be carried out in the draft accordingly.

7.12 As regards the inequity due to not paying to the generators for reactive energy as contended by NGC, clause 7.6.1 makes it clear that the obligation is on the beneficiaries to provide local VAR support. The charge or payment contemplated under 7.6.2 is to create a mechanism for providing the local VAR support over a period of time. The payment to generators is not an issue at all nor is it raised by the generators.

7.13 The charge/payment for VAR shall be as may be approved by the Commission. Accordingly, clause 7.6.2 shall be suitably modified to read that "the charge/payment for VARs shall be as may be approved by CERC from time to time. In this connection, the Commission has already considered the application made by CTU proposing a certain schedule of charges for reactive power. We have considered the proposal along with the illustration for computation of the rate for reactive energy charge. Accordingly, the rate of 4 paise per KVARH to be escalated at 5 % per year thereafter is approved. Accordingly, this rate shall be taken into account without any further notification in this regard.

7.14 The draft Grid Code as revised after the hearing contains paras relating to Consequences of non-compliance of Operational Issues, Non-payment of Dues including Capacity and Energy Charges, UI & VAR charges and Transmission/RLDC

charges. In respect of general non-compliance of operational issues, we have already directed that this clause should be incorporated under Chapter 1 so that it shall be applicable to all the Chapters rather than to the Chapter on scheduling only. As regards non-payment of dues, some of the respondents have proposed to delete these clauses. We considered these replies and are of the opinion that these are purely commercial matters which cannot find a place in the IEGC. The Commission, however, is conscious of the consequences of default on payment, which it proposes to consider while exercising jurisdiction on tariff determination. Accordingly, para 7.7 shall be deleted from the Code.

7.15 Revised draft IEGC under Chapter 7 contains an annexure, which sets out the complementary commercial mechanism. A reference to this complementary commercial mechanism is also available under the draft Chapter 7.1. It is the contention of most of the respondents that this commercial mechanism is implementable only when the availability based tariff which is under the consideration of the Commission is brought into force. In fact CTU also is in agreement with this contention and that the scheduling and despatch code could be implemented after the notification of the availability tariff. It has however, suggested that the intervening time be utilised for deliberations and finalisations of the IEGC draft.

7.16 Though there is no doubt that the commercial mechanism could be implemented in the form in which it is proposed only after availability based tariff is put into operation, the discipline of scheduling in advance and despatching and drawing as per schedule could be commenced immediately. These aspects can function independent of the commercial mechanism attachable to it. The Code is binding on all constituents and any instance of violation of the Code can be questioned with attendant consequences if established. Further the outcome of the findings of the Commission on ABT petition cannot be presumed. All the same, there is no harm in keeping the commercial mechanism as an annexure to the IEGC with the condition that it shall come into force as and from any date to be decided by the Commission. In fact, some of the respondents like WBSEB have suggested the deletion/modification of these clauses. In the light of the above, we direct that though the annexure could be retained it shall be effective from the date as may be notified by the Commission. Further, the following directions for modification of the clauses therein are also given:

1. The Annexure shall begin with a conditional clause viz. "subject to any scheme of tariff, as may be approved by the CERC, the bulk power supply agreement.....".
2. In clauses 5 and 6, the words "generating company" shall be substituted by "ISGC".
3. In clause 5 and 7, instead of the words "at the notified rates per MWH rate", the words "at rates per MWH, as may be approved by CERC" be substituted.
4. In clause 9, instead of the words "shall be notified separately by CERC", the words "as approved by CERC" shall be substituted.
5. In clause 12, instead of "RLDC", the following shall be substituted "REB based on data provided by RLDC".

7.17 Para 13 to 17 contains the mechanism for billing for deviations from

schedules as well as for VAR exchanges. This mechanism is apparently not foolproof. A large number of questions arise for which answers have to be sought :

- a. For unscheduled inter changes which also constitute sale of energy by ISGS, can any one other than the generator raise bills? If so, how can the generator include the same in its sales figures?
- b. If RLDC raises bills, would it constitute income of RLDC? If so, what are the tax implications?
- c. If RLDC is to operate the pool account, which is bound to show surplus or deficit from time to time, how the surplus will be deployed and how the deficit will be met? If receipts within 10 days and payment within 2 days have to be done in case of short receipts, how payment would be allocated to parties who have to receive? In other words, how to match receipts and payments on one to one basis?
- d. Regarding charges for VAR, how to deal with the surplus collected?
- e. What is the mechanism for operating the bank accounts in respect of these receipts and payments?
- f. How would it be ensured that the receipts and payments shall be squared up periodically?

CTU is directed to redraft these provisions after answering the above queries so that a foolproof system is set out under the commercial mechanism. While redrafting, the CTU shall also take into account the earlier direction that REBs shall continue to do the energy accounting and operate the pool account.

With the above directions Chapter 7 of the Draft is approved.

MANAGEMENT OF IEGC – CHAPTER 8 OF THE DRAFT

The IEGC is a dynamic document. Keeping in view the changing needs of the grid, it is necessary to make provision for revision of the Code from time to time. In this regard, opportunity should be provided to all concerned so that the collective views can be consolidated in the review process. This mechanism of updating the Code is contained in Chapter 8 of the draft as 'Management of Indian Electricity Grid Code'.

8.2 The following are the major issues on this Chapter raised by various respondents:

- i. The composition of the Review Panel.
- ii. Working of Review Panel – whether through correspondence or meetings;
- iii. The functions of the Review Panel.

8.3 Regarding the composition, the draft contemplates a membership of nearly 35 which makes the review panel very unwieldy. As stated by CTU in its reply, it is not essential that each user should be a member of the Review Panel. It is important to limit its size to a manageable level such that it does not lose its objective. CEA and ASCI have proposed representatives of REB in the panel. We

are of the view that the entire cross section of the constituents viz., generators including the mega power projects, transmission agencies, bulk end users, state generators and users as well as representatives from CEA and the Industry should be represented. In the circumstances, it is appropriate that one representative each from the following organisations (except in case of REB it shall be 2) should constitute the panel:

1. CEA
2. NTPC
3. NHPC
4. NPC
5. 2 from each REB representing the Region comprising the generation and user segment
6. 1 representative from mega power projects
7. 1 representative from Railways/Steel/Coal
8. 1 representative from CII/FICCI/ASSOCHAM
9. 1 representative from CERC as Observer
10. 1 representative from PTC

The Director (Operations) of Powergrid shall be the Chairman and Convener of the Review Panel, who shall preside over meetings.

8.4 On the question of the working of the Review Panel and in particular, restricting the response to `yes or no' for modification, certain objections have been raised by some respondents. It is stated that the members should be allowed to give their detailed views. Though CTU is agreeable for detailed views to be stated by the members in the correspondence, no specific provision to that effect has been made in the IEGC. We direct that specific provision should be accordingly made.

8.5 As regards finalisation of the revised draft, in our opinion, there is need for a formal meeting of the panel which has to be convened by Powergrid. The meeting should be presided over by Director (Operations), Powergrid. Accordingly, the clause regarding incurring of expenditure in connection with the Review Panel should be deleted. Similarly, the clause regarding the person to chair the meeting shall also be modified.

8.6 On the functions of the review panel, we consider that the contents of para 8.6 are specific and confined to the IEGC for which purpose the Panel is formed. There is no intention to empower the review panel with any other jurisdiction beyond the review of IEGC. Hence clause 8.6 needs no amendment.

8.7 Time limit for review: -

- a. Panel to commence work by March 2000;
- b. CTU to submit the finally reviewed code to the Commission by 1st May, 2000.

With the above directions, the Chapter on Management of Indian Electricity Grid

Code stands approved.

Petition No.1 along with Miscellaneous Applications stands disposed off.

Ordered accordingly.

Sd/-
A.R. Ramanathan
Member

Sd/-
G.S. Rajamani
Member

Sd/-
D.P. Sinha
Member

Sd/-
S.L. Rao
Chairman

New Delhi,

Dated: 30th October, 1999.