

# ACHIEVEMENTS OF CERC DURING THE YEAR 2005-06

## IMPORTANT ORDERS AND REGULATIONS:

### 1.0. The Indian Electricity Grid Code (IEGC)

1.1 The revised Indian Electricity Grid Code (IEGC) issued by CERC came into force w.e.f. April 1, 2006. The Grid Code was finalized by the Commission after wide consultation with the stakeholders. The draft Code was published on web in July, 2005 and 22 stakeholders including CEA, Power Grid, NTPC, NHPC and numbers of SEBs and SERCs had given their comments. The Grid Code was revised in light of various provisions of Electricity Act, 2003. The salient features of revised Grid Code are given below:

- The IEGC brings together a single set of technical rules, encompassing all the utilities connected to or using the Inter-State Transmission System (ISTS) and provides the following:

Documentation of the principles and procedures which define the relationship between the various users of the Inter-State Transmission System as well as the Regional and State Load Despatch Centres.

Facilitation of the operation, maintenance, development and planning of economic and reliable Regional Grid.

Facilitation for beneficial trading of electricity by defining a common basis of operation of the Inter-State Transmission System applicable to all the users.

- A new chapter on Inter-Regional Energy Exchanges has been added with a view to enhance the grid security and energy balancing among the five electrical regions in the country.
- The Regional Power Committees shall also have representations from IPPs and electricity traders in addition to generating, transmission and distribution utilities, the CEA and Regional Load Despatch Centres.
- With the improvement in frequency regime after implementation of Availability Based Tariff (ABT) in all regions in the country, it has become possible to introduce Free Governor Mode of Operation (FGMO) of generating units which automatically corrects the frequency fluctuations. However, the generators have shown certain difficulties and to overcome them, an expert team involving CEA has been constituted. The team is visiting various power stations in the country and testing various control models for FGMO implementation. The Commission shall separately announce the timetable for implementation of Free Governor Mode of Operation in the country.

- In order to improve grid voltages, the revised Grid Code proposes to apply reactive energy charges @ 5 paise per unit of reactive power on power flows on all inter-State transmission lines. The rate shall be escalated by 5 per cent every year thereafter.
- Reorganization of the State Electricity Boards (SEBs) would lead to formation of a large number of independent entities (generating companies, transmission licensees and distribution licensees) in each State and consequently a very large number of such intra-State entities in each region. The Grid Code provides that the operation of all entities within the State would be coordinated by the concerned State Load Despatch Centre (SLDC), who in turn would coordinate with Regional Load Despatch Centre (RLDC) on real time basis.
- In order to ensure clear chain of accountability, each State as a whole shall be treated as single entity in the regional grid for the purpose of:

Allocations from Inter State Generating Station (ISGS)

Daily scheduling and despatch.

Accounting of unscheduled interchange (UI)

Accounting of reactive energy.

1.2 The Grid Code covers whole gamut of activities ranging from transmission planning to day to day scheduling. The various provisions related to planning of inter State transmission, connection conditions, system security aspects, outage planning for generation and transmission, emergency procedures for grid restoration etc., have been retained.

1.3 As per the Electricity Act, 2003, every State Electricity Regulatory Commission is required to issue a State Grid Code consistent with the Grid Code specified by the CERC. As such, CERC has taken a lead in revising the Grid Code so that it can serve as a guiding principle for the SERCs.

1.4 The Indian Electricity Grid Code lays down the rules, guidelines and standards to be followed by the various agencies and participants in the system to plan, develop, maintain and operate the power system, in the most efficient, reliable, economic and secure manner, while facilitating healthy competition in the generation and supply of electricity.

## **2.0. Amendments of regulations on grant of licence for inter-state trading**

2.1 The Commission had issued the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Trading Licence and other related matters) Regulations, 2004 in February, 2004. In the light of the experience gained over a period of time, it was thought appropriate to make certain amendments. Accordingly, the draft amendments to the principal regulations on grant of licence for inter-State trading were published to invite suggestions/comments/ objections from the stakeholders. After considering the comments of the stakeholders, the Commission notified the amendments on 13.4.2004 in the official gazette. The salient features of the amendments are as under:

The definitions of “associate”, “economic offence”, “net worth” and “relative” have been included.

The principal regulation has been amended to solicit additional information about the insolvency of the applicant or promoters or directors or associates of the applicant, relating to cases resulting in conviction or fraud or economic offence and also the details of civil and criminal cases pending since through insertion of an additional provision (Regulation 6A), these could under certain circumstances, depending on the facts, be considered as disqualifications for grant of licence. The disqualifications are meant to protect the general public from the activities in electricity sector of any undesirable person. The regulation would enable the Commission to take note of the past conduct of the persons associated with the applicant and keep them away from trading activities. In this manner, the public would be protected against repetition of past conduct by any undesirable person.

In case a licensee intends to increase the volume of electricity to be traded in a year, he should increase his net worth in keeping with his proposal and obtain prior approval of the Commission.

In case a licensee moves from one category to another category based on the volume of electricity traded, the technical and capital adequacy requirement should apply accordingly.

The forms have been revised to make them more specific and targeted.

### **3.0 Trading Margin Regulation-2006**

3.1 In a move aimed at protecting the consumers as well as providing reasonable return to traders, the Central Electricity Regulatory Commission (CERC), in exercise of the powers under section 79(1)(j) of the Electricity Act, 2003 has fixed the trading margin to 4 Paise/kWh for electricity traders who have been given licences for engaging in inter-State trading in electricity. Accordingly, the Commission has issued CERC (Fixation of Trading Margin) Regulations on 23.01.2006 (and published in the Official Gazette dated 27.01.2006). In this margin, transmission charges, application fees, Unscheduled Interchange (UI) charges and transmission losses are excluded.

3.2 The Commission found that nearly 90% of trading during 2004-05 was done at a trading margin of 5 Paise/kWh or less, but the same had increased to a weighted average of 10 Paise/kWh in the first half of the 2005-06. Up to the year 2004-05, trading margin of 5 Paise/kWh or less was a predominant trend. However, trading margins shot up in the first half of the 2005-06 and 68% of volume traded by the electricity traders carried a margin of 6 Paise/kWh or more in spite of the fact that the Commission had simplified the Open Access regulations in 2005. The instance of highest trading margin in a single transaction in 2004-05 was 43 Paise/kWh and in the first half of the 2005-06, it was 128 Paise/kWh.

3.3 The Commission fixed trading margin in view of the rising trend in trading margins being charged by the electricity traders. The Commission had originally proposed a trading margin of 2 Paise/kWh and invited comments from various stakeholders in September, 2005. A total of 24

stakeholders including ten traders and six distribution utilities had sent their comments and suggestions. The electricity traders were generally not in favour of fixing of trading margin but on the contrary the buyer distribution utilities and consumers had welcomed the proposal of fixing trading margin. After taking into account the comments and suggestions of various stakeholders, the Commission came to the conclusion that there was a need to fix trading margin and it would be reasonable to limit it to 4 Paise/kWh.

## **BENEFITS TO CONSUMERS**

Reduction in bulk electricity tariff of central generating stations under the new Terms & Conditions for the period 2004-09 on account of the following:

(i) [Reduction in Return on Equity \(ROE\)](#)

Reduction in ROE from 16% to 14% for the tariff period 2004-09 directly reduces the cost of bulk power.

(ii) [Adoption of Debt Equity Ratio of 70:30 for the New Investment](#)

The capital investment of the existing projects of the central generating companies were being serviced on debt equity ratio of 50:50. The new Terms & Conditions provide that for new investment on or after 01.04.2004 shall be serviced in the ratio of 70:30 and in case the equity deployed is less than 30% then actual equity is to be considered for the purpose of tariff. Since the equity fetches a higher return than the loan, the reduction in the equity components will reduce the cost of production of the central generating stations.

(iii) [Rationalisation of Depreciation](#)

Central Commission has rationalised recovery of depreciation in tariff by linking it to useful life of the assets in its tariff notification for 2001-04 and 2004-09. The accelerated rate of depreciation of 7.5% allowed to thermal generating station has been dispensed with. This was with a view to reduce front loading of tariff and reduce price of electricity to the SEBs/DISCOMs.

(iv) [Higher Benchmarks of Performance](#)

The norms of stations heat rate, secondary fuel oil consumption and auxiliary energy consumption for coal/lignite/gas based station have been revised with a view to achieving economy and improving efficiency of performance. The revision in these operational norms is as follows:

<b>Gross Station Heat Rate</b>		
<b>Technology</b>	<b>For period 2001-04</b>	<b>For period 2004-09</b>
Coal based TPS 500 MW sets	2500 Kcal/kWh	2450 Kcal/kWh
TPS-II based stations	2956 Kcal/kWh	2850 Kcal/kWh
Combined cycle stations	2000 Kcal/kWh and separate norms for small gas turbines less than 50 MW	1850/1950 Kcal/kWh depending upon class of the gas turbine.
<b>Secondary Fuel Oil Consumption</b>		
Coal/Lignite based stations	3.5 ml/kWh	2.0 ml/kWh for coal and 3.0 ml/kWh for lignite based stations.
<b>Auxiliary Energy Consumption</b>		
Coal	As per GOI notification dt. 30.03.1992	Reduced by 0.5% point for coal based stations.

The relaxed operation norms for existing stations of NTPC namely Kahalgaon STPS and gas based stations namely Kawas, Gandhar, Dadri, Anta and Auriya have also been reduced and are as follows:

<b>Name of Generating Station</b>	<b>For the period 2001-04</b>	<b>For the period 2004-09</b>
Kahalgaon STPS	2550	2500
Kawas GPS	2125	2075
Gandhar GPS	2100	2000
Anta GPS	2125	2075
Auriya GPS	2125	2100
Dadri GPS	2125	2075

The variable charges are reduced corresponding to the revision in operating norms. In case of existing stations of NTPC, the net reduction in the variable charges for the NTPC stations based on prices of coal, gas and secondary fuel oil as in March, 2004 was of the order of Rs.372.00 crore out of this Rs.233 crore was on

account of reduction in specific fuel oil consumption norms alone. However, upward revision in fuel price has offset the reduction achieved through tightening of operating norms.

(v) [Norms for loss of coal in transit](#)

In the tariff regulations for the period 2004-09, the following normative transit and handling losses as percentage of the quantity of coal dispatched by the coal supply company during the month have been specified:

- Pit head generating stations : 0.3%
- Non-Pit head generating stations : 0.8%

The above norms would have significant impact in curbing loss/ pilferage of coal in transit.

(vi) [Norms for O&M expenses](#)

In the tariff regulations for the period 2004-09, the Commission has adopted normative approach towards O&M expenses to be allowed for thermal generating stations. This will encourage the generating companies to economize their O&M expenses and keep the cost of generation under control. The O&M norms for coal based stations are as follows:

<b>Coal Based Stations (Rs. in lakh/MW)</b>		
<b>Year</b>	<b>200/210/250 MW sets</b>	<b>500 MW and above sets</b>
2004-05	10.40	9.36
2005-06	10.82	9.73
2006-07	11.25	10.12
2007-08	11.70	10.52
2008-09	12.17	10.95
Similar norms have been set for lignite fired thermal stations as well as gas turbines / combined cycle generating stations.		

(vii) [Target Availability](#)

Norm of target availability for thermal generating stations was adopted as 80% and for lignite based stations TPS-II the norm was 72% for the period 2001-04. The target availability norm for thermal generating station has been retained as 80% for the period 2004-09. The norm for lignite based stations has been raised to 75%. In case of hydro stations, capacity index norms for the run of the river type hydro stations have been raised to 90% from 85%. The raising of availability norms has positive impact on reliability of power supply.

[Impact of CERC Norms on NTPC Coal-](#)

[Based Stations](#)

- ROE – Reduction of Rs.253 crore per year
  - Result of ROE reduction from 16% to 14%
- Energy Charges – Reduction of Rs.333 crore per year
  - As a result of higher efficiency, lower specific fuel oil consumption and lower Aux. Consumption
  - Computed at March, 2006 coal and fuel oil prices
- Increase in Energy Charges due to increase in coal and fuel oil price between March, 2004 and March, 2006 – Rs.1616 crore

**As can be noticed, all efficiency gains in power plant operation have been neutralized due to non-transparent pricing of fuel.**