

**BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Present:

1. Shri S.L. Rao, Chairman
2. Shri D.P. Sinha, Member
3. Shri G.S. Rajamani, Member
4. Shri A.R. Ramanathan, Member

Petition No.85/2000

In the matter of

Operational Norms for Hydro Power Stations.

The following were present on behalf of the parties:-

1. Shri Ajit Pudussary, Advocate, NHPC
2. Shri R.K. Sharma, Director (Tech), NHPC
3. Shri V.K. Kanjlia, ED (Comm), NHPC
4. Shri Nain Singh, CE(O&M), NHPC.
5. Shri S.K. Agarwal, CE (T), NHPC
6. Shri Ranjan Mitra, SM(E), NHPC
7. Shri P. Kaul, SM(E), NHPC
8. Shri Vijay Kumar, SM (F&A), NHPC
9. Shri T.K. Mohanty, Mgr.(Law), NHPC
10. Shri J. Saxena, A. Prog (EDP), NHPC
11. Shri B. Chahar, Advocate, PD - Govt. of Sikkim,
12. Shri P.K. Das, Director, Sikkim, Power Development Corp. Ltd., Power Deptt. Govt. of Sikkim.
13. Shri S. Ananthkrishnan, Addl. CE, WAPCOS
14. Shri G.S. Chawla, Addl CE, WAPCOS
15. Shri S.P. Syagi, Expert Consultant, WAPCOS
16. Shri S.N. Balasubramanian, Expert Consultant, WAPCOS
17. Shri Rajindra Singh, Expert Consultant, WAPCOS
18. Shri Jayadev Singh, Consultant, WAPCOS
19. Ms. Manjula P. Madhavan, Sr. Engineer, WAPCOS
20. Shri K.P. Ray, Consultant, NEEPCO
21. Shri D.K. Singha, Sr. Manager (EL), NEEPCO
22. Shri M.M. Majumdar, Sr. Manager (Finance), NEEPCO
23. Shri Bhanu Bhushan, Dir (Opn.), Powergrid
24. Shri K.K. Das, GM (SO), Powergrid
25. Shri H.S. Bedi, Dy. CE, ISB, PSEB
26. Shri V.K. Gupta, SB (ISB), RVPN

27. Mr. Christian Guillaud, Engineer, SNC-Lavalin
28. Shri Gurdial Singh, CE (HE & RM), CEA

ORDER
(Dates of Hearing 5th October, 2000, 16th October, 2000)

This petition relates to the review of Operational Norms for all Hydro Power Stations within the jurisdiction of the Commission.

2. In terms of clauses (a) & (b) of Section 13 of the Electricity Regulatory Commissions Act, 1998 (the Act) the Commission is assigned the function to regulate the tariff of generating companies owned or controlled by the Central Government and of generating companies other than those owned or controlled by the Central Government, if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one State. Section 28 of the Act empowers the Commission to determine by regulations the terms and conditions for fixation of tariff under Section 13. The Commission in exercise of its power under Section 13 and Section 28 of the Act read with Regulation 24 of CERC (Conduct of Business) Regulations, 1999 initiated *suo moto* proceedings for review of operational norms for hydro power stations.

3. The Commission engaged Ms. Water and Power Consultancy Services (India) Ltd. as consultants for formulating the operational norms and O&M cost

norms. The consultants' report along with the document prepared by Commission's staff on indexation of O&M expenses was circulated among the utilities and the beneficiaries for their responses. NHPC, PSEB, UPPCL and RVPNL have filed their responses to these documents. NEEPCO, CEA and PGCIL have made oral submissions at the hearing, without filing their written submissions. UPPCL did not participate in the oral hearing, though a written response had been filed by it.

4. The two documents i.e. consultants report and the staff paper circulated by the Commission covered the following aspects of hydro norms:

A. Operational Norms

- (i) Design Energy
- (ii) Auxiliary Consumption and Transformation losses
- (iii) Availability
- (iv) Deemed Generation

B. O&M Cost Norms

Operation and Maintenance expenses and Escalation

C. Working Capital

D. Incentive

5. **The O&M cost norms, Working Capital and other related issues are being dealt with separately along with other Tariff Norms and as such do not form part of this order. We propose to herein deal with the aspects related to Operational norms and Incentives only.**

Design Energy

6. Design Energy as defined in GOI notification dated 30.03.1992 is the quantum of energy which could be generated in a 90% dependable year with 95% availability of installed capacity of the station. The consultants have not suggested any change in the definition of Design Energy. They have recommended that the Design Energy set out in the Techno-Economic Clearance of the Central Electricity Authority (the Authority) be considered for fixation of tariff. In case of multi-unit projects, the Design Energy applicable on commissioning of units shall be as set out for the respective unit in the Techno-Economic Clearance of the Authority. The consultants have recommended that the Authority may review the Design Energy on completion of the project to consider additional hydrological data which would become available and latest status of completion/commissioning of upstream projects involving consumptive use of water and the Authority may also review the Design Energy subsequent to the commissioning of the project as and when any specific information about the change in consumptive use of water upstream or in run off is brought to the notice of the Authority.

7. NHPC in its response has expressed its agreement with the above noted recommendations of the consultants and has, further, suggested that the periodicity of review may not be less than seven years. PSEB & RVPNL have agreed with the recommendations made by the consultants. According to

UPPCL, Design energy should be reviewed by the Authority on completion of the project and thereafter every 5 years.

8. In view of the near unanimity of views expressed by various parties on this issue, we direct as under:

- i) Design Energy set out in the Techno-Economic Clearance of the Authority be considered for fixation of tariff.**
- ii) In case of multi-unit projects, the Design Energy applicable on commissioning of units shall be as set out for the respective unit in the Techno-Economic Clearance of the Authority.**
- iii) The Authority may review the Design Energy on completion of the project to consider additional hydrological data which would become available and latest status of completion/commissioning of upstream projects involving consumptive use of water.**
- iv) The Authority may also review the Design Energy subsequent to the commissioning of the project as and when any specific information about the change in consumptive use of water upstream or in run off is brought to the notice of the Authority.**
- v) The design energy presently in use shall continue to be used for tariff purposes. However, the Authority may take necessary action to review the design energy of all NHPC and NEEPCO projects within a period of 2 years from the issue of this order.**

AUXILIARY CONSUMPTION AND TRANSFORMATION LOSSES

9. Auxiliary Consumption and Transformation Losses are prescribed as below in GOI notification dated 30.03.1992:

Auxiliary Consumption	-	0.5% of energy generated
Transformation Losses	-	0.5% of energy generated

10. The Consultants have made the following recommendations on this issue:

(i) Surface hydro stations with rotating exciters mounted on the generator shaft

Auxiliary Consumption	=	0.2% of energy generated
Transformation Losses	=	0.5% of energy generated

(ii) Surface hydro stations with static excitation

Auxiliary consumption	=	0.5% of energy generated
Transformation Losses	=	0.5% of energy generated

(iii) Underground hydro stations with rotating exciters mounted on the generator shaft.

Auxiliary Consumption	=	0.4% of energy generated
Transformation losses	=	0.5% of energy generated

(iv) Underground hydro stations with static excitation

Auxiliary Consumption	=	0.7% of energy generated
Transformation losses	=	0.5% of energy generated

11. NHPC has pointed out that Auxiliary consumption of 0.2% in respect of surface hydro stations with rotating exciters mounted on generator shaft recommended by the consultants is based on data of 48 power stations. Auxiliary consumption data given in the consultants report indicate that there is a wide variation in the auxiliary consumption of these stations. Auxiliary consumption of 31 stations out of 48 stations is more than 0.2%. Actual auxiliary consumption of Loktak and Baira Siul power stations of NHPC is 0.4 to 0.45%. In addition, consumption in Dam/ Barrage is 0.06%. According to NHPC, the norms for auxiliary consumption for hydro stations with rotating exciters mounted on the generator shaft may be retained as 0.5% as at present, both for

surface as well as underground power stations. The other recommendations made by the consultants are acceptable to NHPC. PSEB and RVPNL are in agreement with the recommendations made by the consultants. The representative of CEA, during the hearing, informed the Commission that a study had been earlier made by CEA on auxiliary consumption based on a reference received from KPCL. As per this study, the auxiliary consumption of hydro stations with static excitation works out to be more than that recommended by the consultants. The consultants have clarified that wide variations on auxiliary consumption between the various stations is mainly on account of metering errors. According to the consultants, if meters used for measuring auxiliary consumption are properly calibrated, auxiliary consumption comes out to be within 0.2% of energy generated. It has been pointed out by the consultants that for all stations owned by PSEB, RVPNL, BBMB (except Dehar) and most of the stations belonging to KPCL, the auxiliary consumption is limited to 0.2%. In case of Salal Hydro Power station of NHPC, the auxiliary consumption reported is 0.13% and in case of Chamera underground Hydro Power Station belonging to NHPC, the auxiliary consumption reported is 0.33% against the recommended norm of 0.40%.

12. We are satisfied with the clarification furnished by the consultants and consider that the recommendations made by them on the twin issues of auxiliary consumption and transformation losses read along with the data of other state level stations are appropriate. Accordingly, we direct

the following norms for auxiliary consumption and transformation losses shall be followed:

i) Surface hydro stations with rotating exciters mounted on the generator shaft

Auxiliary Consumption = 0.2% of energy generated
Transformation Losses = 0.5% of energy generated

ii) Surface hydro stations with static excitation

Auxiliary consumption = 0.5% of energy generated
Transformation Losses = 0.5% of energy generated

iii) Underground hydro stations with rotating exciters mounted on the generator shaft.

Auxiliary Consumption = 0.4% of energy generated
Transformation losses = 0.5% of energy generated

(iv) Underground hydro stations with static excitation

Auxiliary Consumption = 0.7% of energy generated
Transformation losses = 0.5% of energy generated

13. We further direct that proper calibration of the meters used for measuring auxiliary consumption should be done periodically. We further direct that the consumption of energy at the project colony shall not be included as auxiliary consumption.

Availability

14. As per GOI tariff notification dated 30.03.92, "Availability" in relation to a plant means the capacity of the plant including the generating units, to generate power on availability of water and the annual availability of a plant is determined as per the following formula.

$$\text{Percentage Annual Availability} = \frac{U_1 H_1 + U_2 H_2 + \dots + U_N H_N}{(U_1 + U_2 + \dots + U_N) \times 8760} \times 100$$

where U₁, U₂U_N is the capacity in MW of different generating units
H₁, H₂.....H_N are the hours for which the respective units were
available for operation during the year.

15. Based on the analysis of data on annual availability of all the hydro plants in operation in the country, computed by the Central Electricity Authority for the years 1992-93, 1993-94 and 1994-95 the consultants have recommended the annual availability of 85%. For calculation of availability of the plant for any period, the consultants have recommended the following formula:

$$\text{Percentage Availability} = \frac{U_1 H_1 + U_2 H_2 + \dots + U_N H_N}{U X H} \times 100$$

Where U₁, U₂.....U_N is the sent out capacity in MW of different units during the period under consideration.
H₁, H₂.....H_N are hours for which the respective units were under operation during the period.
U is the guaranteed output in MW of the plant during the same period
H represents the total number of hours of the period.

16. According to the consultants, hydro plants in general and the storage schemes in particular, where head available for power generation varies depending upon the level of water in upper pond/reservoir, the guaranteed output used in the above formula should correspond to the head available during that period. The generating units which are designed to have overload capability, may some times be called upon to run at over load conditions to meet

contingencies. The guaranteed output of the plant during that period would correspond to over load rating. The consultants' report suggests that full fixed charges shall be payable on attaining annual availability of 85% and in case the annual availability is less than 85%, the fixed charges payable shall be reduced on pro-rata basis.

17. NHPC has pleaded to adopt the concept of Capacity Index brought out by M/s. SNC-Lavlin in the Hydro Schedule instead of recommendations made by the Consultants on availability. RVPNL has also expressed its agreement with these recommendations. PSEB has recommended that normative availability for the existing plants and for new plants without silt laden water should be fixed at 90% and for new plants with silt laden water at 85%. According to PSEB, the above recommendations are in accordance with the policy on Hydro Power Development and are in conformity with the annual availability for Uri and Tanakpur stations, which during 1998-99 and 1999-2000 achieved availability of 90%. PSEB has also recommended that Salal Hydro Power Station may be allowed lower normative availability since it has not been able to achieve the availability of 90% during the previous years. According to UPPCL, availability for recovery of full fixed charges should be fixed at 95% which would help increased utilisation of the installed hydro capacity.

18. We have carefully considered the comments made on behalf of the parties. We have also studied the data on actual plant availability of NHPC

stations for the last 3 years. We have also noticed that in this background of actual availability in the past, Govt. of India has recently (vide notification dated 13.05.1999) lowered the normative availability of hydro stations to 85%. In these circumstances, we find the recommendations of consultants on normative availability of 85% to be reasonable.

19. The Commission has decided to implement the concept of Capacity Index in place of 'Availability'. The basic criteria for Capacity index are :

- a) Water spillage must be minimized
- b) As far as possible, the peak capacity of each plant must be available when most required by the system.

20. Availability of a hydro station for any period shall be based on the Capacity Index (CI) declared for the day. It is defined as follows :

$$\text{Capacity Index} = \frac{\text{Declared Capacity (MW)}}{\text{Maximum Available Capacity (MW)}} \times 100$$

Where,

Declared capacity (MW) is the capacity to be available from the plant over the peaking hours of the next day, as declared by the generator. The peaking hours shall be not less than 3 hours within a 24 hour period, and

Maximum available capacity (MW) is the maximum capacity the plant could generate with all units running, under the prevailing conditions of water levels, flows and with 100% gate openings.

The annual capacity index is the average of the daily capacity indices over a full year.

21. The various aspects of capacity index during monsoon and dry season are:

- i) During the monsoon, full capacity of each type of station is required for the full day.
- ii) For the dry season, run-of- river plant (without pondage) is required to the extent that no water is spilled. This means that provided turbine/ generators are available for all the water in the river, the plant is considered 100% available. For the plants that have storage (pondage type), since these may be despatched at any time of the day, all machines are required to be available. However, due to limited storage available, they may be required to run for only 3 hours per day (peak period). In the case of large dams, where water levels in the reservoir vary during the year affecting storage capacity, the current storage capacity of the dam is to be considered.

22. To summarize, during the monsoon period all machines are required to be available 24 hours per day for all types of plants. Apart from the run-of –river plant, during the dry season all machines are required to provide maximum capacity for at least 3 hours per day.

23. The concept of Capacity Index is further illustrated with the help of following table:

Evaluation of CI for a plant with reservoir/ pond

Typical case of Chamera (3x180 MW)
(For illustration purposes only)

Reservoir Level (M)	Units Available	Maximum Capacity(MW)	Declared Capacity(MW)	Capacity Index
760	3	540	540	100
760	2	540	360	67
756	3	524	524	100
752	3	509	509	100
750	3	501	501	100
747	3	490	490	100
747	1	490	163	33

24. It may be seen from the above table that :

- (a) When all the three generating units are available to utilize water available corresponding to full reservoir level (760m), the station would achieve 100% Capacity Index.
- (b) When two out of total three units are available, corresponding to the same reservoir level of 760 m, the declared capacity will be

less than in previous case, thereby causing reduction in the capacity index.

- (c) When all the generating units are available but the water in the reservoir is less than that required to run all the machines (corresponding to reservoir level of 747 M), 100% capacity index can be claimed by the generator.

25. In order to earn the incentive, the generator has to achieve higher Capacity Index above the normative value of 85%. This would require extra efforts on the part of the generator to maintain the availability of its machines.

Deemed Generation

26. GOI tariff notification dated 30.03.92 provides that:

- i) If the station has achieved the Normative Availability level in a contract year, but actual energy generation falls short of Design Energy for reasons solely attributable to hydrology, the energy charges for the generation upto Design Energy shall be payable to the generating company during the first seven years of operation.
- ii) In case of reduced generation due to the reasons beyond the control of generating company and non-availability of board's transmission lines or on receipt of backing down instructions from

the concerned Regional Load Despatch Centre and if it results in spillage of water, the energy loss on account of such spillage shall be considered as deemed generation limited to the Design Energy.

27. The consultants in their report have recommended that if the station has achieved Annual Availability of 85% in a contract year but energy generation falls short of Design energy for reasons solely attributable to hydrology, the following charges shall be payable to the generating company for the first seven years of operation:

- a) Full fixed charges
- b) Energy charges upto Design Energy

Provided that if annual availability achieved is less than 85%, the fixed charges as well as energy charges shall be reduced on pro-rata basis.

Provided further that incentive on achieving annual availability more than 85% shall not be applicable.

28. The consultants have further recommended that in case of reduced generation due to the reasons beyond the control of generating company and non-availability of board's transmission lines or as directed by the concerned Regional Board/Regional Load Despatch Centre and if it results in spillage of water, the energy loss on account of such spillage shall be considered as Deemed generation. Deemed generation shall not be admissible if the energy generation during the year is equal to or more than Design Energy.

29. NHPC in its submission has pleaded for adoption of the recommendation made by M/s. SNC-Lavalin on Hydro Schedule for ABT implementation. PSEB has agreed to the recommendations of the consultants, subject to the condition that any deemed generation allowed to the generator because of non-availability of Powergrid lines should be recovered from the Powergrid and not from the beneficiaries. Further, PSEB has pleaded that full energy charges up to Design Energy should be paid to the generators during first seven years of plant operation only, without loss of energy on account of failure of hydrology. Also, secondary energy should be priced at lesser rate in the first seven years due to hydrology risk towards beneficiaries. UPPCL has not agreed with the recommendations made by the consultants. According to it, generator should be allowed either deemed generation or secondary energy charges. It has further averred that transmission constraints should always be attributable to transmission utility and generation loss arising on account of it should be paid by the transmission utilities. RVPNL has not raised any objection to the recommendations made by the Consultants.

30. On consideration of the issues raised by some of the parties, we are of the view that the concept of deemed generation should not be allowed. In case of failure of hydrology, if the generator is able to maintain the availability of its machines and utilises all the available water for production of electricity, it may be able to achieve the normative capacity

index and recover full capacity charges. As such, the concept of deemed generation for the purpose of recovery of capacity charges need not be adopted any more because of protection available to the generator under the new concept of capacity index.

31. In case of reduced generation due to the reasons beyond the control of generating company or on account of non-availability of board's transmission lines or on receipt of backing down instructions from the concerned Regional Load Despatch Centre and if these result in spillage of water, the energy charges on account of such spillage shall also be payable to the generator. Apportionment of energy charges for such spillage among the beneficiaries shall be in proportion to their shares in saleable capacity of the station.

32. Energy charges on the above account shall not be admissible if the energy generation during the year is equal to or more than Design Energy.

Incentive

33. The GOI tariff notification dated 30.03.92 (amended upto date) provides the following incentives.

- i) For availability of installed capacity above normative level of 90%, the rate of incentive shall be mutually agreed upon between the generating company and the board but it shall not exceed 0.7% return on equity for each percentage increase in Availability.
- ii) The rate of incentive for secondary energy shall be equal to per unit cost of primary energy.

34. The consultants have recommended that in addition to the Capacity charge and 'Primary energy charge', the following incentives should be admissible.

- a) For higher Availability
 - i) Run-of River type schemes with pondage and storage schemes
For annual Availability more than 85% determined on the basis of Availability during peak hours in non monsoon months; and during all the 24 hours in monsoon months, incentive shall be admissible at the rate to be determined by CERC.
 - ii) Run-of River type schemes without pondage
For annual Availability more than 85% determined on the basis of Availability on 24 hours basis during monsoon months only, incentive shall be admissible at the rate to be determined by CERC.

Note : The monsoon months and peak hours in various seasons shall be specified by the respective Regional Electricity Boards.

b) For Generation of Secondary Energy

The rate per kwh of Secondary Energy shall be the same as for Primary Energy.

c) Pricing for Reactive Power

Hydro power stations, sometimes, may be called upon to supply reactive power to the system required for system voltage control. In this mode of operation, the generation of active power(kwh) would get reduced and the generating company would be put to loss. CERC could take up necessary studies to work out the appropriate prices for reactive power.

35. NHPC in its written submission has stated that the provision of incentive should be same as recommended by M/s. SNC Lavalin in their recommendations on Hydro Schedule. It has expressed its agreement with the recommendations of the consultants on pricing for reactive power. According to PSEB, as per Government of India notification dated 30.03.92 (amended up to 13.1.1995) the existing plants are exempted from the provisions of the said notification. It has pleaded that the Commission's Order on incentive should apply to future projects and not to the existing projects. PSEB has placed reliance on ABT

Order and has pleaded that incentive should be based on the actual PLF and not on availability in case of hydro plants. UPPCL has argued that Annual availability of the plant should be the same availability at which Design Energy is set to be generated as per the Techno-Economic Clearance, which is normally taken as 95%. It has, therefore, argued that incentive should be allowed on availability exceeding 95%. It has also submitted that Secondary energy rates may be taken as 10% of unit cost of primary energy. It has further argued that while allowing deemed generation and secondary energy charges, the Commission should ensure that total sum paid to the generator does not exceed annual fixed cost. Sh. Bhanu Bhushan, Director, PGCIL has submitted at the hearing that because of their remote location, hydro power stations are not asked to contribute reactive power to the system. As such there is no need to have any price for reactive power for hydro power stations of NHPC. **In view of this, we do not favour separate payment for supply of reactive energy at this juncture. In case the necessity for the same arises, a view could be taken in the matter at the appropriate time on the request of RLDC/CTU based on the capability of the generator to supply reactive power.**

36. In pursuance of its policy on hydro power development, GOI has recommended that the rate of secondary energy should be equal to that of the primary energy. The Commission in its ABT order dated 4.1.2000 has stated that to facilitate the merit order despatch of hydro generation, rate of primary energy shall be taken as 90% of the lowest variable cost of the thermal station of the region. That should satisfy all concerned so far as the rate for secondary

energy are concerned as in that case in most of the Hydro stations, the rate of primary as well as secondary energy would be less than what it is being charged before the ABT order.

37. Incentives shall be payable in accordance with the following formula:

$$(a) \text{ Incentive} = (\text{Annual Fixed Costs} - \text{Primary Energy Charge}) * (\text{CI} - 0.85)$$

(This may be a positive or negative quantity)

The primary energy rate for the first year of tariff period shall remain constant throughout the entire tariff period for incentive purpose as explained in para- 38 Of this order.

$$\text{Primary Energy Charge} = \text{Primary Saleable Energy (Ex-Bus)} * \text{Primary Energy Rate}/(1-r)$$

$$(b) \text{ Secondary Energy Charge} = \text{Secondary Saleable Energy (Ex-Bus)} * \text{Secondary Energy Rate}/(1-r)$$

r = 0.12 and represents 12% free power to the home state

Primary Energy Rate = 90% of lowest variable charges of central sector thermal plants of the concerned Region. (This rate shall also be the rate to be used in merit order despatch of the plants).

Secondary Energy Rate shall be equal to per unit cost of Primary Energy.

Capacity Charges

$$\text{Capacity Charges} = (\text{Annual Fixed Costs} - \text{Primary Energy Charge})$$

(When negative, this amount will be set to zero)

Where,

Annual Fixed Costs (AFC) shall be as follows:

$$\text{AFC} = \text{IOL} + \text{DEP} + \text{ROE} + \text{O\&M} + \text{TOI} + \text{IWC}$$

Where,

$$\text{IOL} = \text{Interest on Loan Capital}$$

DEP	=	Depreciation / Advance against depreciation
ROE	=	Return on equity
O&M	=	Operation & Maintenance expenses
TOI	=	Tax on Income (to be adjusted every year on actual basis)
IWC	=	Interest on working capital

38. Incentives for hydro stations are linked with capacity index, capacity charge and primary energy charge. In the Commission's ABT order the rate for primary energy is stated to be 90% of the lowest variable cost of Central Sector thermal plants of the concerned region. It is likely that with the inflation in the economy, the variable charge of thermal plants may increase from time to time thereby causing increase in primary energy charge. This will consequently result in reduction in the incentives without any fault on the part of generator. To remove this anomaly, it has been decided to retain the primary energy rate of the hydro plants for the first year of the tariff period constant throughout the entire tariff period for incentive purposes based on capacity index only. However, for calculation of primary energy charge, 90% of the lowest variable cost of Central Sector thermal plants of the concerned region from year to year shall be adopted as already ordered by the Commission in its ABT order dated 4.1.2000.

39. Punjab State Electricity Board has pleaded that the Commission's norms should be applicable only for future projects or for those projects commissioned on or after 1.1.1997 in conformity with the GOI notification dated 30th March, 1992, as amended. The basic purpose for establishment of the Commission is to rationalise tariff. In case the views expressed by PSEB in regard to application of norm are to be accepted, it will defeat the very purpose of the Act. We,

therefore, direct that the terms and conditions contained in this order shall apply to the existing as well as future hydro stations.

40. The terms and conditions determined by this order shall become effective from 1st April, 2001 and shall remain in force for a period of 3 years from that date, unless revised earlier by the Commission. These terms and conditions shall be notified separately under Section 28 of the Act.

Sd/-	Sd/-	Sd/-	Sd/-
(A.R. Ramanathan)	(G.S. Rajamani)	(D.P. Sinha)	(S.L. Rao)
Member	Member	Member	Chairman

New Delhi dated 8th December, 2000.