

Table of Contents

1	Procedural History	2
2	Petitioner’s Submissions	3
	2.1 General Submissions	3
	2.2 Specific Proposals	5
	2.2.1 Design Energy and the Projected Generation	6
	2.2.2 Capital Cost.....	6
	2.2.3 Additional Capitalisation.....	7
	2.3 Interest on loans.....	8
	2.4 Return on Equity.....	9
	2.5 Depreciation.....	9
	2.6 Advance against Depreciation (AAD)	9
	2.7 Operation and Maintenance (O&M) expenses	9
	2.7.1 Administrative Expenses	11
	2.7.2 Staff Salary.....	11
	2.7.3 Repairs and Maintenance	12
	2.8 Interest on Working Capital	13
	2.9 Tax on Income.....	14
	2.10 Incentive	14
	2.11 Secondary Energy Charges.....	14
	2.12 Total Charges recoverable	14
	2.13 Tariff	15
3	Responses from stakeholders	15
	3.1 Dr. R.K. Garg, Advocate.....	16
	3.2 Uttaranchal Power Corporation Limited.....	16
	3.2.1 Applicability of two-part tariff.....	16
	3.2.2 Acceptance of tariff fixed by Himachal Pradesh ERC.....	16
	3.2.3 Advance against Depreciation (AAD)	16
4	Commission’s Scrutiny & Analysis.....	17

4.1	Tariff Structure.....	18
4.2	Annual Fixed Charges (AFC).....	18
4.3	Capital Cost.....	19
4.4	Return on Equity.....	21
4.5	Interest on loans.....	22
4.6	Depreciation.....	23
4.7	Operation & Maintenance Expenses.....	24
4.8	Working Capital	26
4.9	AFC for 2005-06.....	26
5	Tariff for 2005-06	26
6	Surplus Revenue already earned.....	29

Before

UTTARANCHAL ELECTRICITY REGULATORY COMMISSION

In the matter of:

Petition no. 03/2005 filed by M/s Him Urja Pvt. Ltd., a company having its registered office at E 14, East of Kailash, New Delhi.

.....Petitioner

And

In the matter of:

Determination of Tariff u/s 62(1)(a) of the Electricity Act, 2003 for Power sold by the Petitioner from its small hydro generating station located at Rajwakti in Chamoli district of Uttaranchal.

Coram

Sri Divakar Dev Chairman

Date of Order: 17th November 2005

ORDER

This Petition has been filed by M/s Him Urja Pvt. Ltd. (hereinafter referred to as the "Petitioner") for determination of tariff for sale of electricity to Uttaranchal Power Corporation Ltd. (UPCL) from the Petitioner's Rajwakti small hydro generating station under section 62(1)(a) of the Electricity Act, 2003.

1 Procedural History

- (2) The Petitioner Company was incorporated on February 01, 1995. The Petitioner is operating a small hydropower generating station on river Nandakini, District Chamoli, Uttaranchal, having an installed capacity of 4.40 MW under the name Rajwakti small hydropower project. The said generating station was commissioned on 15.11.2002, the date of Commercial Operation (CoD), and is supplying electricity to Uttaranchal Power Corporation Ltd. (UPCL).
- (3) Section 62(1)(a) of the Electricity Act, 2003 (Act) requires this Commission to determine the tariffs for sale of electricity by a generating company to a distribution licensee in Uttaranchal. The Commission notified the Uttaranchal Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2004 (Regulations) on May 14, 2004 u/s 181 of the Act. These Regulations were applicable to all Large Hydro Power Generating (LHP) stations with an installed capacity above 25 MW located in Uttaranchal. On 03.01.2005, the Commission further notified that pending framing of separate Regulations for Small Hydro Power Generating (SHP) stations with installed capacity upto 25 MW, tariffs for such stations would be determined in accordance with the Regulations already notified with such relaxations which, in Commission's view, may be necessary.
- (4) The Petitioner failed to get its tariff determined as per requirement of the Electricity Act, 2003 (Act) and filed the Petition for the first time on 31.05.2005, that is almost two years after the said Act came into force. The said Petition was also incomplete and had deficiencies which were pointed out to the Petitioner vide letter dated 08.06.2005. The Petitioner removed the said deficiencies on 20th June 2005 and the Petition could be admitted for hearing only on 21.06.2005.
- (5) As per the Commission's directions, the Petitioner published a summary of its

proposals as given in the table below:

Table 1 : Public Notice by Him Urja (P) Ltd.

Date	Name of Newspaper
25.06.2005	Dainik Jagran
25.06.2005	Amar Ujala

- (6) No objection pertaining to the Petition was filed during the period specified for this purpose, except one by Shri R.K. Garg. Belatedly, during the course of personal hearing sought by the Petitioner, a written representation was presented to the Commission on behalf of UPCL on 15th September 2005. Issues raised in these objections and hearings have been suitably taken note of and dealt with later in this order.
- (7) For convenience, this order has been divided into following portions:
- i) Petitioner's submissions
 - ii) Responses from Stakeholders
 - iii) Commission's Scrutiny & Analysis
 - iv) Tariff for 2005-06
 - v) Surplus Revenue already earned

2 Petitioner's Submissions

2.1 General Submissions

- (8) The Petitioner has made the following general submissions:
- i) The Government of UP (GoUP) announced a policy in 1995 under which river valleys were to be allotted to private developers for identification and establishing hydropower projects in these river valleys. This policy also stipulated that the power generated by these projects shall be purchased by UPSEB at the prevailing rate of High Tension Tariff.

- ii) In 1995, the Petitioner was granted the facility to identify three projects on the river Nandakini and submit Detailed Project Reports (DPRs) for approval by Government of UP. In accordance with the agreement, the Petitioner identified the present project and its project report was approved by GoUP.
- iii) In the mean time, the GoUP revised the policy of tariff for such new hydropower projects and the guidelines issued by the Ministry of Non Conventional Energy Sources (MNES), Government of India were adopted which provided that the base rate of power purchase from non-conventional energy in 1995 should be Rs. 2.25 per unit with escalation in rate of power at the rate of 5% per annum.
- iv) U.P. State Electricity Board (UPSEB) signed a draft Power Purchase Agreement (PPA) based on the above rates, but did not sign final PPA on the ground that this rate is very high. In 1999, UPSEB offered the rate of power as Rs. 3.00 per unit with 4% escalation on Operation & Maintenance (O&M) charges less 10% free power. The Petitioner accepted this rate as offered by UPSEB and entered into PPA with UPSEB on October 15, 1999 with prior approval of the GoUP.
- v) The Petitioner started construction activities at site in December 1999.
- vi) In November 2000, after formation of the State of Uttaranchal, the Petitioner approached the Government of Uttaranchal (GoU) to accept and honour the PPA signed by the UPSEB. The GoU refused to accept and honour the PPA so signed. After protracted correspondence and persuasion, the GoU agreed to a rate of Rs. 2.50 per unit, the rate offered by Himachal Pradesh Electricity Board.
- vii) In the process, the release of the loan instalments of the project under execution was withheld and the Petitioner was saddled with time and cost

overruns.

- viii) For small hydropower project, two part tariff is not workable for the reasons given below:
- 90% dependable year is unrealistic to workout as discharge data available is for short period and not very reliable. Therefore, design energy and consequently secondary energy cannot be correctly worked out.
 - The O&M charges of the small project cannot be compared with large projects in terms of percentage of capital cost but such comparison may be based on manpower requirement of such projects.
 - Small hydropower projects cannot deploy expensive & competent manpower to complete the paperwork required for two part tariff.
 - Himachal Pradesh Electricity Regulatory Commission has accepted a flat rate of Rs.2.50 per unit for forty years for small hydropower projects having capacity upto 5 MW. Further, for Renewable energy most of the Regulatory Commissions have allowed fixed rate without resorting to two part tariff. The same may be accepted for Uttaranchal also.
- ix) The small hydropower projects covered by the rate allowed by the Government of Uttaranchal of Rs. 2.50 per unit may be allowed to charge the same rate.
- x) The Petitioner has not been able to earn required rate of return in the initial years on account of low tariff, therefore, higher tariff after repayment of loan should not be reduced and a uniform levelised tariff of Rs.2.50 may be accepted for the entire life of the project.

2.2 Specific Proposals

- (9) In addition to above general submissions, specific submissions made in the

Petition are as given hereafter:

2.2.1 Design Energy and the Projected Generation

(10) The water discharge data available for the project is only for 6 to 7 years and using this for calculating the project's design energy is likely to distort the same. Having said so, the Petitioner also claims that the design energy of the plant is 22.10 MU. Further, the Petitioner's agreement with UPCL stipulates shut down due to grid failure of upto 400 hours in a year, and therefore, the project's design energy should be proportionately reduced. Against all this, the actual energy generated and available for sale so far and as projected for the Tariff year are given in Table below:

Table 2 : Energy Generated (Net of auxiliary consumption and transformation losses) (MU)

Sl. No.	Month	*2002-03	2003-04	2004-05	Tariff Year (2005-06)		
					Actual data	Estimates	Total
1	April	0.000	2.284	1.108	2.273	----	2.273
2	May	0.004	2.446	1.536	2.424	----	2.424
3	June	0.618	2.543	1.824	1.912	----	1.912
4	July	1.219	2.654	2.776	----	2.466	2.466
5	August	1.136	2.643	2.972	----	2.600	2.600
6	September	1.319	2.986	2.994	----	2.900	2.900
7	October	0.471	3.124	2.979	----	2.980	2.980
8	November	2.121	2.785	2.936	----	2.700	2.700
9	December	1.612	1.953	2.117	----	1.900	1.900
10	January	1.483	1.536	0.873	----	1.500	1.500
11	February	0.613	1.252	0.986	----	1.110	1.110
12	March	1.328	1.112	2.245	----	1.120	1.120
	Total	11.922	27.318	25.348	6.608	19.276	25.884

* The year of commissioning

(11) Actual figures of auxiliary consumption, transformation losses and transmission losses are not being maintained by the Petitioner.

2.2.2 Capital Cost

(12) The financial closure of the project was done in 1999. Indian Renewable Energy

Development Agency Limited (IREDA) approved the project cost of Rs. 15.00 crore. Since neither the Petitioner had any experience in development of hydropower projects nor any other small hydropower project was commissioned or under construction at that time in the Himalayan region, the Petitioner was not in a position to contest the cost appraised by IREDA. The only projects under construction were under the UNDP programme, which were highly subsidized.

- (13) At the time of sanction of the project, the declared capacity of the project was 3.60 MW. During the course of execution of the project, the head and discharge of the project was increased thereby increasing the capacity of the project to 4.40 MW.
- (14) During the course of execution of the project, the Petitioner realized that it was not possible to execute the project at the cost assessed by IREDA. Therefore, it approached IREDA for sanction of additional funds, which were granted in piecemeal fashion and did not meet full requirement of the project, as IREDA did not recognize the enhanced capacity.
- (15) State Bank of India which took over the debt of IREDA, appraised the cost of the project at Rs. 20.51 crore.
- (16) Despite the financial constraints and natural disasters like floods and landslides, the Petitioner was able to commission the project in the time span of 28 months.

2.2.3 Additional Capitalisation

- (17) Subsequent to the commissioning of the project, the Petitioner suffered two major accidents. The under sluice and walls of the desilting chamber were washed away in the flood and then the channel was washed away in the landslide. On both the occasions, there were public demonstrations as the nearby houses were also damaged. Therefore, the Petitioner created retaining walls in all the landslide prone areas and also installed a concrete jacket in the channel to provide

additional safety to the villagers living near the channel.

- (18) A peculiar feature of the project is that entire channel and pipelines are passing through inhabited areas. The Petitioner had to incur the cost of displacement also. These required additional capital works. The Capital cost and additional capitalization of the project as claimed by the Petitioner are given hereunder:

Table 3: Statement of Capital Expenditure from CoD (Rs. in crore)

Expenditure Details	As approved by SBI as on 15.11.2002	As on 31.03.03	As on 31.03.04	As on 31.03.05	As on 31.03.06
a) Land & Building	0.38	0.381	0.381	0.381	0.381
b) Plant & Machinery	19.69	19.996	20.432	20.432	20.432
c) Other assets	0.23	0.45	0.4954	0.4954	0.4954
Total	20.30	20.827	21.309	21.309	21.309

2.3 Interest on loans

- (19) The details of loans outstanding for the year 2005-06, as submitted by the Petitioner are given in the Table below.

Table 4:: Statement of Outstanding Loans (Rs. in crore) (Year 2005-06)

Loan Agency (Source of loan)	Rate of interest (%)	Repayment period (Years)	Balance at the beginning of the year	Amount received during the year	Principal due during the year	Principal redeemed during the year	Principal Due at the year end
State Bank of India	10.50%	7	6.95	NIL	1.58	1.58	5.36
SBI FCNRB	7.00%	5	4.51	NIL	0.94	0.94	3.57
Total			11.46		2.52	2.52	8.94

- (20) Interest for 2005-06 claimed by the Petitioner is given below:

Table 5 : Statement of Interest & Financing charges (Rs. in crore) (Year 2005-06)

Loan Agency (Source of loan)	Rate of interest (%)	Interest and Financing expenses due during the year
State Bank of India (SBI)	10.75%	0.66
SBI FCNRB	7.00%	0.28
Other Financial Charges		0.02
Total		0.96

2.4 Return on Equity

- (21) The Petitioner has claimed equity investment of Rs. 5.252 crore and return @ 14% per annum on the same. The amount so claimed by the Petitioner works out to Rs. 0.735 crore.

2.5 Depreciation

- (22) The Petitioner has calculated depreciation for different categories of assets as per the rates given in the Regulations. Accordingly, a total of Rs. 0.593 crore has been claimed towards depreciation for 2005-06.

2.6 Advance against Depreciation (AAD)

- (23) The Petitioner has claimed that loans of longer duration were not available at the time of its financial closure. Most of the financial institutions were not prepared to finance the small hydropower as it was considered the unviable business proposition. Hence, it had to accept the loans as offered. Accordingly, the Petitioner has requested that depreciation including AAD may be allowed as per the financial package approved by the financial institutions and for that the limit of 1/10th of the loan amount may be relaxed. The Petitioner has, thus, claimed Rs. 1.927 crore towards AAD for 2005-06.

2.7 Operation and Maintenance (O&M) expenses

- (24) The Petitioner has claimed Rs. 1.91 crore towards O&M expenses for the tariff year 2005-2006. The component-wise break up of the O&M expenses claimed by the Petitioner are given in Table below.

Table 6 : Details of Operation and Maintenance Expenses (Rs. in crore)

S. No.	Particulars	2002-03	2003-04	2004-05	2005-06
a)	Consumption of Stores and Spares	Nil	Nil	Nil	Nil
	Sub-Total	Nil	Nil	Nil	Nil
b)	Repair and Maintenance				
	- Plants and Machinery		0.04	0.30	0.19
	- Buildings			-	-
	- Major Civil Works		0.59	0.39	0.32
	- Vehicles				-
	- Furniture and Fixtures				-
	- Office Equipment & Other Items		-	-	-
	Sub-Total	0.07	0.63	0.69	0.51
c)	Administrative Expenses				-
	- Insurance	0.01	0.06	0.06	0.07
	- Rent	0.04	0.13	0.11	0.12
	- Electricity Charges	0.01	0.03	0.02	0.02
	- Travelling and conveyance	0.01	0.03	0.03	0.03
	- Staff Car	0.02	0.05	0.05	0.05
	- Telephone, telex and postage	0.01	0.04	0.03	0.03
	- Advertising	0.00	0.00	0.01	0.01
	- Entertainment	0.00	0.02	0.02	0.02
	- Corporate mgmt expenses	0.02	0.07	0.10	0.10
	- Legal Expenses	0.01	0.02	0.03	0.03
	- Others (specify elements)	0.00	0.01	0.01	0.01
	Sub-Total	0.14	0.46	0.47	0.50
d)	Employee Cost				-
	- Basic Salaries				-
	- Dearness Allowance				-
	- Other Allowances				-
	- Bonus				-
	- Staff welfare expenses				-
	- Medical Allowances				-
	- Others Expenses (specify elements)				-
	- Terminal Benefits				-
	Sub-Total	0.30	0.80	0.86	0.90
e)	Corporate Office expenses Allocated	Nil	Nil	Nil	Nil
	Sub-Total	Nil	Nil	Nil	Nil
	Total O&M Expense	0.51	1.89	2.03	1.91

- (25) The O&M expenses claimed above are substantially higher than those permissible under the Regulations and the reasons for such high expenditure given by the Petitioner are as given hereafter:

2.7.1 Administrative Expenses

- (26) The Petitioner maintains office cum guest-house for its employees. Hence, the rent of the same is debited here.
- (27) The staff has to be picked thrice a day from various locations which are around 25 km. Further, repairs and purchase of any item of machinery is made from Delhi. One member has to travel to district headquarters almost every day which is 26 km.

2.7.2 Staff Salary

- (28) The Petitioner requires 2 persons in each shift at the diversion to operate four gates and four valves of desilting chamber. Besides this, one more person is required in the night as the diversion is located in the forest area and there have been instances of wild animals visiting the site. One person is required at the bell mouth where water enters the pipe in each shift. Watch and ward at this location is also required as in the event of low level, vortex can be formed at the entrance which could be disastrous for the pipeline. One person on the inspection of the channel and the pipe in each shift to locate leakages or landslides in the channel area. Three persons, one engineer, one electrician and one helper are required in the powerhouse in each shift to take the readings every hour for temperature of turbine, generator, bearings and transformers. The filters of cooling water have to be cleaned every few hours during monsoon period. One person each shift for the substation. A team of a foreman, welder and fitter is required to repair the pipe. Besides these, staff drivers, security staff, accountant, storekeeper, security-in-charge, civil engineering staff etc. is also maintained. One senior electrical

engineer with supporting staff is stationed in Delhi who visits the site twice in a month to monitor the running and maintenance of the project. One Chartered Accountant with support staff is employed to interact with financial institutions, banks and maintain accounts.

- (29) Further, it has been claimed that the expenses on staff should be viewed in light of adverse circumstances in which the staff is working at site with no good school, medical facility and entertainment within 90 km of the site area.

2.7.3 Repairs and Maintenance

- (30) The Petitioner has submitted that every year due to floods and landslides various equipments are damaged which are listed below:

- i) The under sluice portion is scoured on account of high debris load of boulders in the river and has to be re-laid. The overflow section is also damaged each year because of the boulder load. After every monsoon/flood season the breast and guide walls on the diversion are damaged.
- ii) The landslides and leakages in the channel are to be cleared and plugged each year. Wherever erosion occurs during monsoon, retaining walls have to be erected. The hoppers of desilting chambers have to be cleaned frequently during monsoon period. In the pipeline, leakage from expansion joints has to be regularly attended.
- iii) The pipeline and underwater parts of the turbine have to be painted every alternate year to prevent corrosion of pipe. The Petitioner has performed preventive maintenance, which has resulted in 97 to 98% plant availability.
- iv) The plant had to be shut down for a period of 12 to 15 days during monsoons due to high silt contents in the flow which cannot be handled

by desilting tanks. This is regular yearly feature.

- v) The runners of the turbine and labyrinths are worn out in 18 months needing replacement. The cost of the runner is more than Rs. 30 lakhs. Besides this the runner has to be repaired each year which costs about Rs. 2 lakhs.
- vi) The generators have to be dismantled every year for inspection, repair and cleaning. Besides this, small components like diodes, fuses, buses require regular changing.
- vii) On the expansion joints in the channel, every year repair has to be carried out as these joints start leaking due to extreme temperature variations.
- viii) To save on the initial cost, less expensive designs were adopted like putting up bell expansion joints on pipe instead of sleeve type joints. Though the initial cost was saved but these joints require regular maintenance to avoid leakages.

2.8 Interest on Working Capital

- (31) The Petitioner has claimed Rs. 0.177 crore towards interest on working capital @ 13% per annum. Details of interest on working capital claimed by the Petitioner are given in the Table below:

Table 7: Calculation of Amount of Working Capital (Rs. in crore)

Sl. No.	Particulars	2002-03	2003-04	2004-05	2005-06
1	O & M expenses - 1 month	0.114	0.157	0.169	0.159
2	Spares*	0.062	0.062	0.062	0.065
3	Receivables- 2 months	1.138	1.138	1.138	1.138
4	Total Working Capital (1+2+3)	1.315	1.358	1.369	1.362
5	Normative Interest Rate (%)	13%	13%	13%	13%
6	Normative Interest on Working Capital (4X5)	0.171	0.177	0.178	0.177

2.9 Tax on Income

- (32) The Petitioner has claimed Rs. 0.18 crore towards Tax on income for the tariff year 2005-2006.

2.10 Incentive

- (33) The Petitioner has also projected an incentive @ 7% of Rs. 0.287 crore for 2005-06 which has been calculated on average downtime of the generation for the reasons not attributable to it.

2.11 Secondary Energy Charges

- (34) The Petitioner has projected design energy of the plant as 22.10 MUs against the design energy of 26.05 MUs given in the DPR based on norms which are not in conformity with the Regulations. Generation over and above this arbitrarily reduced value has been claimed to be the secondary energy generation and has been projected by the Petitioner as 3.784 MUs. Applying secondary energy rate of 59 p/kWh on this, the Petitioner has claimed secondary energy charges of Rs. 0.223 crore.

- (35) The Petitioner further submitted that the discharge data available for the large hydropower project is for about 25 years and is reliable. However, in the case of small hydropower projects, the data available is only for three to five years. Hence, the design energy of any plant calculated on such limited data can be misleading. The Petitioner has, therefore, prayed that making a major departure from the Regulations, 30% of the energy generated may be assumed to be the secondary energy.

2.12 Total Charges recoverable

- (36) Based on the above claims, the Petitioner has claimed Rs. 6.995 crore as the Total recoverable charges for the tariff year 2005-2006 which is summarised in the Table

below:

Table 8 : Calculation of Net Recoverable Charges (Rs. in crore)

Sl. No.	Particulars	2002-03	2003-04	2004-05	2005-06
1	Interest on Loan	0.766	1.826	1.107	0.965
2	Depreciation	0.216	0.593	0.593	0.593
3	Advance Against Depreciation	1.126	1.589	1.927	1.927
4	Return on Equity	0.678	0.792	0.735	0.735
5	O&M Expenses	0.513	1.888	2.026	1.908
6	Interest on Working Capital	0.171	0.177	0.178	0.177
7	Gross Annual Fixed Charges	3.470	6.866	6.566	6.305
8	Less: Other Income	NIL	NIL	NIL	NIL
9	Net Annual Fixed Charges	3.470	6.866	6.566	6.305
10	Secondary Energy Charges	0.214	0.308	0.192	0.223
11	Incentive @7%	0.158	0.312	0.299	0.287
12	Income Tax	-	0.123	0.170	0.180
13	Total Charges Recoverable	3.842	7.609	7.226	6.995

2.13 Tariff

(37) The above value of the claimed AFC has been distributed over 25.88 MUs to arrive at a tariff of Rs. 2.70 p.u. given in Form 1 of the submission dated 29.07.2005 to the Petition. In the same Form 1, the AFC has been distributed over 22.10 MU of claimed primary energy generation to arrive at a tariff of Rs. 3.17 pu. Further, in para 3 of the Petition, it has been requested that a flat tariff of Rs. 2.50 p.u as allowed by Himachal Electricity Regulatory Commission may be fixed. In yet another portion of the Petition, i.e. para 4 of the submission dated 12.09.2005 to the Petition, the levelled per unit rate has been claimed as Rs. 2.73 p.u.

3 Responses from stakeholders

(38) Issues raised by the stakeholders during the proceedings are enumerated hereafter which have been dealt with respondent-wise.

3.1 Dr. R.K. Garg, Advocate

(39) The stakeholder has stated that UPCL has purchased costlier power from Him Urja Pvt. Ltd. to supply the electricity to the consumers. The cheaper power should have been purchased from Uttaranchal Jal Vidyut Nigam Limited (UJVNL). Thus, the said tariff should either be rejected as it had not been approved by the Commission as given under the provisions of applicable laws or the tariff should be fixed at the reasonable cheaper rates.

3.2 Uttaranchal Power Corporation Limited

(40) UPCL has made its submission in regard to the issues given hereunder:

3.2.1 Applicability of two-part tariff

(41) The Commission has notified its Terms and Conditions for determination of Hydro Generation Tariff Regulations, 2004 for hydro stations having capacity up to 25 MW with such relaxations and variations which may be necessary. Keeping in view this direction of the Commission, the generation tariff of the Petitioner may be fixed as per the Regulations in a way that only annual fixed charges may be recovered through energy charges.

3.2.2 Acceptance of tariff fixed by Himachal Pradesh ERC

(42) As per the provisions of the Electricity Act, 2003, the power to fix the tariff of electricity generated for sale to distribution licensee is only with the Appropriate Commission. Therefore, the contention of the Petitioner that the generation tariff fixed by HPERC should be accepted by this Commission also is not correct, justified and relevant.

3.2.3 Advance against Depreciation (AAD)

(43) As per the Regulations, loan repayment or 1/10th of the loan, whichever is lower may be allowed as AAD. Since the Petitioner has claimed a higher amount on this

head, the same should not be allowed over and above the amount allowable as per the norms prescribed in the Regulations.

- (44) In the end, UPCL has submitted that the Commission may verify the expenditure claimed by the Petitioner in the Petition and allow the expenditures as per the provision of the law and Regulations only.

4 Commission's Scrutiny & Analysis

- (45) The terms and conditions for tariff determination of larger hydro projects were notified by the Commission under section 181 of the Electricity Act, 2003 on 14.05.2004. Issue of similar Regulations for small hydro projects could not be done on account of inadequacy of data that was available for such plants. Water discharge data on most of the water streams that such projects are located on, is either not available at all or if available it is for periods which are too short for drawing any meaningful conclusions regarding the likely availability of water for such plants. Similarly, such plants being comparatively new and few in numbers, reliable operational data is also not available. These facts were strongly agitated before the Commission when draft Regulations for small plants was notified for responses. Recognizing the force of some of these contentions, the Commission deferred issue of separate Regulations for small hydro generating stations. Instead, the Commission extended the Regulations notified for larger hydro generating stations with this stipulation that suitable relaxations in the same could be made, if required. A notification to this effect was issued on 03.01.2005.

- (46) Accordingly, the Commission while being guided by the Regulations already notified is to take a view on relaxing some of them. Commission's decisions in such matters are inevitably to be based on merits of the properly substantiated justification that the Petitioner presents. Requests for such relaxations from the notified Regulations made by the Petitioner are discussed hereafter while

examining different elements of the Petitioner's annual cost.

4.1 Tariff Structure

(47) The Regulations provide recovery of a generator's costs through a combination of energy and capacity charges in what is commonly called two part tariff. Pre-requisite of such tariffs are availability of reliable data on water discharge and daily monitoring of availability of machines through the mechanism of capacity index. It has been stated before the Commission, earlier and again by the Petitioner in this Petition, that availability and generation of requisite data by small hydro generating stations is not possible. The Petitioner has, therefore, requested that this requirement of the Regulations may be relaxed and recovery of costs be allowed through a single part tariff. The Commission recognizes some genuine difficulties in this connection and accepts Petitioner's request in this regard. Consequently, the significance of the concept of design energy stands diluted.

4.2 Annual Fixed Charges (AFC)

(48) For determining the Petitioner's generation tariff the Commission has to fix the generating station's Annual Fixed Charges (AFC) after due scrutiny and prudence check. This requires objective appraisal of facts and documents presented by the Petitioner to support and substantiate the claims made with respect to each individual element of the AFC. These elements are:

- i) Interest on loans
- ii) Depreciation
- iii) Return on equity
- iv) O&M expenses
- v) Interest on Working Capital

(49) The approach to scrutiny of these elements is spelt out in the Regulations, which

as stated earlier could be relaxed suitably if so warranted by facts established by the Petitioner. For this, scrutiny and appraisal of each of these elements is being done hereafter.

- (50) Taxes are allowed to be passed through in the Tariff and recovered separately from the beneficiaries as per the Regulations.

4.3 Capital Cost

- (51) Major part of the Petitioner's AFC is accounted for by elements like interest on loans, return on equity and depreciation. These elements are derived from the capital cost of the project and its financing pattern. Proper scrutiny and prudence check of capital cost, therefore, assumes special significance.
- (52) It has been stated in the Petition that the project's capital cost as on 15.11.2002 as approved for financing by the State Bank of India (SBI) is as shown below:

Land & Building	Rs. 0.38 crore
Plant & Machinery	Rs. 19.69 crore
Other Assets	Rs. 0.23 crore
Total	Rs. 20.30 crore

- (53) Against this, the total capital cost of the project claimed by the Petitioner is Rs. 21.309 crore. The capital cost of the project has been scrutinised and accepted by a leading financial institution namely the SBI and the entire loan amount has also been disbursed based on this value. The Commission does not propose to deviate from this value and accept another figure based just on a claim made by the Petitioner. Accordingly, the revised capital cost of the project as approved by SBI is accepted for the present exercise.
- (54) It has been claimed that subsequent to its commissioning, the plant suffered damages due to flood etc. and the same in turn required additional capital

investment resulting in increase in the capital cost of the project from Rs 20.30 crore approved by SBI to Rs 21.309 claimed by the Petitioner.

- (55) While this general reason for additional capital investment has been given in one of the Annexure of the Petition, appropriate evidence to justify and substantiate this claimed additional capital expenditure has not been produced. As per the Petitioner's own books, damage due to floods in 2003-04 has been shown to be Rs. 34.49 lakhs, while the insurance company has assessed the damage of only Rs. 10.47 lakhs. Huge difference between these two figures suggests that either the damage of Rs. 34.49 lakhs being shown in the books is exaggerated or the Petitioner had been negligent in not ensuring adequate insurance cover for these assets. Since the DPR had provided for 1% of the capital cost by way of insurance charges, there is no justification for inadequate insurance cover and a cost arising out of any lapse in this regard should not be passed on to the consumers in tariff. The Petitioner has not made any attempt to substantiate the claim that the actual damage caused by floods was of Rs. 34.49 lakhs even in face of the insurance company's assessment of the damage being of only Rs. 10.47 lakhs. If on the other hand the damage claimed has indeed been exaggerated, there is no reason for admitting it and passing the same on to consumers. Similarly, additional expenditure of Rs. 1.35 crore is claimed to have been incurred for repairing this damage and on some other related works. Additional capitalisation after commissioning of the project is normally accepted if such works are a part of the DPR, which is not being claimed. In such cases, proper justification for the expenditure on additional works beyond the DPR and indeed their relevance to the project has to be properly established. The Petitioner has been unable to do so inspite of being given specific opportunity vide the Commission's letter dated 23.09.2005 and has merely submitted what are said to be copies of bills for claimed expenditure. These documents by themselves do not adequately justify or substantiate the additional expenditure claimed in the Petition. Therefore, for

want of reliable evidence in its support, this additional capital expenditure claimed for 2002-03 and 2003-04 should normally not be accepted. However, keeping in mind the fact that the additional capital expenditure of Rs. 1.35 crore works out to almost 7% of the total capital cost, disallowing the same outright could have serious financial implications. The Commission is taking a liberal view and as a one time exception provisionally accepting this additional capitalisation. The Petitioner shall furnish to the Commission satisfactory evidence to establish the need and genuineness of this claimed expenditure by 1st April 2006, failing which necessary adjustments in tariff will be made on this account. Accordingly, the provisional figure for total capital cost of the project, including the cost of additional works done after commissioning works out to Rs. 21.65 crore. Further, the Petitioner should clearly understand and note that in future no such leniency will be shown and any claim made in the tariff Petition, if not adequately substantiated, will be unconditionally disallowed.

- (56) It is found from the information filed by the Petitioner that income of Rs 1.418 crore had accrued to the Petitioner from sale of infirm power and as per the Regulations this amount should be reduced from the capital cost of the project. Similarly, as per during the balance sheet for the year 2003-04 capital assets worth Rs. 0.3449 crore have been written off. After adjusting these amounts the capital cost of the project relevant for the present exercise works out to Rs. 19.89 crore.

4.4 Return on Equity

- (57) The capital cost of the project as revised by the SBI, was to be met out of loan amount of Rs. 16.35 crore and the balance amount of Rs. 3.95 crore was to come into the project by way of promoter's equity. Against this it has been claimed that Petitioner's equity invested in the project has been steadily going up from this value to Rs. 4.24 crore on 31.03.2003, Rs. 4.95 crore on 31.03.2004 and Rs. 5.25 crore as on 31.03.2005. This additional equity is claimed to have been raised for

meeting the cost of works damaged in floods and for capital expenditure over and above those envisaged in the project. As has been stated above, the revised capital cost of the project was Rs. 20.30 crore against which the actual capital cost, including net additional capital works of Rs. 1.01 crore claimed on account of floods and other damage, works out to only Rs. 19.89 crore after accounting for sale of infirm power of Rs. 1.42 crore, not envisaged in the DPR. This value being lower than the value of capital costs of the project and the loan component remaining unchanged, Petitioner's claim of injecting additional equity on account of such repairs and replacements does not make sense. The plant's capital assets, including those damaged in floods, have been financed by loans to the extent of Rs 16.35 crore and the balance amount only can be the equity invested in these assets. This works out to Rs 3.54 crore. For the purpose of calculating return on equity only that portion of equity is relevant which is invested in the Capital assets. This can be company's total equity or only a portion of it. The distinction between a company's total equity and the equity invested in the capital assets as per the approved financing plan is important and needs to be appreciated. Therefore, for the present exercise, the Commission is taking into account only that portion of equity which is actually invested in the Capital assets which is Rs. 3.54 crore and is marginally less than the amount stipulated in the approved financing plan and the return on the same @ 14% works out to Rs. 0.50 crore.

4.5 Interest on loans

- (58) When IREDA's original loan was taken over, SBI sanctioned a term loan of Rs. 15.00 crore to cover the loan amount that was then outstanding after adjusting the repayments already made. As per the terms of this sanction, this loan carries interest @ 7% on Rs. 5.715 crore and @ 10.75% on Rs. 9.285 crore. The outstanding amount of this loan as on 01.04.2005 was Rs. 11.46 crore and taking into account the repayments to be made during the year, the interest payable on this loan has been worked out and the same comes to Rs. 0.93 crore.

4.6 Depreciation

(59) The Regulations notified by the Commission lay down the method of calculating depreciation and also show the useful life of different assets to be taken into account for such calculations. Regulation 24 stipulates that to facilitate repayment of loans, higher depreciation can be allowed in the initial years by way of Advance Against Depreciation (AAD), but the cap on total depreciation, including the AAD, is 10% of the original loan amount. The ceiling of 10%, which is same as that in the Central Electricity Regulatory Commission (CERC)'s Regulations, is based on the normal loan repayment period for term loans of Banks and Financial Institutions. By choosing a shorter duration loan of 6 years, the Petitioner's loan repayment obligation has been increased abnormally. As a result, the AAD sought in the Petition is higher than even 10% of the loan amount. Accepting such high level of depreciation and AAD would result in inflating the tariff considerably. The Commission does not intend to make any departure from its Regulations to compensate for any lapse or inefficiency in this regard and is allowing depreciation including AAD only upto the extent of 10% of loan amount provided in the Regulations. Accordingly, for the year 2005-06 the Commission is allowing depreciation of Rs. 0.55 crore and in addition AAD of Rs. 1.08 crore making a total of Rs. 1.63 crore. The balance of the loan instalments will have to come from the extra revenue earned by the Petitioner by not getting the tariff determined earlier and if required from return on equity and incentives being allowed in this order. It may be recalled that the Electricity Act, 2003 came into force on 09.06.2003 requiring that tariff for sale of electricity to UPCL from Petitioner's generating station be determined as per section 62(1)(a). The Petitioner instead of complying with this provision continued to charge from UPCL a different Tariff and approached the Commission for this purpose only on 31.05.2005. The precise impact of this delay on the Petitioner's revenues is being dealt with later in this Order.

4.7 Operation & Maintenance Expenses

- (60) Expenditure on employees, administration and repairs and maintenance are together termed as Operation & Maintenance (O&M) expenses. For an on going project, Commission's Regulations clearly provide that these costs will be allowed on the basis of actual expenditure in the preceding five years with provision for annual escalation. For a new project when this data is not available, the Regulations envisage that for the first five years this expenditure will be computed as 1.5% of the capital cost again to be escalated at the rate of 4% per annum. Against this, the Petitioner has claimed Rs. 1.91 crore as O&M expenses, comprising of Rs. 90 lakhs as employee cost, Rs. 51 lakhs as repairs & maintenance expenses and Rs. 50 lakhs as administrative expenses. Against the norm of 1.5% given in the Regulations, the expenditure claimed by the Petitioner works out to 9.60% of the capital cost, of which about 7% is only on staff and administration. Accordingly, relaxation in the prescribed norm has been sought, and for this the justification given primarily is Petitioner's own assessment and perception of the actual requirements.
- (61) A cursory glance through details of the expenditure claimed under this head reveals that levels and nature of many items of expenditure are not consistent with the size, location or working of this project. While the project is located in Chamoli district and sells a modest quantity of electricity to Uttaranchal Power Corporation Ltd. (UPCL) located at Dehradun, O&M expenses of the Petitioner reflect substantial expenditure on wages for other than that of project staff and on facilities at places different from the project site or UPCL's local or head office. This in turn has pushed up steeply the expenditure on salaries and administration. Normally, the Petitioner's company management is expected to exercise proper control over expenses in a way that avoidable and frivolous expenditure does not take place. The expenditure details that have been furnished in the Petition do not suggest that the same is being done. The Commission is,

therefore, not in a position to accept all these claims without proper validation.

- (62) While the Commission's Regulations restrict this expenditure to 1.5% of the capital cost, the DPR prepared by the Petitioner and approved by the financial institutions stipulated this expenditure as 3% of the capital cost and provides for another 1% by way of insurance cost. Against these, the actual expenditure claimed in the Petition is substantially higher than even the DPR figure and works out to 9.60% of the Capital cost and this, as stated above, is primarily on account of salaries and administration. Petitioner's project being a small hydro project, Commission is willing to consider relaxing the ceiling of 1.5% stipulated in the Regulations but only to a reasonable extent. Such relaxation cannot be allowed to degenerate into an unfettered license for incurring unbridled expenditure under these heads and passing all of it on to consumers in tariff. If the Petitioner's own DPR stipulated O&M expenditure of only 3% of the capital cost and was validated by the financial institutions sanctioning the loan, the same should have been adhered to and there is no reason why a major departure from this value should take place and be allowed. Accordingly, the Commission while relaxing the normative ceiling of 1.5% given in the Regulations accepts the O&M expenses only as per the approved DPR of the project, which is 3% of the capital cost. In addition the Commission is allowing insurance charges of 1% of the Capital Cost as stipulated in the DPR, subject to the condition that if actual expenditure on insurance is less, the same shall be corrected in future. This is also in accordance with the approach defined in the Commission's recent Order dated 10.11.2005, laying down predefined norms for relaxing the notified Regulations. Since this is the first tariff being determined by the Commission for the Petitioner, the capital cost for the purpose of calculating the O&M expenses including insurance has been taken as the value of assets as on 31.03.2005, i.e. Rs. 19.89 crore discussed above. The O&M expenses of this station so calculated work out to only Rs. 0.80 crore including insurance expenses of Rs. 0.20 crore against Rs 1.91

crore claimed in the Petition. This also happens to be in conformity with the value for such expenses calculated on the basis of the capital costs on the date of commissioning and escalated @ 4% annually thereafter.

4.8 Working Capital

- (63) Values of Capital costs and O&M expenditure having been determined, the cost of working capital required during the initial period gets derived from the same as per the Regulations. The interest on working capital so estimated for the year 2005-06 comes to Rs. 0.10 crore.

4.9 AFC for 2005-06

- (64) Based on above, the AFC for the Petitioner's generating station for the year 2005-06 works out to Rs. 3.96 crore as shown below:

Table 9 : Annual Fixed Charges for 2005-06

S. No.	Particulars	Proposed	Approved
1.	Interest on Loan	0.965	0.93
2.	Depreciation	0.593	0.55
3.	Advance Against Depreciation	1.927	1.08
4.	Return on Equity	0.735	0.50
5.	O&M Expenses	1.908	0.80
6.	Interest on Working Capital	0.177	0.10
7.	Gross Annual Fixed Charges	6.305	3.96
8.	Less: Other Income	-	-
9.	Net Annual Fixed Charges	6.305	3.96

5 Tariff for 2005-06

- (65) The AFC of the Petitioner, which includes a handsome return on investments, is to be recovered through sale of electricity generated in the plant. For this purpose, view has to be taken on the likely generation and sale of electricity so that the AFC can be distributed over the same. As stated earlier in this order, for

reasons of inadequate data on water discharge and difficulties in computing the capacity index, the Petitioner's request for single part tariff has been accepted in relaxation of the Commission's Regulations. For working this out, the AFC determined above is to be distributed over the likely generation.

- (66) In a two part tariff, any shortfall in generation occurring due to less than estimated availability of water gets compensated through capacity charges. However, this comfort is not available in single part tariff and, therefore, the need for utmost caution in estimating the likely generation during the tariff year. The actual generation of previous years could give a fair indication of what can be expected during the tariff year. In the Petitioner's case, if we exclude the first year after commissioning, as the same is normally a year of stabilisation, the average annual generation works out to 26.33 MUs. Against this, the Petitioner has projected a generation of 25.884 MUs for the tariff year. One option is to distribute Petitioner's AFC on this projected generation. The plant having been in operation for only a short time, validation of this projected generation with past average generation carries the risk of shortfall taking place due to decrease in water availability. To mitigate this risk, the Commission is falling back upon the approach outlined in its recent Order for determining tariff for such plants during the initial years issued on 10.11.2005. As stipulated in that order recovery of the Petitioner's AFC is being allowed on the generation at 45% of the plant's PLF, which is 17.34 MUs. Petitioner's full cost having already been recovered, for any generation higher than this quantity, only incentive @ 0.25 paise per kWh of saleable energy will be payable, as envisaged in the Order dated 10.11.2005.
- (67) The Regulations provide for filing of tariff Petition upto a period of 5 years but the Petitioner has sought levelised tariff for life of the project, i.e. 35 years. For want of adequate historical data in the initial years, the Commission has had to make number of assumptions and relaxations in Regulations for determining

even the initial tariff. The position of additional capital expenditure and the loan terms is still not final. Determining tariffs for the life of the project with these inadequacies does not appear feasible and, therefore, in this order the Commission is determining the tariff only for the year 2005-06, which is the third year of the plant's operation and same is given below:

Table 10: Tariffs for 2005-06

Annual Fixed Charges (Rs. In crore)	3.96
Saleable energy at a PLF of 45% (in MUs)	17.34
Tariff (Rs. Per unit)	2.28

- (68) After five years from date of commissioning, when adequate data has been generated and therefore no relaxations are required, tariffs for a longer period can be determined in accordance with the Regulations.
- (69) This tariff will be applicable for the year 2005-06 and only if the Petitioner commits to and sells power to UPCL for at least 20 years. This is essential because more than normally permissible expenses have been initially allowed as a result of which these tariffs have been heavily front loaded. It shall not be fair if consumers are made to pay the front loaded tariffs in the initial years and were denied the benefit of lower tariffs in latter years. This tariff will be payable for generation at 45% PLF which is 17.34 MUs. Any generation over this quantity will be paid for @ 25 p/kWh, which is the incentive rate for new plants in the third year, as per Commission's Order dated 10.11.2005. The Petitioner having failed to file the tariff Petition in time, there is no reason why this delinquency should be rewarded. Accordingly, these tariffs will be applicable for the whole of the year 2005-06.
- (70) Should the Petitioner not be willing to commit and sell power to UPCL for the 20 years, the above tariffs shall not be applicable and the Petitioner will be entitled to come back to the Commission for determination of tariff strictly as per

Regulations, duly levelised.

6 Surplus Revenue already earned

(71) As stated earlier, notwithstanding, the requirement of Section 62(1)(a) of the Electricity Act, 2003, the Petitioner did not approach the Commission for determination of the tariff of this plant till 31st May 2005 and continued to sell power to UPCL @ Rs. 2.50 p.u. By so avoiding regulatory scrutiny from 09.06.2003 to 31.03.2005, the Petitioner managed to earn higher revenue than what would have been permitted by the Commission as per the approach adopted in this Order. For quantifying such excess revenue the Commission has worked out the notional permissible revenue taking into account the energy sold during these years and derived from it the figure of this surplus revenue. The year wise position of the same is given below:

Table 11 : Surplus Revenue (Rs. in Crore)

Year	2003-04 (9 th June onwards)	2004-05	Total
AFC	3.56	4.12	7.68
Total allowable recovery through tariff and incentive	3.74	4.33	8.07
Recovery made @ Rs. 2.50 p.u.	5.19	6.20	11.39
Surplus	1.45	1.87	3.32
Surplus utilized for loan repayments in excess of depreciation & AAD included in AFC	0.00	0.85	0.85
Unutilised Surplus	1.45	1.02	2.47

(72) The above surplus is in addition to a sum of Rs. 90 lakhs earned by way of return on equity earned during this period and another sum of Rs. 40 lakhs earned by way of incentive after full recovery of AFC which has been factored in the permissible revenue for these years. Since determination of generation tariff was explicitly required under the Electricity Act, 2003 only from 09.06.2003, the Commission has refrained from examining Petitioner's revenue, expenses and surpluses prior to that date.

- (73) Since the Commission is restricting the permissible depreciation and AAD to 10% of the loan amount and the balance repayment period available is only 5 years including 2005-06, the shortfall in repayment obligations arising on this account is expected to be Rs. 3.54 crore for the entire remaining period. The Petitioner having already earned a surplus of Rs. 2.47 crore should be able to utilize this amount in a manner that the repayment obligations remain in tune with the amounts accruing through permissible depreciation. Alternatively, the surplus so earned may be treated in accordance with the provisions of Section 62(6) of the Electricity Act, 2003.
- (74) The Petition is disposed off accordingly.

(Divakar Dev)
Chairman