

**Before the Appellate Tribunal for Electricity
(Appellate Jurisdiction)**

Appeal Nos. 50 & 65 of 2008 and IA Nos. 98 & 143 of 2008

Dated : 18th September, 2009

**Coram : Hon'ble Ms. Justice Manju Goel, Judicial Member
Hon'ble Mr. H. L. Bajaj, Technical Member**

IN THE MATTERS OF:

Appeal No. 50 of 2008

Techman Infra Ltd.

(A public Ltd. Co. registered under the
Companies Act 1956)

Having its Registered Office

At G-1354, L. G. F. Chittaranjan Park,
New Delhi – 110 019

... Appellant

Versus

- 1. Himachal Pradesh Electricity Regulatory Commission**
Keonthal Commercial Complex,
Khalini,
Shimla – 171 002
- 2. Himachal Pradesh State Electricity Board**
Vidyut Bhawan,
Shimla – 171 004
Himachal Pradesh
- 3. Himachal Pradesh Energy Development**
Agency Himurja (Nodel Agency for the State of
Himachal Pradesh to promote NES within the
State) at : URJA Bhawan,

SDA Complex, Kasumpati,
Shimla – 171 009

4. Himachal Small Hydro Power Association

Through Pushpinder Singh,
Authorised Signatory
Head Office : 99, Sector-3,
New Shimla,
Correspondence Add:
SCO 140-141, Sector 34-A,
Chandigarh

... Respondents

Appeal No. 65 of 2008

Himachal Pradesh State Electricity Board

Vidyut Bhawan,
Shimla – 171 004

... Appellant

Versus

1. Himachal Pradesh Electricity Regulatory Commission

Keonthal Commercial Complex,
Khalini,
Shimla – 171 002

2. M/s. Himachal Small Hydro Power Association

SCO 140-141, Sector 34-A,
Chandigarh

... Respondents

Counsel in Appeal No. 50/2008

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Mr. Sandeep Chaturvedi

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Ms. Shikha Ohri for HPERC

Mr. Matrugupta
Mr. Neeraj K. Jain, Mr. Pushpender
Singh, Mr. Bharat Singh for Resp.
No.4, Himachal Small Hydro Power
Association

Mr. M. G. Ramachandran,
Mr. Anand K. Ganesan and
Ms. Swapna Seshadri for HPSEB

Mr. Dinesh Kaundal, Project Officer,
Mr.K.L.Thakur for Himurja, HP
Govt. Energy Dev. Agency, Shimla,
Resp. No.3

Mr. Kunal (PWC)

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Ms. Ruchika Rathi
Ms. Shikha Ohri for HPERC
Mr. Matrugupta
Mr. Kunal (PWC)

Mr. Neeraj K. Jain, Mr. Sandeep
Chaturvedi, Mr. Bharat Singh for
SHPs Assn.

J U D G M E N T

Justice Manju Goel, Judicial Member

The two appeals impugne the order of the Himachal Pradesh Electricity Regulatory Commission on “Small Hydro Power Projects, Tariff and other issues” dated 12.08.2007.

02) Vide the impugned order the Commission fixed the tariff for the Small Hydro Projects (SHPs) up to 5 MW. For these projects the Commission approved the capital cost at Rs.6.5 Crores / MW. The Commission determined a normative value of 45% for the capacity utilization factor for the purpose of tariff determination. The debt equity ratio was assumed at 70:30 and rate of interest at 11.5% per annum. Repayment of loan was considered at 12 years with two years moratorium with effect from the date of commercial operation. Return on equity was taken at 14% and rate of depreciation at 2.25% and operational life of the plant as 40 years. Operation and maintenance cost was fixed at 2.25% of capital expenditure with 4% escalation every year. Rate of interest on working capital was taken as 13.75%. The Commission also worked out the other relevant parameters and worked out the levelised tariff for 40 years from the date of commercial operation for the SHPs at 2.87/unit. The appellant in appeal No.50 is an Independent Power Promoter (IPP) who has been allotted six small hydro projects in the State of

Himachal Pradesh. The appellant assails the impugned order as it finds the levelised tariff to be too low for its power projects.

03) Prior to the coming into force of the Electricity Act (The Act for short) the Government of Himachal Pradesh had formulated a policy for the development of Hydro electricity in the State of Himachal Pradesh. That policy, inter alia, provided for a fixed tariff of Rs.2.50/unit for the power produced by the SHPs. The increase in tariff from Rs.2.50/unit to Rs.2.87/unit is challenged by the Himachal Pradesh State Electricity Board, appellant in appeal No. 65 of 2008, which is a deemed licensee for the electricity transmission, distribution and trading in the State and also undertakes generation of electricity. Since both the appeals challenge the same order, they were heard together and are being disposed of by this common judgment. We will refer to M/s. Techman Energy Ltd., appellant in appeal No. 50 of 2008 as the appellant and M/s. Himachal Pradesh State Electricity Board, the respondent in Appeal No.50 and appellant in appeal No. 65 as the Board. The Commission is the respondent No.1 in both the appeals. The nodal agency of the Govt. of Himachal Pradesh, known as Himurja is respondent No.3 in the appeal No.50. M/s. Himachal Small Hydro Power Association has been impleaded as respondent No.2 on an application made by the Board in appeal No.65 of 2008. A public notice was also issued inviting attention of all who may be interested in promoting SHPs. No one, however, responded to the

public notice. Both the appeals are contested. Counters and rejoinders as well as affidavits have been filed by the parties. We have heard the counsel appearing for those parties before us.

04) Before going into the merit of the two appeals it is necessary to briefly narrate the scheme of the impugned order. The order begins by recalling the importance of hydro generation in India in general and in Himachal Pradesh in particular. The present scenario of SHP in Himachal Pradesh is recalled. 20 SHPs with an aggregate capacity of approximately 43 MW were already in place, 90 projects, with an aggregate capacity of 299.40 MW, were at the implementation stage. 108 projects with an aggregate capacity of 227.45 MW were at MoU stage. Power purchase agreement for 38 projects had already been signed. The MNES guidelines referred to in the order requires 10% of generation capacity from renewable sources of energy by the year 2012. Tariff for the year 1994-95 was set at Rs.2.25 per kWh with annual escalation of 5% per annum for the first ten years and from the tenth year the price of power was to be equal to the purchase price of the high tension tariff prevalent in the State at that time. As per the “Hydro Policy of Himachal Pradesh 2006” tariff for purchase of power by the Board would be Rs.2.50 per unit. The responsibilities before the Commission, in view of the legal and policy framework were specified as under:

- (a) Specification of minimum power requirement from renewable sources
- (b) Fixation of tariff for purchase of power from small hydro projects by distribution licensee in Himachal Pradesh when such purchase is not through competitive bidding route followed as per guidelines issued by the Ministry of Power under section 63 of the Electricity Act 2003
- (c) Fixation of terms and conditions for billing and third party sale
- (d) Provision for suitable measures of connectivity with the grid.

05) The order recalls, inter alia, the Regulation relating to tariff. The Regulations require that:

- (1) the tariff for purchase of energy from renewable sources and cogeneration by distribution licensee to be determined by the Commission by a general or special order

- (2) tariff for project of energy from SHPs up to 5 MW capacity to be determined by the Commission by a general order and of SHPs more than 5 MW and not exceeding 25 MW capacity by a special order on individual project basis
- (3) The Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government
- (4) The Commission shall determine the tariff separately for each category of renewable sources for example mini/micro small hydro projects, wind, solar, biomass and urban and municipal waste power projects
- (5) While determining the tariff the Commission shall consider appropriate operational and financial parameters
- (6) Tariff for SHPs (not exceeding 5 MW capacity) shall be determined by the Commission applicable for a period of 40 years. Tariff for

SHPs is subject to review every 5 years and such revised tariff shall be applicable to power purchase agreements entered into in that State.

06) The Commission observed that the issue of tariff determination was very complex in nature. However, in pursuant to sub Regulation 1 of Regulation 6 of the Himachal Pradesh Electricity Regulatory Commission (power procurement from renewable sources and cogeneration by distribution licensee) Regulation 2007 the Commission was issuing the general order for determining tariff for purchase of energy from SHPs up to 5 MW capacity. The Commission expressed its concern on the slow progress of SHPs in Himachal Pradesh. The different objectives which were to be balanced in the tariff setting were listed as under:

- (i) Efficient and economical development of renewable energy
- (ii) interest of consumers
- (iii) fairness to investors
- (iv) utility interests and
- (v) operative and implementation simplicity

07) The Commission considered three approaches for tariff determination:

- (a) avoided cost based approach
- (b) marginal cost approach and
- (c) cost plus approach

08) The Commission decided to determine the tariff for small hydro energy projects based on cost plus approach with certain performance benchmarks. Two of the key drivers of the cost were:

- (a) Capital cost and
- (b) Capacity Utilization Factor (CUF)

09) The Commission observed that capital cost values allowed by some other respondent Commissions were as under:

Cost/States	Andhra Pradesh	Karnataka	Uttar Pradesh	Uttarakhand	Maharashtra	Haryana
Project Cost (Cr/Mw)	4.5	3.9	4.5	5.5	4.4	10.25 (upto 2 MW)
Notification Year	July 2004	Jan 2005	July 2005	Nov 2005	Nov 2005	Jan 2007
WPI	186.6	188.6	194.6	198.2	198.2	208.8
Equivalent Cost @ Nov 2007 prices (WPI=215.4)	5.19	4.54	4.98	5.98	4.78	10.57

10) The comments of stake holders recalled in the impugned order show that while the SHPs suggested that the benchmark specified

in the Regulation of Rs.6.5 Crores/MW is inadequate due to steep rise in various costs as well as cost of interface with the HPEB grid with additional cost on account of local area development charges, fisheries, forests, increased cost of land and 15% mandatory discharge requirement. The Board submitted that the benchmark of Rs.6.5 Crores/MW needs to be reduced. The SHPs also suggested that the benchmark capital cost should include the cost of road construction to reach weir and power house sites, cost of evacuation system and upgradation of facilities up to and at inter connection points. The consumer representatives suggested that the project should be treated slab-wise for example 1.50 kW, 51-100 kW, 101-1000 kW, 1-2 MW and above 2 MW. The Commission, however, approved the capital cost at Rs.6.5 Crores/MW although this benchmark was higher than the bench mark adopted by other States. The Commission justified this view on the ground of mountainous terrain and comparatively higher cost of transport as well as long interconnecting transmission lines from project site to interconnecting sub-station. The Commission claims to have considered additional expenditure incurred by SHP developers on account of LADA charges, forests and fisheries levels. The Commission rejected the proposal for a slab-wise cost benchmarking as economies of scale observed in larger projects are negated by MNS subsidies. Coming to CUF, the Commission observed that in the absence of adequate data and difficulty in calculating and determining CUF on individual basis for a large

number of SHPs it was only adopting a normative value of 45%. This compared well with Uttaranchal's practice. As mentioned above, the Commission after taking into account other costs calculated the levelised tariff for 40 years at Rs.2.87 per unit.

11) The appellant challenges the levelised tariff and the benchmark capital cost, inter alia, on the following grounds:

- (i) the cost of approach road construction to reach the weir and power house sites in case of remote / self identified projects have not been considered
- (ii) interest during construction on equity of IPPs may not have been included
- (iii) the cost of land in Himachal Pradesh has risen dramatically.
- (iv) The cost varies with variation in WPI?
- (v) Project capital cost increase with decrease in plant capacity.

12) The appellant has also challenged the other normative values fixed by the Commission.

13) The appellant obtained the calculation sheets on the basis of which the Commission arrived at the levelised tariff of Rs.2.87 per unit and found certain mistakes. The appellant filed an affidavit

detailing the mistakes in arithmetical calculations and also certain mistakes in conceptualization. The following issues were identified during the arguments:

- (i) Can the capital cost of Rs.6.5 Crores per MW for all the hydel projects up to 5 MW capacity be applied generally irrespective of site specific conditions and capacity of the plant?
- (ii) Are there arithmetical errors in the calculations of levelised tariff?
- (iii) Has the cost for making up deficit in the deficit years been factored into the calculations of the levelised tariff?
- (iv) Has the gain of the surplus year has been factored in calculation of levelised tariff
- (v) Will Capacity Utilisation Factor for different projects vary depending upon their location, catchment area etc. thereby affecting the determination of levelised tariff for the specific project?

Decision with reasons:

Capital Cost:

14) The Commission's rationale for fixing the capital cost at Rs.6.5 Crores/MW is given in paragraph 4.35 of the impugned order.

“Commission Views

4.35 The cost of a small hydro project is mainly dependent on the site which is selected, and therefore, becomes very site specific. The Commission has decided to approve capital cost for tariff determination at Rs.6.5 crore/MW. The proposed bench mark may seem on higher side when compared to capital cost bench mark adopted by other states, however the Commission is of the view that higher capital cost is justified given the mountainous terrain and comparatively higher cost of transportation and long interconnecting transmission lines from project site to the interconnecting sub-station.”

15) It is clear from the above paragraph that the Commission fixed the capital cost as Rs.6.5 Crores/MW following the example of other States and adding a margin thereto in view of mountainous terrain and consequent cost of transportation and other factors. The first sentence in this paragraph acknowledges that the cost of small hydro projects is mainly dependent on the site which is selected and, therefore, becomes very site specific. There is a contradiction between the reality that the cost of a small hydro project is site specific and the decision to fix a capital cost which would apply to all projects irrespective of the site. The learned counsel for the

Board as well as for the Commission, do not contradict that the capital cost of Rs.6.5 Crores/MW cannot represent the capital cost for all projects irrespective of the site. The capital cost will vary depending upon various factors like the availability of motorable roads, the terrain in question, the Head available, the usual availability of water in the particular river/stream cost of building weir etc. The Commission has not undertaken a study of the actual capital costs of the projects in progress or of those at proposal stage in order to ascertain what would be the expected capital cost of a project of 1 MW - 5 MW capacity. The Commission is merely following the capital cost determined by other States although, except for the State of Uttarakhand, those States do not have a mountainous terrain as Himachal Pradesh.

16) The Regulation regarding fixing tariff for SHPs upto 5 MW capacity is extracted below:

“6. Determination of tariff for electricity from Renewable sources:

(1) The Commission shall, by a general or special order, determine the tariff for the purchase of energy from renewable sources and co-generation by the distribution licensee, or the State Transmission Utility or the transmission licensee, engaged in the activity of bulk

purchase and sale of electricity to the distribution licensee;

Provided that the Commission may determine tariff including augmentation costs of the grid beyond interconnection point-

(i) by a general order, for small hydro projects not exceeding 5 MW capacity; and

(ii) by a special order, for small hydro projects of more than 5 MW and not exceeding 25 MW capacity, on individual project basis;

Provided further that, unless otherwise provided in the PPA, the PPA approved by the Commission, prior to the commencement of these regulations, shall continue to apply, for such period as mentioned in the PPA:

Provided further that the Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government.”

17) It is clear from the Regulation that the requirement of issuing a general order determining tariff for projects not exceeding 5 MW

capacity was not rigid. The Commission was only enabled to pass such a general order which is clear from the word “may” in the first proviso extracted above. Therefore, the Commission while passing an order could keep margins for the site specific features.

18) Thus the general order could have flexibility to take care of individual site specific features. The stake holders themselves had suggested that the Commission may fix separate benchmark depending upon the size of the project. The size itself will alter the per MW project cost. The Commission did not take into account the variation of capital cost depending upon sizes.

19) It is difficult to fix one common capital cost/MW which may fit every project in the State of Himachal Pradesh. Therefore the Commission was required to leave due margin for variation in the capital cost fixed so that the promoters / developers get their due and are attracted to invest in generation of hydro power. As can be seen from the objectives before the Commission listed in paragraph 06 above, the Commission was required to balance efficient and economic development of renewable energy with the interest of consumers as well as fairness to investors. We feel that in order to balance the various objectives the Commission should have left some flexibility in the capital cost determined in the impugned order.

20) In order to facilitate the final decision of the appeal, we had called for the data from Himurja to intimate how many projects had been set up in the State of Himachal Pradesh and how many may have been in the process of setting up after the impugned order was issued on 18.12.2007.

21) We have found from the data given by Himurja that some project developers have accepted the determination of capital cost by the impugned order and are in the process of being set up. But not every promoter, including the appellant, has found the impugned capital cost attractive enough. The consensus that emerged during arguments is that capital cost of Rs.6.5 Crores/MW should be accepted as the normative capital cost which can be adopted by the promoter of hydel energy and the board but the promoter or the Board shall be entitled to apply for a site specific fixation of capital cost in case either of them find the normative capital cost to be unsuitable for the project.

Capacity Utilization Factor(CUF):

22) Since capacity utilization factor also varies with the specific project and specific site depending on the hydrology of a particular location it will be proper to follow the same dispensation as for capital cost for determining the CUF of the projects in which CUF of 45% is contested by the developer or the Board.

Mistake in arithmetic calculations:

23) Certain mistake in arithmetic calculations leading to determining levelised tariff has been identified by the appellant. It is not necessary to detail those mistakes in this judgment. The learned counsel for the Commission agreed to check the arithmetic errors and to make necessary corrections in the levelised tariff.

Conceptual errors – cost for making up deficit and gain of surplus:

24) Levelised cost of electricity is determined by dividing the net present value of total life cycle cost of the project by the quantity of electricity produced over the life of the project. This is an analytical tool that can be used to compare alternative technologies and different scales of operation, investment or operating time periods. Levelised tariff is also a tool for taking investment decision as well as bid valuation with the investors and licensees. Different projects are being awarded to different investors who may have diverse financial structuring of their project, terms and tenure of the loan, interest rates etc. It will be prudent to adopt an approach that ensures most investors to discharge their loan repayment and other liability besides earning return on equity. The Commission in the impugned order has also considered advance against depreciation to enable the debt repayment or any shortfall in the debt repayment obligation while working out the levelised tariff of Rs.2.87/unit. However, with this levelised tariff of 40 years it has been contended by the appellant that it will face substantial negative cash flow in

the first eight years. The appellant hydro power developer contends that in the initial years of negative cash flow the appellant would have to generate funds which itself would involve cost and that such cost has not been taken into calculation of levelised tariff. It is pointed out by the respondent No.2 that in the later years the appellant may have surplus cash flow in which case the benefit of such cash flow should be given to the consumers/the purchaser of power. We do think that the Commission needs to give effect to these aspects while fixing levelised tariff.

25) During the hearing it came to our notice that although the Regulations stipulated fixing of levelised tariff, there is no Regulation which requires the Commission to choose the period of 40 years for fixing such levelised tariff. The problem of negative cash flow in the initial years may be solved by various ways like (i)reducing the length of the period during which the levelised tariff will apply say 25 years or (ii) by breaking up the levelised tariff period into two parts – the first 10 years and the remaining years (iii) or both so that negative cash flow is substantially reduced if not eliminated altogether. Therefore, in case any hydel power generator or purchaser of power requires project specific determination of levelised tariff as mentioned in paragraph 21 above, the Commission may also take into account prayer in this regard by the generator / purchaser of power.

26) In view of our above analysis we allow both the appeals in part with the following directions:

- (i) The capital cost of Rs.6.5 Crores/MW shall be treated as normative capital cost in all such cases as are found suitable by all parties.
- (ii) The promoters of hydel power in the State of Himachal Pradesh as well as the Himachal Pradesh State Electricity Board shall be entitled to apply to the Commission for fixing project specific capital cost for any project in case the normative capital cost is not suitable to either of them. Similarly, if CUF of 45% for a specific project is contested by either party, it may approach the Commission with the site specific CUF.
- (iii) The Commission shall factor in the cost of making up the deficit in the years in which the revenue falls short of cash flow to allow return on equity and enable repayment of loan.
- (iv) The Commission shall factor into the additional return which can be gained by the hydel projects in the years in which the levelised tariff exceeds cost of

generation including the return on equity, depreciation, O&M etc.

- (v) The Commission while giving effect to directions (ii), (iii) & (iv) above, shall consider if the period of fixed levelised tariff can be reduced to about 25 years.
- (vi) Commission may also consider breaking up the period of levelised tariff into two parts as suggested in paragraph 25 above.
- (vii) The Commission shall remove arithmetical errors while re-computing the levelised tariff.

27) With this both the interlocutory applications in appeal No. 65 of 2008 stands disposed of.

28) Pronounced in open court on this **18th day of September, 2009.**

(H. L. Bajaj)
Technical Member

(Justice Manju Goel)
Judicial Member

REPORTABLE / NON-REPORTABLE