



Order On Determination Of Capital Cost And Levelised Tariff

For

5.4 MW Sarbari-II Small Hydro Plant

MA No. 112/2013
in
Petition No 29/2010

HIMACHAL PRADESH ELECTRICITY REGULATORY
COMMISSION

Keonthal commercial complex, Khalini, Shimla - 2

28th April, 2016

Table of contents

Chapter 1	4
.....	
Introduction & Background	4
Chapter 2	13
.....	
Salient Features of the Petition	13
Chapter 3	21
.....	
Objections / Suggestions By Stakeholders	21
Chapter 4	24
.....	
Determination of Capital Cost	24
Chapter 5	44
.....	
Determination of Tariff	44

**BEFORE THE HIMACHAL PRADESH ELECTRICITY
REGULATORY COMMISSION, SHIMLA**

**MA No. 112/2013
in
Petition No. : 29/2010**

Coram
Sh. S.K.B.S Negi
Chairman

In the Matter of:

Determination of the Capital Cost and Levelised Tariff for 5.4 MW Sarbari II Small Hydro Plant

AND

In the Matter of:

M/S DSL Hydrowatt Limited,
Empire House, 214, Dr. D.N. Road,
Fort, Mumbai-40000

.....**Applicant**

(Order Passed on 28th April 2016)

The Himachal Pradesh Electricity Regulatory Commission after considering the petition filed by the Applicant, the facts presented by the Applicant in its various filings, objections received by the Commission from the stakeholders, the issues raised by the Public in the hearing held at Shimla, the responses of the Applicant to the objections and documents available on record, and in exercise of the powers vested in it under section 62, read with clause (a) of sub-section (1) of section 86 of the Electricity Act, 2003 (Act No. 36 of 2003) passes the following order determining the capital cost and tariff for 5.4 MW Sarbari II Hydro Power Plant for the period of 40 years, the useful life of the plant starting from FY 2010-11.

Chapter 1

Introduction & Background

1.1 Purpose of the Order

1.1.1 M/s DSL Hydrowatt Limited (hereinafter referred to as ‘the Petitioner’ or ‘Applicant’ or ‘DSL’), Empire House, 214, Dr. D.N. Road, Fort, Mumbai-40000 is a “generating company” falling within the definition of Section 2 (28) of the Electricity Act, 2003 (hereinafter referred to as ‘the Act’). The applicant has filed a Petition on 23rd August, 2013 (registered as Petition no.29/2010) with the Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as ‘the Commission’ or ‘HPERC’) under sections 62 and 86(1) of the Act, read with Regulation 6 of the Himachal Pradesh Electricity Regulatory Commission (Power Procurement from Renewal Sources and Co-generation by Distribution Licensee) Regulations, 2007 seeking determination of tariff for sale of electricity generated at 5.4 MW Sarbari II hydro power plant on Sarbari Khad, a tributary of Beas River in Beas Basin of District Kullu, Himachal Pradesh (hereinafter referred to as ‘Sarbari II’ or “the project” or “plant”) to the Himachal Pradesh State Electricity Board Limited (hereinafter referred to as ‘HPSEBL’ or “Board”), a deemed licensee under the Act, engaged in generation and distribution of electricity in the State of Himachal Pradesh, in pursuance of the Power Purchase Agreement (PPA) dated 23rd August 2010.

1.1.2 This Order relates to the determination of project specific tariff for sale of electricity from 5.4 MW Sarbari II hydro power plant to HPSEBL for the useful life of the plant starting from FY 2010-11.

1.2 Power Procurement from Renewal Sources Regulations

1.2.1 The Commission vide its notification dated 18th June, 2007 had specified the Himachal Pradesh Electricity Regulatory Commission (Power Procurement from Renewal Sources and Co-Generation by Distribution Licensee) Regulations, 2007 (hereinafter referred to as “HPERC RE Regulations 2007”).

1.2.2 Regulation 6(1) of the HPERC RE Regulations 2007, envisages determination of project specific tariff for SHPs of more than 5 MW but not exceeding 25 MW. The relevant proviso of Regulation 6(1) reads as under:-

'6(1)Provided that the Commission may determine tariff -

(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:'

1.2.3 Subsequently, the Commission vide its notification dated 17th December 2012 notified the Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) Regulations, 2012 (thereafter referred to as "HPERC RE Regulations 2012"). As per clause 3(2) of HPERC RE Regulations 2012, these regulations are not applicable where a long term agreement for sale of power has already been signed.

"(2) These Regulations shall not apply in the following cases:-

(i) where long term agreement for disposal/use of energy have either already been signed by the renewable energy generator or have been approved by the Commission and the capacity of the project has not been enhanced subsequent to signing/approval of such agreement;"

1.2.4 Since, the PPA for the Sarbari II SHP was approved by the Commission on 23rd August, 2010 therefore the Commission has considered HPERC RE Regulations 2007 as the applicable regulations for the determination of project specific tariff for Sarbari II SHP.

1.2.5 In pursuance to regulation 6(1) of HPERC RE Regulations 2007 and in compliance with the statutory provisions of the Electricity Act, 2003, the Commission issued a general Tariff Order for purchase of energy from SHPs up to 5 MW capacity (hereinafter referred to as HPERC SHP Tariff Order 2007). In the said Tariff Order:

- a. The Commission followed a Cost Plus Approach with certain performance benchmarks for tariff determination.

- b. Considering the practical difficulties in implementing a two-part tariff for a large number of SHP projects with low capacity, seasonal variation in water discharge and monitoring of large number of projects , the Commission determined a single tariff for such projects.
- c. The Commission decided to opt for levelised tariff to ensure accurate realization of present value of the investment to the investor.
- d. The Commission decided to opt for generalized tariff rates for projects up to 5 MW and project specific tariff for projects with capacity more than 5 MW and up to 25 MW.

1.2.6 For the purpose of determining the tariff in this order, the Commission has been guided by the policies mentioned in the HPERC RE Regulations 2007. The parameters for tariff determination can be classified as technical or financial parameters. The technical parameters would vary with each individual project and, therefore, in this Tariff Order as well, the Commission has considered project specific technical parameters. As regards the financial parameters, even though there may be some justification owing to efficiencies of scale for adopting the parameters which are slightly less liberal as compared to the SHPs of smaller capacities i.e. up to 5MW, the Commission has been guided by the similar parameters mentioned in the HPERC SHP Tariff Order 2007 even for the higher capacity SHPs i.e. more than 5MW

1.3 Role of the Commission

- 1.3.1 Under clause (a) of sub-section (1) of section 86 of the Act, the Commission is vested with the responsibility of determining the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State of Himachal Pradesh. Further, Clause (b) of said sub-section (1) of section 86 empowers the Commission to regulate electricity purchase and procurement process of the distribution licensees including the price at which electricity shall be procured from the generating companies or the licensees or from other sources through agreements for purchase of power for distribution and supply within the State.
- 1.3.2 Under section 62(1) of the Act, the Commission is to determine the tariffs for supply of electricity by a generating company to a distribution licensee. For this purpose, the

Act requires the generating company to furnish separate details for determination of tariff, as may be specified by the Commission.

- 1.3.3 Accordingly, the Commission based on the PPA signed between DSL and HPSEBL, review and analysis of the past records, information filed by the Applicant in the Petition, views expressed by the stakeholders and various other submissions in response to queries raised by the Commission, finalized the said Order.

1.4 Historical and Procedural background of the Project

- 1.4.1 The promoter Company of the project Sarbari II SHP, M/s Deepak Spinners Limited (DSL) was incorporated in the year 1982. The company has a significant presence across the State of Himachal Pradesh and is in the business of manufacturing of synthetic yarn. M/s Deepak Spinners Limited formed a special purpose vehicle (SPV), M/s DSL Hydrowatt Limited (DSL) through which the aforementioned project was executed.
- 1.4.2 A Memorandum of Understanding (MoU) was signed between the Government of Himachal Pradesh (GoHP) and M/s DSL Hydrowatt Limited on November 23, 2007 for development of the run-of-the-river 4.5 MW Sarbari II SHP.
- 1.4.3 As per the MOU, DSL was to undertake preparation and submission of Detailed Project Report (DPR) for approval of GoHP. The DPR was submitted by DSL for approval of GoHP in 2007 at a capital cost of Rs. 47.54 Cr.
- 1.4.4 On 23 June 2008, the Petitioner filed a request with the GoHP seeking enhancement of project capacity from 4.5 MW to 5.4MW (20% increase). The GoHP in purview of the provisions in the Himachal Pradesh Small Hydro Power Policy, 2006 for plants under 5 MW granted approval to Petitioner's request for enhancement on January 16, 2009.
- 1.4.5 Subsequently, an Implementation Agreement (IA) was signed on the February 28, 2009 between GoHP and the Petitioner for development of the project based on DPR submitted to GoHP. According to the IA, the Himachal Pradesh State Electricity Board (HPSEB) agreed to grant DSL the right to establish, operate and maintain the project at their own cost. Furthermore, DSL agreed to pay royalty in form of free power, to be delivered at the interconnection point.

- 1.4.6 The Petitioner raised the required equity funds for the project and commenced the infrastructural work at the project site in December 2008.
- 1.4.7 Financial closure of the project was achieved on May 30, 2007 for 4.5 MW. In addition to this an additional loan amount was sanctioned by the Lender Bank on the prospect of the enhanced capacity of the project on May 07, 2009.
- 1.4.8 The disbursement of loan by the Lender commenced in December 2008, soon after the commencement of construction of the project.
- 1.4.9 The Techno Economic Clearance (TEC) for the project was accorded by HPSEB on May 19, 2010 at an estimated cost of Rs. 46.00 Cr. inclusive of Interest During Construction (IDC), Escalation, Financial Charges (FC) and LADC @1.5% of the capital cost.
- 1.4.10 Based on the tariff petition, the Commission on July 7, 2010 passed an interim order allowing a provisional tariff of Rs. 2.95/kWh in petition No.29/2010, the tariff applicable in the State of Himachal Pradesh for generating stations having capacity less than 5MW, to be levied by the Applicant from HPSEB till the time of notification of project specific tariff. Subsequently, the Commission based on the Joint Petition approved the PPA for 5.4 MW for the Project wherein the aforesaid provisional interim order was incorporated.
- 1.4.11 The Power Purchase Agreement (PPA) between the Board and DSL detailing terms and conditions for sale of power was signed on August 23, 2010.
- 1.4.12 The basic cost approved in the PPA for the project stood at Rs. 46.00 Cr.
- 1.4.13 As per Clause (1) of Article 6 of the PPA the energy generated by the Project was to be delivered by DSL to the Board at the interconnection point situated at 33 KV sub-station of HPSEB in Kullu.
- 1.4.14 The Project didn't face any time delay on account of any factors and was completed within a period of 21 months from the date of commencement of construction.

- 1.4.15 The Commission vide its order dated July 07, 2010 granted a period of six months to file a tariff petition for determination of tariff for the sale of power from its Small Hydro Plant Sarbari II.
- 1.4.16 The Petitioner failed to file the tariff petition in the aforesaid period and the Commission therefore subsequently issued a reminder on May 20, 2013 directing the Petitioner to file the tariff petition within a period of six weeks. In response to this reminder from the Commission, the petition was filed by the Applicant and accordingly this order has been passed by the Commission.
- 1.4.17 M/s PricewaterhouseCoopers Pvt. Ltd. was appointed as Consultant to assist the Commission in determination of tariff for sale of power generated from Sarbari II Small Hydro Plant to HPSEBL.

1.5 Tariff Filing by DSL

- 1.5.1 In pursuance of the above directions of the Commission, the Applicant, on August 23, 2013 filed a petition before the Commission seeking tariff for sale of power from its Sarbari II SHP to the Himachal Pradesh State Electricity Board (HPSEB).
- 1.5.2 The Commission admitted the petition vide its interim order dated August 25, 2014. The Commission also directed the Petitioner to publish the salient features of the petition in two newspapers, Hindi & English, having wide circulation in the state in two insertions interspersed two days apart in the prescribed format. In addition to above the Commission further directed the Petitioner to host the tariff petition alongwith the format on the Petitioner's company website.
- 1.5.3 Notices inviting public comments on the Petition filed were published by the Petitioner in following newspapers:

S. No.	Newspaper Name	Date of Publication
1	The Times of India	21 st October 2014
2	Dainik Bhaskar	22 nd October 2014

- 1.5.4 The Commission further issued public notices in leading news papers 'The Tribune' and the 'Amar Ujala' on October 23rd, 2014 inviting objections and suggestions from

the interested parties by November 11th, 2014. DSL was directed to furnish replies to the objections/ suggestions to the Commission by November 19th 2014 along with a copy to the objector. The objectors were provided additional time upto November 26th 2014 to file rejoinders on the response of the petitioner.

1.5.5 The Commission, however, received within the stipulated due date of receipt of objections i.e. November 26th 2014, objections/suggestions on the petition only from HPSEBL.

1.5.6 On preliminary examination of the application, the Commission found the petition to be deficient in certain vital aspects. Clarifications were needed to be sought in regard to the deficiencies observed in the petition. Therefore, the Commission directed the Applicant to provide further information mainly in purview of the following aspects:-

(i) Information on the cost incurred in acquiring Land for the project:

The Applicant was directed to provide the supporting documents of the cost incurred for acquiring land for the project.

(ii) Information on the expenses incurred in executing civil works for the project:

The Petitioner was directed to provide the supporting documents of the cost incurred on civil works. In addition, the Applicant was enquired about the process followed for selection of the contractor for carrying out the Civil Works.

(iii) Information on the expenses incurred in acquiring Equipment & Machinery for the project:-

The Applicant was directed to provide the supporting documents of the cost incurred in acquiring necessary Equipment & Machinery for the project. The Applicant further on similar lines was enquired about the process details for selection of contractor.

The Applicant, in addition, was also directed to provide:

- i. information on the employee cost and the expenditure incurred on employee salaries,
- ii. information on expenditure incurred towards LADA,

- iii. supporting documents of the loan borrowed,
- iv. details of equity deployed in the project,
- v. information on subsidy benefit availed by the applicant,
- vi. PERT chart of planned vs actual construction activities,
- vii. month on month energy generation of the SHP
- viii. information on project layout and design
- ix. information of any miscellaneous expenditure incurred during the construction period

1.5.7 The Commission issued the first deficiency letter to the applicant on October 1, 2014 seeking additional information/ clarifications/ documents for further processing of the petition. The applicant submitted its reply vide letter dated October 28, 2014. The Commission issued the second deficiency letter to the applicant on December 17, 2014 to seek additional information. The applicant submitted its reply vide letter dated December 19, 2014 and January 08, 2015 respectively.

1.5.8 A Technical Validation Session was held on December 23, 2014 at the HPERC office at Keonthal Commercial Complex, Khalini, Shimla. The discussion mainly revolved around the kernels of the capital cost incurred and the validation of the information provided till date.

1.5.9 The public hearing on the petition was held on December 24, 2014 at the Commission's office at Keonthal Commercial Complex, Khalini, Shimla. Submissions were made by the stakeholders on diverse aspects of the project related to its cost determination and other related issues.

1.5.10 Eventually, third discrepancy letter was shared by the Commission on 31st March 2015, seeking additional information/ clarification on the subject. The Petitioner submitted its reply vide letter dated April 17, 2015. A reminder was also sent on May 20, 2015 to the Petitioner seeking the missing information in its reply dated April 17, 2015. The missing information against reply to letter dated May 20, 2015 was submitted by the Petitioner on July 6, 2015.

- 1.5.11 Subsequently, a second Technical Validation Session was held on July 15, 2015 at the Commission's office at Keonthal Commercial Complex, Khalini,. This time the discussion revolved around the design and layout of the project.
- 1.5.12 Fourth and final discrepancy letter was issued by the Commission on July 16, 2015 seeking additional information based on the verbal replies received from the Applicant in the Technical Validation Session. The applicant submitted its reply vide letter dated July 24, 2015.
- 1.5.13 As outlined above, on account of several deficiencies in the data received from the Petitioner, several discrepancy notes were issued to the Petitioner and several rounds of TVS were held, thus causing a delay in disposing off this petition.

Chapter 2

Salient Features of the Petition

2.1 Salient Features of the Petition

2.1.1 The Petitioner filed the application dated August 23, 2013 to the Commission for the determination of completed capital cost of the project and tariff for sale of electricity generated at the project. This chapter summarises the submissions of the petitioner in its petition and subsequent information/clarifications furnished in response to the Commission's queries in the matter.

2.2 Project Cost

2.2.1 As per the Detailed Project Report submitted by the Applicant, the capital cost of the project was identified as Rs. 47.54 Cr. The detailed extract of the project cost as per the DPR as submitted has been shown in the table below:

S.No.	Description of Head of Work	Estimated Cost (Rs. Cr.)
I)		
A	Generation	
	I - WORKS	
1)	Engineering charges	0.46
2)	Land	0.36
3)	C - Works	0.00
	Construction of Aqueduct	1.90
	Power Duct	1.20
	Head Race Tunnel	13.86
	Penstock .	3.90
	Power House	1.87
	Construction power	0.68
4)	Building	0.48
5)	Plantation	0.13
6)	Miscellaneous	0.39
7)	Maintenance	0.36
8)	Special T & P	0.45
9)	Communication	0.71
10)	Losses On Stock (LS)	0.15
	Sub Total	26.90
B	Power Plant	0.00
	Electro-Mechanical Equipment	9.06
	Transmission & Distribution Line	1.50
	Total Civil & Electric Work	37.46
II)	Establishment	0.00
	Establishment @10% of I - Works.	3.75
III)	Tools And Plants	0.00

S.No.	Description of Head of Work	Estimated Cost (Rs. Cr.)
	Ordinary T&P @1.5% of I - Works.	0.56
IV)	Receipt And Recoveries	0.00
	Receipt and Recoveries	-0.07
	Total Direct Charges	41.70
V)	Indirect Charges	
i)	Front & fee @1.50% of loan amount	0.70
ii)	Annual Escalation Charges @ 5% p.a.(average}	1.17
iii)	Average interest @ 11.5% on the escalated cost	3.27
iv)	LADA fee @ 1.50%	0.70
	Total Project Cost	47.54

2.2.2 The Techno- Economic Clearance (TEC) was granted by the HPSEB on May 19, 2010 at an estimated cost of the project as Rs. 45.99 Cr. (~ 46.00 Cr.) inclusive of IDC, Escalation, Financial Charges and LADC at the price level of March 2009. The detailed extract of the project cost as per the TEC approved has been shown in the table below:

S. No.	Head of Works	Approved as per TEC (Rs. Cr.)
1.	Land (A)	0.36
2.	Infrastructure Works	
2.1	Preliminary including Development	0.47
2.2	Approach Road	1.22
2.3	Maintenance	0.37
2.4	Tools & Plants	0.58
2.5	Losses on stock	0.15
2.6	Receipt & Recoveries	-0.07
	Sub-Total Infrastructure Works (B)	2.72
3.	Civil Works	
3.1	HRT, TRT, Surge Shaft & Pressure shafts	14.24
3.2	Power Plant civil works(sub- station & Transmission Line)	3.46
3.3	Other Civil Works (Pen Stock+ Misc Civil works)	8.89
	Sub-Total Civil Works (C)	26.59
4.	Equipment & Machinery	
4.1	Plant & Equipment	9.31
	Sub-Total Equipment & Machinery(D)	9.31
5.	Interest & Financing Charges	
5.1	Financing charges	0.23
5.2	Interest during construction (IDC)	3.19
	Sub-Total Interest & Financing Charges(E)	3.42
6.	LADC (F)	0.68
7	Establishments (G)	2.89
	Total (A+B+C+D+E+F+G)	45.99

2.2.3 The tariff petition submitted by the Petitioner claims the project cost as Rs. 47.14 Cr. The capital cost of the project as submitted by the applicant has been detailed below:

S. No.	Head of Works	Estimated Cost (Rs. Cr.)
1.0	Infrastructure Works	
1.1	Preliminary including Development	0.16
1.2	Land	0.70
1.3	Building, Roads	1.44
1.4	Township	0.68
1.5	Maintenance	
1.6	Tools & Plants	
1.7	Communication	-
1.8	Environment & Ecology	-
1.9	Losses on stock	
1.10	Receipt & Recoveries	
1.11	Total (Infrastructure Works)	2.98
2.0	Major Civil Works	-
2.1	Dam, Intake & Desilting Chambers	-
2.2	HRT, TRT, Surge Shaft & Pressure shafts	9.31
2.3	Power Plant civil works(sub-station & Transmission Line)	2.88
2.4	Other Civil Works (Pen Stock+ Misc Civil works)	10.95
2.5	Total (Major Civil Works)	23.14
3.0	Hydro Mechanical equipment's	-
4.0	Plant & Equipment	15.94
4.1	Initial spares of Plant & Equipment	-
4.2	Total (Plant & Equipment)	15.94
5.0	Taxes and Duties	
6.0	Construction & Pre-commissioning expenses	-
7.0	Overheads	
7.1	Establishment	2.58
7.2	Design & Engineering	-
7.3	Audit & Accounts	-
7.4	Contingency	-
7.5	Rehabilitation & Resettlement	-
7.6	Total (Overheads)	2.58
8.0	Capital Cost without IDC & FC	44.63
9.0	Financing charges (FC)	0.11
10.0	Interest during construction (IDC)	2.40
11.0	IDC & FC	2.51
	Total	47.14

2.2.4 According to the petition, the capital cost of the project was conceived at a debt equity ratio of 64.7:35.3 with the debt amount being Rs. 30.50 Cr. and the equity amount being Rs. 16.64 Cr.

2.2.5 As per the Applicant, the Debt component of Rs. 30.50 Cr was funded by the Bank of Maharashtra. A loan of Rs. 25.00 Cr. was sanctioned on May 30, 2007 at an interest rate of 11% p.a. The repayment period was set for a period of 7 years starting from

April 1, 2009. The repayment of principal was envisaged in the manner as shown in the table:

No. of Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Principal (Rs. Cr.)	1.00	7.30	3.25	3.25	3.25	3.25	3.70

With the interest during repayment to be paid as and when applied in addition to the installment. Further, the proposed repayment of 7.30 Cr. was linked to the receipt of MNRE subsidy of Rs. 3.32 Cr. recoverable in the Year II.

2.2.6 An additional loan of Rs. 5.50 Cr. was also availed on May 07, 2009 for the purpose of meeting additional funding requirement due to enhanced capacity of the project, at an interest rate of 11.50 % p.a. The repayment period was set for a period of 7 years starting from January 1, 2011. The repayment of principal was envisaged in the manner as shown in the table

No. of Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Principal (Rs. Cr.)	0.50	0.50	0.90	0.90	0.90	0.90	0.90

With interest during repayment to be paid separately as and when applied in addition to the installment.

2.2.7 The Interest During Construction (IDC) paid, as submitted by the applicant for the project has been shown in the table below:

Date	Amount (Rs. Cr.)
4-Feb-09	0.03
4-Feb-09	0.02
28-Feb-09	0.03
31-Mar-09	0.04
30-Apr-09	0.05
31-May-09	0.07
30-Jun-09	0.08
31-Jul-09	0.09
31-Aug-09	0.10
30-Sep-09	0.11
31-Oct-09	0.12
30-Nov-09	0.13
31-Dec-09	0.14
31-Jan-10	0.16
28-Feb-10	0.14
31-Mar-10	0.16

Date	Amount (Rs. Cr.)
30-Apr-10	0.15
31-May-10	0.17
30-Jun-10	0.20
31-Jul-10	0.22
25-Aug-10	0.19
Total	2.40

2.2.8 The Petitioner has claimed IDC amount of Rs. 2.40 Cr. incurred during the construction period.

2.2.9 In addition to the above, the applicant also claimed financing charges of Rs. 0.11 Cr.

2.2.10 As per the Petition submitted, the Petitioner claimed an Equity amount invested of Rs. 16.64 Cr. (35.3% of the total Capital Cost) in the project. The Petitioner however submitted an equity schedule amounting to Rs. 17.00 Cr. The table below presents the equity schedule as submitted by the Petitioner:

Date	Amount (Rs Cr.)
2-Dec-08	0.25
29-Dec-08	0.25
2-Feb-09	0.25
5-Mar-09	0.25
15-May-09	0.30
15-May-09	0.10
15-May-09	0.35
15-May-09	0.30
27-May-09	0.15
25-Jun-09	0.25
25-Jun-09	0.15
25-Jun-09	0.20
25-Jun-09	0.25
10-Aug-09	0.35
27-Aug-09	0.15
27-Aug-09	0.30
2-Sep-09	0.25
15-Oct-09	0.15
10-Dec-09	0.20
5-Jan-10	0.10
11-Jan-10	0.50
13-Jan-10	0.40
29-Jan-10	1.00

Date	Amount (Rs Cr.)
1-Feb-10	2.25
1-Apr-10	0.45
12-Apr-10	0.16
13-Apr-10	0.10
30-Apr-10	0.10
10-May-10	0.75
28-May-10	0.70
10-Jun-10	1.25
14-Jun-10	0.85
29-Jun-10	0.21
13-Jul-10	0.90
13-Jul-10	0.90
13-Jul-10	0.60
16-Jul-10	0.61
29-Jul-10	0.41
27-Aug-10	0.31
Total	17.00

On analyzing the submissions made by the Petitioner, the Commission observed that the last installment of Rs. 0.31 Cr. was infused into the project after COD. Therefore the equity infusion till COD works out to be Rs. 16.69 Cr.

2.2.11 The table below summarises the funding structure of the capital cost incurred for the project as submitted by the applicant:

Date	Amount (Rs. Cr.)
Project Cost	47.14
Total Equity	16.64
Total Debt	30.50
Debt %	64.7%
Debt Equity Ratio	64.7:35.3

2.3 Key assumptions by the Petitioner for determination of tariff

2.3.1 The table below summarises the parameters assumed by the Petitioner in the tariff petition submitted for Sarbari II SHP:

S. No.	Parameters	Unit	As per Petition	Remarks (given in the Petition)
1.	Capacity	MW	5.4	Enhanced Capacity
2.	Gross energy generation	MU	30.38	Calculated for 75% dependable year and 61% CUF.
3.	Useful Life	Years	40	Considered as per DPR
4.	Auxiliary Consumption	%	1.00	Normative as per CERC 2009 RE regulations
5.	Transmission loss	%	1.04	Actuals based on 3 year operation period (Aug 2010 till FY 12-13)
6.	Royalty			Considered as per DPR
	For First 12 years	%(MU)	12(3.40)	
	For next 18 years	%(MU)	18(5.09)	
	For remaining years	%(MU)	30(8.48)	
7.	Capital Cost	Rs. Cr	47.14	Based on Actuals
8.	Debt-Equity ratio	No unit	64.7:35.3	Based on Actuals
	Debt component	Rs. Cr.	30.5	
	Equity Component	Rs. Cr.	16.64	
9.	Repayment Period	Years	10	Normative as per CERC 2009 RE regulations
10.	Interest rate	%	13.50	Considered same as at the time of filing of petition (Jun 2013)
11.	Return on Equity			Normative as per CERC 2009 RE regulations
	For first 10 years	%	19	
	From 11 th year onwards	%	24	
	Weighted average of RoE	%	22.75	
12.	Discount Rate	%	16.77	Calculated at assumed rate of interest rate and average RoE above.
13.	Depreciation			Normative as per CERC
	For first 10 years	%	7	

S. No.	Parameters	Unit	As per Petition	Remarks (given in the Petition)
				2009 RE regulations
	From 11 th year onwards	%	0.67	Calculated as per CERC 2009 RE Regulations norms
14.	O&M Expenses			
	Base year	Rs Cr.	0.88	Average of actuals incurred upto the time of filing the Petition
	Escalation	%	5.72	Normative as per CERC 2009 RE regulations
15.	Working Capital			
	O&M Charges	Rs. Cr.	0.16	Considered for 1 month
	Maintenance Spare	%	15	Normative as per CERC 2009 RE regulations
	Rate of Interest	%	13.50	Normative as per CERC 2009 RE regulations

2.4 Prayer of the Applicant

2.4.1 The petitioner has prayed before the Commission to: -

- (i) Allow the tariff of Rs. 3.86 per kWh calculated after consideration of parameters as mentioned above for the sale of power generated from the project for the entire term of PPA;
- (ii) pass such order/orders as the Commission may deem fit and proper in the facts and circumstances of the case.

Chapter 3

Objections / Suggestions By Stakeholders

3.1 Introduction

3.1.1 This chapter summarizes the various issues raised by the stakeholders in their written submissions and during the public hearing. The replies of the petitioner on the issues raised have been summarized here along with Commission's views on the matter.

3.2 Project Cost

3.2.1 Objection/Queries raised

The respondent Board stated that initially the project was awarded to the petitioner for a capacity of 4.5MW. The hydro power policy of the State of HP stipulates the cost per MW of a SHP under 5MW as Rs 6.00 Cr/MW and as the project capacity enhances the cost per MW gradually decreases. Since, the petitioner voluntarily chose to enhance the capacity from 4.5 MW to 5.4 MW, the capital cost per MW should have necessarily been reduced in line with the State policy and general perception. However, it has been observed that the per MW capital cost has increased substantially as a result of enhancement of capacity. Therefore the Board contended that the additional expenditure on account of enhanced capacity and Petitioner's inefficiency to control the already escalated project cost should not be passed on to the consumers of the State in form of high tariff.

3.2.2 Petitioner's reply

The petitioner in reply reiterated that it is of prime importance that the optimal use of natural resources should be done properly. It was the duty of the Petitioner to assess the potential of the site and accordingly act on the same. Therefore, in pursuance of the above the capacity of the project was enhanced with the permission of the Directorate of Energy of the State of Himachal Pradesh.

3.2.3 Commission's View

TEC was issued for 5.4 MW and since the Petitioner has asked for project specific tariff, the Commission for tariff determination has used the prudent capital cost arrived

upon after proper scrutiny of the documents submitted against the claimed capital cost. Further, the Commission for the purpose of tariff determination as far as possible has been guided by the parameters mentioned in the HPERC SHP Tariff Order 2007 applicable for plants upto 5MW.

3.3 Delay in tariff filing by the Petitioner

3.3.1 Objection/Queries raised

The Board objected to the petitioners delay in tariff filing. The petitioner filed the tariff petition on August 25, 2013, two years after the commissioning of the project and that too upon the Commissions intervention. Meanwhile, an interim order was passed by the Commission in favour of the Petitioner allowing a tariff to be charged according to the tariff prevailing in the State of HP for SHP's with capacity of less than 5 MW. The Board requested the Commission to recall the said Order with immediate effect.

3.3.2 Petitioner's Reply

The Petitioner submitted that there was a delay in filing of the tariff petition because the cost of the project was not finalized due to certain noticeable factors. One of the factors was the Cess component on construction which was not finalized as the matter was under dispute before the High Court. Since the decision on the matter was pending it was not possible for the Petitioner to file the tariff petition. The issue was even intimated to HPSEBL in response to the Chief Engineer's (Commercial) letter dated April 5, 2013 asking for the same.

The petitioner further submitted that as soon as the project cost was finalized, necessary steps were taken and the tariff petition for determination of tariff of Sarbari II SHP was filed before the commission.

3.3.3 Commission's View

The Commission for the purpose of tariff determination has considered the project cost of the plant at the time of commissioning. Further, the financial parameters for determination of tariff have been considered based on the Tariff Order for the projects upto 5 MW issued under the Regulation of 2007 i.e. Regulation applicable at the time

of PPA. The tariff being determined in this order shall be applicable from date of commencement of the operation of the Project and the interest rate to be adopted for setting the accounts for the past period is being fixed in the relevant chapter of this order after taking into account all such relevant factors.

Chapter 4

Determination of Capital Cost

4.1 Introduction

4.1.1 The Commission has notified the HPERC (Power Procurement from Renewable Sources and Co-generation by Distribution Licensee) Regulations, 2007.

4.1.2 Regulation 6 of the HPERC (Power Procurement from Renewable Sources and Co-generation by Distribution Licensee) Regulations, 2007 is reproduced hereunder: -

“ (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;

Provided that the Commission may determine tariff -

(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,-

(i) where the power purchase agreement, approved prior to the commencement of these regulations, is not subject to the provisions of the Commission's regulations on power procurement from renewable sources; or

(ii) where, after the approval of the power purchase agreements, there is change in the statutory laws, or rules, or the State Govt. Policy;

(2) The Commission shall determine the tariff separately for each category of renewable source mentioned in clause (m) of regulation 2.

(3) While deciding the terms and conditions of tariff for energy from renewable sources and co-generation, the Commission shall, as far as possible, be guided by the principles and methodologies specified by the Central Commission, the National Electricity Policy, the Tariff Policy and the tariff regulations notified by the Central Commission.

Provided that the Commission, may for sufficient reasons and after exercising due diligence and applying prudence check, deviate from the terms and conditions of the generation tariff notified by the Central Commission:

- (4) While determining the tariff, the Commission may, to the extent possible consider to permit an allowance based on technology, fuel, market risk, environmental benefits and social contribution etc., of each type of renewable source.*
- (5) While determining the tariff, the Commission shall consider appropriate operational and financial parameters..*
- (6) The tariff for small hydro projects not exceeding 5 MW capacity determined by the Commission shall be applicable for a period of 40 years from the date as notified by the Commission;*
- (7) The tariff for small hydro projects not exceeding 5 MW capacity, determined by the Commission is subject to review after every 5 years and such revised tariff shall be applicable to power purchase agreements entered into after that date.”*

4.1.3 The Commission in accordance with the clause (ii) of 1st proviso of sub-regulation (1) of Regulation 6 of the HPERC (Power Procurement from Renewable Sources and Co-generation by Distribution Licensee) Regulations, 2007 as stated above has determined the capital cost and tariff for the said plant.

4.2 Capital Cost of the Project as per the petition

4.2.1 As per the Detailed Project Report submitted by the Applicant, the capital cost of the project was identified as Rs. 47.54 Cr. The Techno- Economic Clearance (TEC) was granted by the HPSEB on May 19, 2010 at an estimated cost of the project as Rs. 45.99 Cr. (~ 46.00 Cr.) inclusive of IDC, Escalation, Financial Charges and LADC at the price level of March 2009.

4.2.2 The table below shows a comparison of the project cost as submitted in the DPR to that accorded in the TEC.

S.No.	Description	Submitted as per DPR (Rs. Cr.)	Approved as per TEC (Rs. Cr)
1	Land	0.36	0.36
2	Infrastructure Works	4.70	5.62
3	Civil Works	27.58	26.59
4	Electromechanical Works	9.06	9.31

S.No.	Description	Submitted as per DPR (Rs. Cr.)	Approved as per TEC (Rs. Cr.)
	Sub Total (A)	41.70	41.89
5	Interest During Construction (IDC)	3.27	3.19
6	Financial Charges (FC)	1.87	0.23
	Sub Total (B)	5.14	3.42
7	LADC (C)	0.70	0.68
	Grand Total (A+B+C)	47.54	45.99

4.2.3 The Petitioner in its petition filed has estimated the actual capital cost of the project as Rs. 47.14. Cr. The cost breakup and the variation of the cost from the TEC has been detailed in the table below:

S. No.	Head of Works	Approved as per TEC (Rs. Cr.)	Filed as per Petition (Rs. Cr.)	Variation Increase/(Decrease)
1.	Land (A)	0.36	0.70	(0.33)
2.	Infrastructure Works			
2.1	Preliminary including Development	0.47	0.16	0.31
2.2	Approach Road	1.22	1.44	(0.22)
2.3	Maintenance	0.37	-	0.37
2.4	Tools & Plants	0.58	-	0.58
2.5	Losses on stock	0.15	-	0.15
2.6	Receipt & Recoveries	-0.07	-	(0.07)
	Sub-Total Infrastructure Works (B)	2.72	1.60	(1.12)
3.	Civil Works			
3.1	HRT, TRT, Surge Shaft & Pressure shafts	14.24	9.31	4.93
3.2	Power Plant civil works(sub-station & Transmission Line)	3.46	2.88	0.58
3.3	Other Civil Works (Pen Stock+ Misc Civil works)	8.89	10.95	(2.05)
	Sub-Total Civil Works (C)	26.59	23.14	3.46
4.	Equipment & Machinery			
4.1	Plant & Equipment	9.31	15.94	(6.62)
	Sub-Total Equipment & Machinery(D)	9.31	15.94	(6.62)
5.	Interest & Financing Charges			
5.1	Financing charges	0.23	0.11	0.12
5.2	Interest during construction (IDC)	3.19	2.40	0.79
	Sub-Total Interest & Financing Charges(E)	3.42	2.51	0.91
6.	LADC (F)	0.68	0.68	0.00
7	Establishments (G)	2.89	2.58	0.31
	Total (A+B+C+D+E+F+G)	45.99	47.14	(1.15)

4.2.4 The Commission has taken note of the variance between the individual heads of the cost incurred as per the TEC of Rs. 46.00 Cr. and the petition submitted cost of Rs. 47.14 Cr. and has detailed it in the subsequent sections.

4.3 Land

4.3.1 The expenditure incurred towards acquiring of land for the project as submitted in the petition has been shown in the table as follows:

Particulars	As per Petition (Rs. Cr.)
Free Hold Land	0.400
Lease Hold Land	0.190
Lease Hold Land for Transmission Line	0.100
Registration charges	0.008
Stamp Duty	0.010
Total	0.70

4.3.2 The Commission for the verification of the expenses incurred towards purchase of land directed the Applicant to furnish the supporting documents. The Applicant in reply submitted the necessary documents.

4.3.3 The Petitioner was further directed to quantify the expenditure incurred in acquiring land for the project.

4.3.4 The Petitioner submitted that a total of 2.14 Hac of land was acquired for the project. Out of the 2.14 Hac, 1.80 Hac was forest land acquired from the GoHP and the remaining 0.34 Hac was land acquired from private parties through mutual agreements.

4.3.5 The Commission inquired the Petitioner about the deviation in costs incurred for acquiring land for the project. According to the TEC, the land cost approved was Rs. 0.36 Cr., and now the petition has sought the same as Rs. 0.70 Cr.

4.3.6 The Petitioner in reply submitted that the cost of land approved in the TEC was on the basis of that year's price level. The actual cost of acquiring land had increased substantially, the documents to which have been furnished as proofs.

4.3.7 The Petitioner submitted an additional cost of Rs. 0.10 Cr. on account of land acquired for laying of transmission line to facilitate the connection to the network grid. It is pertinent to mention here that the transmission line used by Sarbari II had already been constructed by the Petitioner for the purpose of its earlier project Sarbari I. The Petitioner further submitted that total expenditure incurred in purchase of land for laying the transmission line was Rs. 0.16 Cr. and accordingly Rs. 0.10 Cr has been apportioned to Sarbari II on the basis of capacity.

4.3.8 The Commission after proper perusal of the supporting documents and the justifications provided by the petitioner in this regard allows the expenditure booked on this account. The Commission approves the total expenditure incurred towards acquisition of land as shown in the table:

Particulars	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
Land	0.70	0.70

4.4 Infrastructure Works

4.4.1 The Petitioner submitted that the expenditure incurred under this head basically comprised of expenditure incurred on account of preliminary expenses which mainly included preparation of Detailed Project Report (DPR) and on account of construction of approach road for the accessibility of the project site.

4.4.2 As per the Petition, the expenses incurred on account of Infrastructure works has been shown in the table as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)
1	Preliminary including Development	0.16
2	Approach Road	1.44
3	Maintenance	-
4	Tools & Plants	-
5	Losses on stock	-
6	Receipt & Recoveries	-
	Sub-Total Infrastructure Works (B)	1.60

4.4.3 The petitioner in one of the replies mentioned that the construction of approach road was executed by Omega Venture Pvt. Ltd., one of the two civil works contractors appointed by the Petitioner.

- 4.4.4 Since the construction of approach road as mentioned above was undertaken by the civil works contractor, the Commission for simplicity has considered the expenditure of Rs. 1.44 Cr. incurred towards the same, along with the estimation of the expenditure incurred towards execution of civil works, detailed in the subsequent section. This cost is therefore taken off from the Infrastructure Works cost here.
- 4.4.5 The Commission in one of its discrepancy letter directed the Petitioner to furnish reasons for decrease in expenditure incurred under “Infrastructure Works” from that approved in TEC to now filed in the petition.
- 4.4.6 The Petitioner in response to the discrepancy letter furnished that the decrease in expenditure was on account of efficient investigation and planning for the project as the Petitioner had prior experience of executing a similar project upstream. Moreover, the expenditure anticipated on account of maintenance of the equipment and machinery was not incurred as the equipment was procured by the contractors who were themselves responsible for the maintenance.
- 4.4.7 The Commission after complete perusal of the documents furnished in support of the expenditure incurred under this head, approves the following as the expenditure incurred under infrastructure works under various sub-heads as shown in the table as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Preliminary including Development	0.16	0.16
	Sub-Total Infrastructure Works (B)	0.16	0.16

- 4.4.8 The, Commission, thus approves Rs. 0.16 Cr. as expenditure incurred towards infrastructure works.

4.5 Equipment & Machinery

- 4.5.1 The Petitioner submitted that the contract for supply of Equipment and Machinery for the project was awarded to Folvel Mecamidi Energy Private Limited.
- 4.5.2 The Commission in one of its discrepancy note, asked the Petitioner to submit details of the process followed for selection of the contractor.

4.5.3 The Petitioner in its reply submitted that the contract was awarded on the basis of competitive bidding. The advertisement for the selection of contractor was published in the local dailies of the state and was also put up on the company notice board. Three bidders responded to the advertisement. According to the Petitioner, one of the main contentions of awarding the contract to Flovel Mecamidi Energy Pvt. Ltd. was that they were providing good quality and better designed equipment within a reasonable price range. This along with the company's good credentials and market image formed a firm basis for award of contract to Flovel Mecamidi Energy Pvt. Ltd.

4.5.4 The expenditure incurred for procurement of equipment and machinery as submitted by the Petitioner in the petition has been depicted in the table below:

S. No.	Head of Works	As per Petition (Rs. Cr.)
1	Equipment & Machinery	15.94
	Total E&M	15.94

4.5.5 The Commission further sought clarification from the Petitioner regarding the substantial increase in expenditure incurred towards equipment and machinery from Rs. 9.31 Cr. approved in the TEC to Rs. 15.94 Cr. as per the petition.

4.5.6 The Petitioner submitted the supporting documents in the form of bills, contracts payment references for various equipment & machinery. Further, the Petitioner submitted that since there was a change in layout of the plant as mentioned earlier, the revised layout with eliminated surge shaft demanded a 6 mm thick steel lining for the entire length of the tunnel. Additional expenditure of Rs. 4.63 Cr was incurred on this account. Further, an extra expenditure of Rs. 2.00 Cr. was incurred on account of increased length of cabling upto Sarbari I tail race. The increase in length of cable was around 3400m.

4.5.7 The Commission on proper scrutiny of the relevant supporting documents furnished by the Petitioner could corroborate the expenditure towards purchase of necessary equipment and machinery for Sabari II to the tune of Rs. 15.80 Cr. as follows:

S. No.	Head of Works	(Rs. Cr.)
1	Folvel Mecamidi	10.73
2	Entry tax	0.46
3	Water Conductor	1.46
4	Steel- SAIL	3.00
5	Expansion Joint	0.15
	Total E&M	15.80

4.5.8 The Commission believes that the cost of Rs. 3.00 Cr. towards steel procurement from SAIL, Rs. 1.46 Cr. towards purchase of Water Conductor and Rs. 0.15 Cr. towards purchase of Expansion Joint should be considered as a civil cost. Accordingly the Commission has taken off these costs from the E&M cost here and approved an Equipment and Machinery Cost of Rs. 11.19 Cr. as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Folvel Mecamidi	15.94	10.73
2	Entry tax		0.46
	Total E&M		11.19

4.5.9 The Commission therefore approves Rs. 11.19 Cr. as the expenditure incurred towards purchase of Equipment and Machinery for Sarbari II SHP as against Rs. 15.94 Cr. claimed by the Petitioner.

4.6 Civil Works

4.6.1 The Petitioner submitted that the contract for execution of civil works for Sarbari II SHP was awarded to Saiurja Hydrel Projects Pvt. Ltd.

4.6.2 The Commission in its Discrepancy note questioned the Petitioner regarding the basis on which the contract was awarded to Saiurja Hydrel Projects Pvt. Ltd. and whether the legal process of competitive bidding was followed or not.

4.6.3 The Petitioner in its reply to the Discrepancy note submitted that the usual process of competitive bidding for awarding of civil works contract was not followed as the contractor Saiurja Pvt. Ltd. had previously executed the civil works of Sarbari I SHP of 4.5 MW having similar construction pattern and design. The contractor's strong credentials, prior experience of executing similar kind of projects and positive onsite experience formed the basis of awarding the contract to Saiurja Pvt. Ltd.

4.6.4 The Petitioner as per the petition submitted that the expenditure of Rs. 23.14 Cr. was incurred for execution of civil works related to the project. The petitioner further submitted that the expenditure mainly consists of two cost components. The table below shows the detailed breakup as submitted by the Petitioner:

S. No.	Head of Works	As per Petition (Rs. Cr.)
1	Civil Works	21.99

S. No.	Head of Works	As per Petition (Rs. Cr.)
2	Layout of Transmission Line	1.15
	Total Civil Works	23.14

- 4.6.5 The Commission in addition to above further inquired the Petitioner about the decrease in expenditure towards civil works from Rs. 26.59 Cr. approved in TEC to 23.14 Cr. filed as per petition.
- 4.6.6 The Petitioner, in response submitted that there was a slight change in the layout of the plant from that approved in TEC. The revised layout eliminated the surge shaft and Forebay required previously therefore helped in reducing the civil works expenditure substantially.
- 4.6.7 The Commission further inquired about the increase in expenditure incurred towards construction of Pen stock and for carrying out other miscellaneous works even though the overall expenditure incurred towards civil works had decreased.
- 4.6.8 The Petitioner in response submitted that although the revised design eliminated the construction of the Surge Shaft and Forebay, the Petitioner was constrained to build deeper anchor blocks and saddles due to poor geological conditions which lead to additional expenditure. Furthermore, soil consolidation & grouting for better reinforcement had to be done which further lead to increase in expenditure.
- 4.6.9 The Commission also sought clarifications on the contract documents provided by the Petitioner. As per the contract documents submitted, the contract was signed for a lumpsum amount of Rs. 18.45 Cr with Sai Urja Pvt. Ltd and Rs. 3.64 Cr. with Omega Ventures Pvt. Ltd. Thus, the total contract amount for civil works comes out to be Rs. 22.09 Cr., however the Petitioner has submitted Rs. 23.14 Cr as per the petition. The Commission, therefore directed the Petitioner to furnish the reason for the difference in contract amount and the amount filed as per the petition
- 4.6.10 The Petitioner submitted that difference in the contract amount and the actual expenditure incurred was due to the increased scope of civil works carried out for the project which primarily comprised of activities like construction of fence, construction of store room etc. amounting to approx. Rs. 1.05 Cr of additional expenditure.

- 4.6.11 The Petitioner submitted that the total expenditure filed under civil works was on account of civil works executed by SaiUrja Pvt. Ltd and Omega Venture Pvt. Ltd only.
- 4.6.12 The Petitioner further submitted that the expenditure of Rs. 23.14 Cr includes Rs. 1.15 Cr. on account of expenditure incurred towards construction of transmission line for the purpose of connecting the plant to the grid network. The Petitioner submitted that the total cost incurred in construction of transmission line was Rs. 3.28 Cr and accordingly Rs. 1.15 Cr has been apportioned to Sarbari II on the basis of length of the transmission network utilized by Sarbari II.
- 4.6.13 As mentioned before the transmission line was laid down while construction of Sarbari I therefore, the Commission directed the Petitioner to provide the necessary supporting documents to substantiate the claimed expenditure.
- 4.6.14 The Petitioner in response has provided an explanatory note for calculation of this expenditure. The Petitioner was however unable to provide any supporting evidence, preferably the statutory auditor's certificate confirming that the expenditure of Rs. 1.15 Cr. on account of construction of transmission line has been transferred from Sarbari I to Sarbari II in the Petitioner's books of account.
- 4.6.15 The Commission in this matter is of the view that since the transmission line is being utilised by the plant therefore the apportioned capital cost for laying the transmission line should also be considered along with the total capital cost of the project. The Commission finds it prudent to apportion the total capital cost on the basis of length of transmission system utilized and therefore approves the cost of Rs.1.15 Cr. on this account.
- 4.6.16 As mentioned in the previous section under the estimation of expenditure incurred on "Infrastructure Works", the construction of approach road for accessing the project site was undertaken by Omega Venture Pvt. Ltd. The Commission has considered that expenditure along with the total expenditure incurred towards execution of civil works.
- 4.6.17 Further as discussed in the section above, the Commission believes that the cost of Rs. 3.00 Cr. towards procurement of steel, Rs. 1.46 Cr. towards purchase of Water Conductor and Rs. 0.15 Cr. towards purchase of Expansion Joint should be included in

cost of civil works, accordingly the total cost of Rs. 4.61 Cr has been adjusted in the total cost for civil works.

4.6.18 The Commission upon perusal of the Petitioners submission of the supporting documents such as contract documents, invoices raised against subsequent completion of construction work and the payment made against these invoices could only corroborate the expenditure as mentioned in the table as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Civil Works	21.99	22.53
2	Construction of Approach Road	1.44	
3	Layout of Transmission Line	1.15	1.15
4	SAIL- Steel procurement		3.00
5	Water Conductor		1.46
6	Expansion Joint		0.15
	Total Civil Works	24.58	28.29

4.6.19 The Commission thus approves Rs. 28.29 Cr. as the expenditure incurred towards execution of civil works for Sarbari II SHP.

4.7 Financing Charges

4.7.1 The Petitioner has submitted the financing charges of Rs. 0.11 Cr. The financing charges have been estimated by the applicant as the processing charges incurred on account of loans borrowed of Rs. 25.00 Cr and Rs. 5.50 Cr. respectively.

4.7.2 The Petitioner provided the supporting documents in this regard. The financing charges as submitted by the Petitioner and approved by the Commission has be shown in the table as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Financing charges on account of Rs. 25 Cr loan	0.05	0.05
2	Financing charges on account of Rs. 5.5 Cr loan	0.06	0.06
	Total Financing charges	0.11	0.11

4.7.3 The Commission approves Rs. 0.11 Cr as financing charges incurred on account of the loans borrowed by the Petitioner for the project.

4.8 Interest During Construction on Term Loan

4.8.1 The Petitioner in the Petition submitted Rs. 2.40 Cr as the interest during construction. The petitioner had calculated the interest during construction (IDC) on the total loan amount borrowed.

4.8.2 It is pertinent to mention here that the IDC is calculated on the actual loan amount drawn during the construction period and not the total loan amount. Based on the analysis of supporting documents submitted by the petitioner, the Commission has observed that the actual loan drawn by the Petitioner during the construction period starting from inception of the project to COD was only Rs. 19.26 Cr and not Rs. 30.50 Cr.

4.8.3 The methodology followed by the Commission for calculation of IDC during the Construction period has been detailed below:

- * The rate of interest has been considered as 11.51% p.a. i.e. the weighted average of the interest rate on Rs. 19.26 Cr. i.e. the amount disbursed till commissioning based upon the draw down schedule submitted by the Petitioner. The overall weighted average interest rate of entire loan amount of Rs. 30.50 Cr. is 11.60% p.a. which is used for calculation of total project cost and discount factor.
- * The actual no of days accrued from the date of draw-down of loan installment till the COD of the project has been considered for IDC calculation.
- * Correspondingly, depending upon the number of days the simple interest has been calculated on the loan amount drawn.

4.8.4 The table below shows the IDC accrued corresponding to the loan amount withdrawn by the Petitioner.

Date of draw down	Loan Amount (Rs)	No. of days from draw down till COD (25th Aug 2010)	IDC (Rs.)
12/12/2008	2.91	622	0.607
19/02/2009	0.10	553	0.018
24/02/2009	0.90	548	0.159
05/03/2009	0.40	539	0.069
12/03/2009	0.35	532	0.060
30/03/2009	0.12	514	0.020
15/04/2009	0.60	498	0.094
24/04/2009	1.16	489	0.179

Date of draw down	Loan Amount (Rs)	No. of days from draw down till COD (25 th Aug 2010)	IDC (Rs.)
08/05/2009	0.03	475	0.004
15/05/2009	0.92	468	0.136
26/05/2009	0.07	457	0.010
02/06/2009	1.46	450	0.207
17/07/2009	0.31	405	0.039
25/07/2009	0.33	397	0.040
03/08/2009	0.14	388	0.016
05/08/2009	0.68	386	0.080
21/08/2009	0.19	370	0.022
24/08/2009	0.47	367	0.053
25/08/2009	0.31	366	0.035
22/09/2009	0.72	338	0.075
01/10/2009	0.14	329	0.014
06/10/2009	0.05	324	0.005
07/10/2009	0.54	323	0.054
14/10/2009	0.37	316	0.036
17/11/2009	0.64	282	0.056
20/11/2009	0.13	279	0.011
01/12/2009	0.17	268	0.014
04/12/2009	0.06	265	0.005
08/12/2009	1.00	261	0.080
23/12/2009	0.02	246	0.001
26/12/2009	0.99	243	0.074
21/01/2010	0.06	217	0.004
09/04/2010	0.09	139	0.004
29/04/2010	0.79	119	0.029
11/05/2010	0.41	107	0.014
28/05/2010	0.18	90	0.005
29/06/2010	0.20	58	0.004
29/06/2010	0.00	58	0.000
06/07/2010	0.00	51	0.000
10/07/2010	0.43	47	0.006
13/07/2010	0.02	44	0.000
19/07/2010	0.04	38	0.000
19/07/2010	0.31	38	0.004
19/07/2010	0.27	38	0.003
18/08/2010	0.21	8	0.001
Total	19.26		2.35

4.8.5 The total approved IDC therefore works out to be Rs. 2.35 Cr as against Rs. 2.40 Cr. claimed by the Petitioner.

4.9 Establishments

4.9.1 The Petitioner submitted that the expenditure incurred under this head basically comprises the pre-operative expenses incurred during construction period which includes the employee costs, R&M expenses and the A&G Expenses.

4.9.2 As per the Petition, the expenditure incurred on account of preoperative expenses has been shown in the table as follows:

S. No.	Head of Works	As per Petition (Rs. Cr.)
1	Establishments	2.58
	Sub-Total Infrastructure Works (B)	2.58

4.9.3 The Commission for the purpose of calculation of these expenses directed the Petitioner to submit the unconsolidated or standalone audited books of accounts pertaining to only Sarbari II SHP and the consolidated books of accounts of the Petitioner for all the years of the construction period.

4.9.4 The Petitioner although submitted the balance sheet and Profit and loss (P&L) statement pertaining to the project for all the required years but didn't submit the supporting schedules whereby the amount reflected in the balance sheet and P&L could be verified. The Petitioner however submitted the consolidated books of account for all the years of the construction period. A reminder was also sent to the Petitioner regarding this, however the Petitioner failed to comply by the same.

4.9.5 It is important to mention here that as per the consolidated annual books of account of the Petitioner, for all the years of the construction period from FY 2008-09 till FY 2010-11, only one Small hydro project i.e. Sarbari II was under construction.

4.9.6 In absence of the detailed annual accounts pertaining to the project, the Commission has therefore considered the preoperative expenses during construction period of FY 2009-10 as reflected in the consolidated annual accounts of the Petitioner. Since FY 2009-10 is the only financial year during which the construction work was in progress. The expenses incurred pertaining to Sarbari II in FY 2008-09 would have automatically been inculcated in the expenses of FY 2009-10 as the construction was still under progress.

4.9.7 As per the Audited annual books of accounts of the Petitioner, during the year FY 2009-10 Rs. 3.54 Cr. has been incurred as pre-operative expenses during the construction period. Out of the Rs. 3.54 Cr, expenses of Rs. 1.35 Cr. are on account of interest paid by the Petitioner on term loans borrowed. Since, the Commission has already considered the interest during construction as mentioned before, the Commission disallows these expenses on account of the same. Therefore upon calculation the pre-operative expenses for FY 2009-10 for Sarbari II work out to be Rs. 2.20 Cr.

4.9.8 The table below depicts proposed preoperative expense incurred by the Petitioner during construction period and now approved by the Commission.

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Establishments	2.58	2.20
	Sub-Total Infrastructure Works (B)	2.58	2.20

4.10 Income from idle cash

4.10.1 The Commission directed the Petitioner to furnish details of any interest earned on idle cash in the bank account or interest earned from investments during the construction period.

4.10.2 The Petitioner as per the reply submitted the interest earned on deposits was of Rs 0.03 Cr. The Commission, thus taking cognizance of the all the facts, accordingly adjusts the interest from investment activities in the total capital cost of the plant.

S. No.	Head of Works	Actual as per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	Interest from idle cash	0.00	0.03
	Total	0.00	0.03

4.11 Gross Capital Expenditure of the project

4.11.1 The Gross Capital Expenditure of the project works out as indicated in the table below:

S. No.	Head of Works	Approved (Rs. Cr.)
1	Land	0.70
2	Infrastructure Works	0.16
3	Equipment & Machinery	11.19
4	Civil Works	28.29

S. No.	Head of Works	Approved (Rs. Cr.)
5	Financing Charges	0.11
6	Interest & Financing Charges	2.35
7	Establishments	2.20
8	Less: Interest from idle cash	0.03
	Total	44.95

4.12 Local Area development Fund (LADF)

4.12.1 The GoHP hydro power policy for plants exceeding the capacity of 5MW mandates a developer of a Small Hydro Power Plant in the state to deposit an amount equal to 1.5% of the project cost incurred, towards Local Area Development Fund for development of the project affected area.

4.12.2 The Petitioner has submitted that as per the GoHP hydro power policy the LADF amount works out to be Rs. 0.68 Cr. and the same amount has been considered as a capital cost head by the Petitioner in its petition. The Petitioner submitted that Rs. 0.68 Cr. was deposited against Local area development fund in a total of five installments. The Petitioner further submitted that the total amount to be deposited against LADF was subsequently increased with the enhancement of project capacity all included in the total amount of Rs. 0.68 Cr. The Commission in accordance with the GoHP policy on Hydro Power projects and in line with the GoHP's policy to promote hydropower development allows LADF of Rs. 0.69 Cr., which is 1.5% of the Capital Expenditure of the Project. The Commission expects the developer to make this payment of LADF in due time. The table shown below depicts the approved expenditure incurred towards LADF:

S. No.	Head of Works	As per Petition (Rs. Cr.)	Approved (Rs. Cr.)
1	LADF	0.68	0.69

4.13 Net Capital Expenditure of the Project

4.13.1 The net capital expenditure of the project, therefore, works out as indicated in the table below:

S. No.	Head of Works	Approved (Rs. Cr.)
1.	Gross Capital Expenditure	44.95
2.	Add: LADC	0.69
	Net Capital Expenditure	45.64

4.14 Additional interest on Excess Equity Infusion

- 4.14.1 As specified in clause 1.2.6 of this tariff order, for the purpose of determining the tariff in this order, the Commission has been guided by the tariff determination parameters mentioned in the HPERC SHP Tariff Order 2007.
- 4.14.2 As per clause 4.6.1 of the HPERC SHP Tariff Order 2007, a debt to equity ratio of 70:30 is assumed for the purpose of tariff calculation.
- 4.14.3 The net capital cost approved by the Commission works out to be Rs. 45.64 Cr and the same has been verified from the payment references. Further, it is prudent to mention here that till the date of commissioning of the project, capital cost of Rs. 38.15 Cr (exclusive of IDC) could be verified as per the payment references submitted by the Petitioner.
- 4.14.4 The Commission observes that for a net capital expenditure of Rs. 45.64 Cr., 70% component should be raised as debt which comes out to be Rs. 31.97 Cr. However as per the documents submitted by the petitioner, a debt of Rs. 19.26 Cr. was raised by the petitioner till the time of commissioning of the project. The Commission believes that the remaining part of the capital expenditure must have been funded by equity in excess of the normative 30% component of the capital cost.
- 4.14.5 In order to corroborate whether excess equity was brought into the project or not, the Commission asked the petitioner to submit the details of equity schedule for the project. As per the submission made by the petitioner an equity of Rs. 16.69 Cr. was brought in the project till the time of commissioning. The equity schedule submitted by the developer is as follows –

Date	Equity Amount (Rs. Cr)	Cumulative Equity (Rs. Cr)
12-Feb-08	0.25	0.25
29-Dec-08	0.25	0.50
02-Feb-09	0.25	0.75
05-Mar-09	0.25	1.00
15-May-09	0.30	1.30
15-May-09	0.10	1.40
15-May-09	0.35	1.75
15-May-09	0.30	2.05
27-May-09	0.15	2.20
25-Jun-09	0.25	2.45
25-Jun-09	0.15	2.60
25-Jun-09	0.20	2.80
25-Jun-09	0.25	3.05
10-Aug-09	0.35	3.40
27-Aug-09	0.15	3.55

Date	Equity Amount (Rs. Cr)	Cumulative Equity (Rs. Cr)
27-Aug-09	0.30	3.85
2-Sep-09	0.25	4.10
15-Oct-09	0.15	4.25
10-Dec-09	0.20	4.45
05-Jan-10	0.10	4.55
11-Jan-10	0.50	5.05
13-Jan-10	0.40	5.45
29-Jan-10	1.00	6.45
01-Feb-10	2.25	8.70
01-Apr-10	0.45	9.15
12-Apr-10	0.16	9.31
13-Apr-10	0.10	9.41
30-Apr-10	0.10	9.51
10-May-10	0.75	10.26
28-May-10	0.70	10.96
10-Jun-10	1.25	12.21
14-Jun-10	0.85	13.06
29-Jun-10	0.21	13.27
13-Jul-10	0.90	14.17
13-Jul-10	0.90	15.07
13-Jul-10	0.60	15.67
16-Jul-10	0.61	16.28
29-Jul-10	0.41	16.69
Total	16.69	

4.14.6 Based on the analysis of the capital expenditure of the project the Commission has calculated the equity requirement of the project as Rs. 13.70 Cr. (30% of the capital cost). Therefore an excess equity of Rs. 2.99 Cr. was brought in by the petitioner which must have been adjusted against subsequent loan drawdowns. The Commission can infer that the expenditure may have been necessitated for timely completion of the project, forcing the petitioner to invest excess equity into the project. While return on equity cannot be allowed to the petitioner on equity amount before the commissioning of the project, the Commission has allowed an additional interest to the petitioner on this excess equity amount. The methodology for calculation of this additional interest is as follows –

- a. The rate of interest for calculation of additional interest on excess equity has been considered as 11.51% p.a. i.e. the weighted average of the interest rate on Rs. 19.26 Cr. i.e. the loan amount disbursed till commissioning based upon the loan draw down schedule submitted by the Petitioner.
- b. Actual Equity schedule has been used for the calculation of the additional interest on excess equity beyond the amount of Rs.13.70 Cr. of normative equity amount (30% of capital cost). Therefore any equity brought in to the project beyond the amount of Rs. 13.70 Cr. and before the commissioning of

the project has been considered for calculation of additional interest on excess equity.

- c. The actual no of days accrued from the date of equity investment till the COD of the project has been considered for additional interest calculation.
- d. Correspondingly, depending upon the number of days the simple interest has been calculated on the excess equity amount.

4.14.7 The table below shows the Additional Interest on excess equity accrued corresponding to the equity amount invested by the Petitioner.

Date	Equity Amount (Rs. Cr.)	Cumulative Equity (Rs. Cr.)	Amount considered for additional interest (Rs. Cr.)	No of days till COD (Rs. Cr.)	Interest (Rs. Cr.)
12-Feb-08	0.25	0.25	-	-	-
29-Dec-08	0.25	0.50	-	-	-
02-Feb-09	0.25	0.75	-	-	-
05-Mar-09	0.25	1.00	-	-	-
15-May-09	0.30	1.30	-	-	-
15-May-09	0.10	1.40	-	-	-
15-May-09	0.35	1.75	-	-	-
15-May-09	0.30	2.05	-	-	-
27-May-09	0.15	2.20	-	-	-
25-Jun-09	0.25	2.45	-	-	-
25-Jun-09	0.15	2.60	-	-	-
25-Jun-09	0.20	2.80	-	-	-
25-Jun-09	0.25	3.05	-	-	-
10-Aug-09	0.35	3.40	-	-	-
27-Aug-09	0.15	3.55	-	-	-
27-Aug-09	0.30	3.85	-	-	-
02-Sep-09	0.25	4.10	-	-	-
15-Oct-09	0.15	4.25	-	-	-
10-Dec-09	0.20	4.45	-	-	-
05-Jan-10	0.10	4.55	-	-	-
11-Jan-10	0.50	5.05	-	-	-
13-Jan-10	0.40	5.45	-	-	-
29-Jan-10	1.00	6.45	-	-	-
01-Feb-10	2.25	8.70	-	-	-
01-Apr-10	0.45	9.15	-	-	-
12-Apr-10	0.16	9.31	-	-	-
13-Apr-10	0.10	9.41	-	-	-
30-Apr-10	0.10	9.51	-	-	-
10-May-10	0.75	10.26	-	-	-
28-May-10	0.70	10.96	-	-	-
10-Jun-10	1.25	12.21	-	-	-
14-Jun-10	0.85	13.06	-	-	-
29-Jun-10	0.21	13.27	-	-	-
13-Jul-10	0.90	14.17	0.47	43	0.006
13-Jul-10	0.90	15.07	0.90	43	0.012
13-Jul-10	0.60	15.67	0.60	43	0.008
16-Jul-10	0.61	16.28	0.61	40	0.008
29-Jul-10	0.41	16.69	0.41	27	0.003
Total	16.69				0.04

4.14.8 Therefore the Commission has allowed an additional interest on excess equity of Rs. 0.04 Cr. to the petitioner under the capital cost of the project.

4.15 Capital Cost

4.15.1 The Capital Cost of the project, therefore, works out as indicated in the table below:

S. No.	Head of Works	Approved (Rs. Cr.)
1	Land	0.70
2	Infrastructure Works	0.16
3	Equipment & Machinery	11.19
4	Civil Works	28.29
5	Financing Charges	0.11
5	Interest & Financing Charges	2.35
7	Establishments	2.20
8	Less: Interest from idle cash	0.03
9	Add: LADC	0.69
10	Add: Additional Interest on Excess Equity	0.04
	Total	45.68

4.15.2 The Commission has accordingly computed the tariff for Sarbari II SHP based on a total capital cost of Rs. 45.68 Cr. in the subsequent chapter to be applicable after the commissioning of the project.

Chapter 5

Determination of Tariff

5.1 Period for determination of tariff

5.1.1 The applicant has prayed for determination of project specific levelised tariff for sale of power from Sarbari II SHP for a period of 40 years. The Commission therefore has determined a project specific levelised tariff for a period of 40 years for the useful life of the project from the date of actual commencement of generation. However this shall not in any way entitle the Petitioner to own, operate and maintain the project beyond the period for which the authorization is given by GoHP to the Petitioner as per the provisions of Implementation Agreement including clause 3.2.

5.2 Design energy and net Saleable Energy

5.2.1 Month wise details of design energy of the project at 75% dependable year including 15% mandatory discharge as provided in DPR are as under:

Month		Units in MU
Jan	I	0.297
	II	0.297
	III	0.402
Feb	I	0.333
	II	0.444
	III	0.424
Mar	I	0.573
	II	0.87
	III	1.209
Apr	I	0.942
	II	0.953
	III	0.978
May	I	0.802
	II	0.774
	III	0.784
Jun	I	0.824

Month		Units in MU
	II	0.956
	III	1.214
Jul	I	1.296
	II	1.296
	III	1.426
Aug	I	1.296
	II	1.289
	III	1.324
Sep	I	1.296
	II	1.296
	III	1.296
Oct	I	0.935
	II	0.791
	III	0.772
Nov	I	0.562
	II	0.534
	III	0.487
Dec	I	0.462
	II	0.462
	III	0.488
Total		30.376

- 5.2.2 The Petitioner has claimed 30.38 MU as gross generation in its petition. Based on the analysis of the DPR, the Commission has allowed the gross generation of 30.38 MU for the calculation of Tariff in this order.
- 5.2.3 Auxiliary consumption of 1.00% and Transmission losses of 0.70% are assumed as per HPERC SHP tariff Order 2007.
- 5.2.4 The Petitioner in its petition has claimed 12% of free power for the first 12 years, 18% for next 18 years and 30% for the balance period. However the Hydro Policy and Tariff Policy of GoI specify that the maximum royalty to be provided shall be limited to 13% in any year including 1% for LADF. The Commission declines to accept any claim beyond the aforesaid limits. The Commission has accordingly calculated the tariff assuming 12% royalty excluding 1% additional free power for LADF. Further the Commission has also calculated the tariff using 13% royalty including 1% additional free power for LADF, however this tariff would be applicable only for the time periods where the additional free power for LADF is actually provided by the Petitioner.

5.2.5 The net saleable design energy from the station at the interconnection point, in accordance with the PPA for a tariff year after providing free power to GoHP has been shown in the table below:

	Unit	At 12% royalty
Gross Generation	MU	30.38
Auxiliary Consumption	MU	0.30
Transmission Losses	MU	0.21
Royalty	MU	3.58
Net Saleable	MU	26.28

The Commission has computed the net saleable design energy on the basis of the energy corresponding to 75% dependable year.

5.3 Subsidy by MNRE/State Government

5.3.1 The Commission directed the Petitioner to furnish details of any kind of subsidy availed by the Petitioner.

5.3.2 The Petitioner submitted that a subsidy amount of Rs. 3.32 Cr. was granted to the Petitioner as per MNRE GOI letter dated May 19, 2011 in accordance with the MNRE policy for the State of Himachal Pradesh. Accordingly, this subsidy amount will have to be accounted on project specific basis.

5.3.3 As the petitioner has stated that this amount of Rs. 3.32 Cr. has been received, therefore, the Commission has adjusted 90% of the subsidy amount as additional loan repayment during the first year of operation, for the determination of tariff. 10% of the subsidy amount has been allowed by the commission towards administrative expenses spent while availing the loan or other incidental expenses.

5.4 Depreciation

5.4.1 The Petitioner has claimed a depreciation rate of 7.00% for the first 10 years and 0.67% for the balance period as per the Norms of CERC 2009 Regulations.

5.4.2 As stated in paragraph 1.2.6 of this Tariff Order the Commission has been guided by the financial norms adopted in HPERC SHP Tariff Order 2007 for the purpose of project specific tariff determination of the project. The HPERC SHP Tariff Order 2007 assumes a flat depreciation rate of 2.25% and also provides advance against

depreciation to cater to the loan repayment requirement. In this case also depreciation matching with the loan repayment requirements for the normative loan has been provided in the initial years and the residual depreciation has been allowed in the later years after loan repayment.

5.5 O&M

5.5.1 The Petitioner has claimed a base year O&M costs of Rs. 15.86 Lakhs per MW with an escalation of 5.72% per annum as per the Norms of CERC 2009 Regulations.

5.5.2 As stated in paragraph 1.2.6 of this tariff order the Commission has been guided by the financial norms adopted in HPERC SHP Tariff Order 2007 for the purpose of project specific tariff determination of Sarbari II SHP. The HPERC SHP Tariff Order 2007 assumes base year O&M costs as 2.25% of the Capital Cost of the project with an escalation of 4% per annum. The Commission, therefore, has allowed annual O&M charges @ 2.25% of the capital cost.

5.6 Interest on Term Loan

5.6.1 The Petitioner has claimed an interest on term loan rate of 13.50%.

5.6.2 However based on the analysis of loan agreement and the supporting bank statements, for the determination of project specific tariff the Commission has considered for the loan component (i.e. 70% of Capital Cost) an interest rate of 11.60% based on the weighted average interest rate applicable during each disbursement as per the draw down schedule of loan submitted by the Petitioner.

5.7 Working Capital

5.7.1 The Petitioner has claimed the following assumptions for the working capital

- a. O&M charges of 1 month
- b. Maintenance spares as 15% of O&M expenses
- c. Receivables for debtors as 2 month

5.7.2 As stated in paragraph 1.2.6 of this tariff order the Commission has been guided by the financial norms adopted in HPERC SHP Tariff Order 2007 for the purpose of project specific tariff determination of Sarbari II SHP. The HPERC SHP Tariff Order 2007 makes the following assumptions for the calculation of working capital requirements

- a. O&M charges of 1 month

- b. Maintenance spares as 1% of project cost
- c. Receivables for debtors as 2 month

The Commission therefore has adopted the norms for calculation of working capital requirement as per HPERC SHP Tariff Order 2007 for the calculation of tariff in this order. Further the Commission has assumed the rate of interest for working capital as 13.75% as specified in the HPERC SHP Tariff Order 2007.

5.8 Return on Equity (RoE)

- 5.8.1 The Petitioner has claimed rate of RoE as 19% for the first 10 years and 24% for the balance period.
- 5.8.2 As stated in paragraph 1.2 6 of this tariff order the Commission has been guided by the financial norms adopted in HPERC SHP Tariff Order 2007 for the purpose of project specific tariff determination of Sarbari II SHP. The HPERC SHP Tariff Order 2007 considered post tax RoE of 14% and the same has been adopted by the Commission for the calculation of tariff in this order.

5.9 Tax

- 5.9.1 The Petitioner has claimed Minimum Alternate Tax (MAT) rate of 18.00% for the year of COD i.e. FY 2010-11 and 18.50% thereafter in the petition.
- 5.9.2 The Commission while determining the project specific tariff has considered the actual MAT and Corporate Tax Rates for the operational years of the project while assuming the current Tax rates and MAT rates for the future balance period of the project, as follows:

MAT Rate	
For 1 st year	19.93%
For 2 nd year	20.01%
For 3 rd year	20.01%
For 4 th year	20.01%
For 5 th -10 th year	20.01%
Corporate Tax Rate	
From 11 th year onwards	32.45%

- 5.9.3 The generic levelised tariff determined in the order dated 18.12.2007 is subject to adjustment on account of variation in the tax rates. Accordingly, in case of any changes in these tax rates, the tariff under this order shall also be suitably adjusted as per the formulae given in the subsequent paragraphs.

5.10 Levelised Tariff

5.10.1 Based on the approved Capital Cost of the project as discussed above and various operational and financial parameters as detailed subsequently, the Commission has calculated the tariff for each year of the useful life of the plant i.e. 40 years.

5.10.2 The discount rate considered for the purpose of levelisation is equal to 9.94% which is post-tax weighted average cost of the capital (WACC) calculated using 70:30 debt to equity ratio, 14% post tax RoE, 11.60% interest on term loan and an average tax rate of 29.33% for the 40 years period of plant operation

5.10.3 The parameters considered by the Commission to determine the levelised tariff for power generated from the Petitioner's hydro power project have been summarized in the table below:

S. No.	Parameters	Unit	As per Petition	Approved
1.	Capacity	MW	5.4	5.4
2.	Capital Cost	Cr.	47.14	45.68
3.	Gross energy generation	MU	30.38	30.38
4.	Useful Life	Years	40	40
5.	Auxiliary Consumption	%	1.00	1.00
6.	Transmission loss	%	1.04	0.70
7.	Royalty			
	For First 12 years	%	12.00	12.00
	From 13 th year onwards	%	18.00	12.00
	From 30 th year onwards	%	30.00	12.00
8.	Debt-Equity ratio	No unit	64.7:35.3	70:30
	Debt component	Rs. Cr.	30.50	31.97
	Equity Component	Rs. Cr.	16.64	13.70
9.	Repayment Period	Years	10	12
10.	Interest rate	%	13.50	11.60
11.	Return on Equity			
	For first 10 years	%	19	14
	From 11 th year onwards	%	24	14
12.	MAT & Corporate Tax		Tax included in ROE	Tax approved as additional item
13.	Depreciation			
	For first 12 years	%	7	Equal to loan repayment
	From 13 th year onwards	%	0.67	0.41
	Residual Value	%	10	10
14.	O&M Expenses			
	For Base Year	Rs. Cr/MW	0.16	0.19
	Escalation Rate	%	5.72	4.00
15.	Interest on Working Capital	%	13.50	13.75
16.	MNRE Subsidy	Cr.	-	90% of Rs. 3.32 Cr. Adjusted in the 1 st year for repayment

S. No.	Parameters	Unit	As per Petition	Approved
17	Levelised Tariff	Rs. /kwh	3.86	2.88
	* The following MAT Rate and Corporate Tax Rate has been considered.			
	MAT Rate			
	For 1 st year		19.93%	
	For 2 nd year		20.01%	
	For 3 rd year		20.01%	
	For 4 th year		20.01%	
	For 5 th -10 th year		20.01%	
	Corporate Tax Rate			
	From 11 th year onwards		32.45%	

Approved Tariff for Sarbari II Power Plant

Units Generation	Unit	1	2	3	4	5	6	7	8	9	10
Installed Capacity	MW	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Gross Generation @75% dependable year	MU	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38
Auxiliary Consumption	MU	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Net After Auxiliary Consumption	MU	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07
Transmission Losses	MU	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Net After Transmission Losses	MU	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86
Royalty	MU	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
Net Saleable Energy	MU	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28
Tariff Components (Fixed Charge)											
O&M Expenses	Rs. Cr.	1.03	1.07	1.11	1.16	1.20	1.25	1.30	1.35	1.41	1.46
Depreciation	Rs. Cr.	3.88	3.88	3.88	3.88	3.88	3.88	3.88	0.36	0.36	0.36
Interest on term loan	Rs. Cr.	3.31	2.69	2.24	1.79	1.34	0.88	0.43	0.19	0.15	0.10
Interest on working Capital	Rs. Cr.	0.33	0.32	0.31	0.31	0.30	0.30	0.29	0.21	0.22	0.23
Return on Equity	Rs. Cr.	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
Tax	Rs. Cr.	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Total Fixed Cost	Rs. Cr.	10.94	10.35	9.94	9.53	9.12	8.71	8.31	4.51	4.53	4.55
Per Unit Cost of Generation											
O&M expenses	Rs/kWh	0.39	0.41	0.42	0.44	0.46	0.48	0.49	0.51	0.54	0.56
Depreciation	Rs/kWh	1.48	1.48	1.48	1.48	1.48	1.48	1.48	0.14	0.14	0.14
Interest on term loan	Rs/kWh	1.26	1.02	0.85	0.68	0.51	0.34	0.17	0.07	0.06	0.04
Interest on working capital	Rs/kWh	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.08	0.08	0.09
Return on Equity	Rs/kWh	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Tax	Rs/kWh	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Total COG per unit	Rs/kWh	4.16	3.94	3.78	3.63	3.47	3.32	3.16	1.72	1.72	1.73
Discount Factor	9.94%	1.00	0.91	0.83	0.75	0.68	0.62	0.57	0.52	0.47	0.43
Net Value of Generation Cost	Rs/kWh	4.16	3.58	3.13	2.73	2.38	2.06	1.79	0.88	0.81	0.74

Levelised Tariff (Rs./kwh)	2.88
-----------------------------------	-------------

Units Generation	Unit	11	12	13	14	15	16	17	18	19	20
Installed Capacity	MW	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Gross Generation @75% dependable year	MU	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38
Auxiliary Consumption	MU	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Net After Auxiliary Consumption	MU	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07
Transmission Losses	MU	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Net After Transmission Losses	MU	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86
Royalty	MU	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
Net Saleable Energy	MU	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28
Tariff Components (Fixed Charge)											
O&M Expenses	Rs. Cr.	1.52	1.58	1.65	1.71	1.78	1.85	1.92	2.00	2.08	2.17
Depreciation	Rs. Cr.	0.36	0.36	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Interest on term loan	Rs. Cr.	0.06	0.02								
Interest on working Capital	Rs. Cr.	0.25	0.25	0.26	0.27	0.28	0.30	0.31	0.32	0.33	0.35
Return on Equity	Rs. Cr.	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
Tax	Rs. Cr.	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Total Fixed Cost	Rs. Cr.	5.03	5.06	5.16	5.23	5.31	5.40	5.48	5.57	5.67	5.76
Per Unit Cost of Generation											
O&M expenses	Rs/kWh	0.58	0.60	0.63	0.65	0.68	0.70	0.73	0.76	0.79	0.82
Depreciation	Rs/kWh	0.14	0.14	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Interest on term loan	Rs/kWh	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs/kWh	0.09	0.10	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13
Return on Equity	Rs/kWh	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Tax	Rs/kWh	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Total COG per unit	Rs/kWh	1.91	1.92	1.96	1.99	2.02	2.05	2.09	2.12	2.16	2.19
Discount Factor	9.94%	0.39	0.35	0.32	0.29	0.27	0.24	0.22	0.20	0.18	0.17
Net Value of Generation Cost	Rs/kWh	0.74	0.68	0.63	0.58	0.54	0.50	0.46	0.42	0.39	0.36

Units Generation	Unit	21	22	23	24	25	26	27	28	29	30
Installed Capacity	MW	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Gross Generation @75% dependable year	MU	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38
Auxiliary Consumption	MU	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Net After Auxiliary Consumption	MU	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07
Transmission Losses	MU	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Net After Transmission Losses	MU	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86
Royalty	MU	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
Net Saleable Energy	MU	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28
Tariff Components (Fixed Charge)											
O&M Expenses	Rs. Cr.	2.25	2.34	2.44	2.53	2.63	2.74	2.85	2.96	3.08	3.21
Depreciation	Rs. Cr.	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Interest on term loan	Rs. Cr.										
Interest on working Capital	Rs. Cr.	0.36	0.38	0.39	0.41	0.43	0.45	0.47	0.49	0.51	0.54
Return on Equity	Rs. Cr.	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
Tax	Rs. Cr.	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Total Fixed Cost	Rs. Cr.	5.86	5.97	6.08	6.19	6.31	6.44	6.57	6.70	6.85	6.99
Per Unit Cost of Generation											
O&M expenses	Rs/kWh	0.86	0.89	0.93	0.96	1.00	1.04	1.08	1.13	1.17	1.22
Depreciation	Rs/kWh	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Interest on term loan	Rs/kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs/kWh	0.14	0.14	0.15	0.16	0.16	0.17	0.18	0.19	0.20	0.20
Return on Equity	Rs/kWh	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Tax	Rs/kWh	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Total COG per unit	Rs/kWh	2.23	2.27	2.31	2.36	2.40	2.45	2.50	2.55	2.60	2.66
Discount Factor	9.94%	0.15	0.14	0.12	0.11	0.10	0.09	0.09	0.08	0.07	0.06
Net Value of Generation Cost	Rs/kWh	0.34	0.31	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17

Units Generation	Unit	31	32	33	34	35	36	37	38	39	40
Installed Capacity	MW	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Gross Generation @75% dependable year	MU	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38	30.38
Auxiliary Consumption	MU	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Net After Auxiliary Consumption	MU	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07	30.07
Transmission Losses	MU	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Net After Transmission Losses	MU	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86
Royalty	MU	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
Net Saleable Energy	MU	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28	26.28
Tariff Components (Fixed Charge)											
O&M Expenses	Rs. Cr.	3.33	3.47	3.61	3.75	3.90	4.06	4.22	4.39	4.56	4.74
Depreciation	Rs. Cr.	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Interest on term loan	Rs. Cr.										
Interest on working Capital	Rs. Cr.	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.79	0.83	0.87
Return on Equity	Rs. Cr.	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
Tax	Rs. Cr.	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Total Fixed Cost	Rs. Cr.	7.15	7.31	7.47	7.65	7.83	8.02	8.22	8.42	8.64	8.86
Per Unit Cost of Generation											
O&M expenses	Rs/kWh	1.27	1.32	1.37	1.43	1.48	1.54	1.60	1.67	1.74	1.81
Depreciation	Rs/kWh	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Interest on term loan	Rs/kWh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs/kWh	0.21	0.22	0.24	0.25	0.26	0.27	0.28	0.30	0.31	0.33
Return on Equity	Rs/kWh	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Tax	Rs/kWh	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Total COG per unit	Rs/kWh	2.72	2.78	2.84	2.91	2.98	3.05	3.13	3.20	3.29	3.37
Discount Factor	9.94%	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	0.02
Net Value of Generation Cost	Rs/kWh	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08

5.10.4 Accordingly, the levelised tariff for a period of 40 years for power generated from the Petitioner's Small Hydro plant is determined as Rs 2.88 / kWh of the net saleable energy delivered at the interconnection point.

5.10.5 This levelised tariff would be applicable from the date of actual commissioning of the project i.e. August 25, 2010.

- 5.10.6 As mentioned in para 5.1, this shall not in any way entitle the developer to own, operate and maintain the project beyond the period for which the authorization is given by GoHP to the developer as per the provisions of Implementation Agreement, including clause 3.2 of the Implementation Agreement.
- 5.10.7 The dues on account of determination of tariff shall be cleared/refunded by the HPSEBL/Petitioner within next 3 months time from the date of issuance of this tariff order. The developer shall revise the bills for the past period on account of determination of tariff within a period of 30 days from the date of issuance of this order. Such revised bills shall also allow for the simple interest @ 8% per annum on the amount received in excess of the tariff determined in this order for the past period i.e. from the date of commencement of operation till the expiry of the period of 30 days from the issuance of this order. In case of failure of the developer to revise the bills for the past period on this account within the aforesaid due date, the HPSEBL shall be entitled to recover interest on such excess amount beyond the aforesaid due date at the same rate as applicable for the delayed payment by HPSEBL under the provision of PPA. The bills for the months of May, 2016 onwards shall be raised on regular basis as per the tariff determined in this order.
- 5.10.8 The Applicant has claimed in its petition that an additional free power of 1% on account of LADF. The Commission has calculated the levelised tariff of Rs. 2.92 / kWh assuming 13% royalty including 1% additional free power for LADF, however this tariff would be applicable only for the time periods where the additional free power for LADF is actually provided by the Petitioner. As stated in paragraph 5.2.4 of this tariff order, any enhanced free power beyond the limit of 13% (including 1% additional free power for LADF) would not be considered for the determination of tariff.
- 5.10.9 Tax holiday benefit in the Income Tax in the form of exemption over a period of 10 years under Section 80IA of the Income Tax Act has been considered. Minimum Alternate Tax (MAT) @ 19.93% (inclusive of surcharge and cess) for the first year of commercial operation i.e. FY 2010-11 & MAT@ 20.01% (inclusive of surcharge and cess) for years FY 2011-12 to FY 2019-20 have been provided for in the tariff. Thereafter Income Tax at the rate of 32.45% (inclusive of surcharge and cess) has been considered.

5.10.10 In case of any change in the rates of MAT and Corporate Tax w.r.t. the rates considered in this order, the aforesaid tariff shall be subject to the adjustment as per the formulae given in the following paragraphs.

5.10.11 Any change in the MAT from 20.01%, in the first ten years of generation of the project, shall be payable/ adjustable by the respective party as per the following formula. -

$$(192 \times \text{revised effective MAT rate}) - (192 \times 0.2001) \text{ lac rupees}$$

Where,

192 is the return on equity in lacs considered in this order

0.2001 is the effective MAT rate considered in this order

Revised effective MAT rate shall be expressed as a fraction

Illustration:-

Considering effective MAT rate from 1st April 2016 as 20.55%

Then, in FY 2016-2017 the additional tax payable by the board to the Petitioner shall be as under:-

$$(192 \times 0.2055) - (192 \times 0.2001) \text{ lacs} = 39.46 - 38.42 = 1.04 \text{ lac rupees}$$

5.10.12 Any change in the Corporate Tax from 32.45%, from the eleventh year of generation of the project, shall be payable/ adjustable by the respective party as per the following formula.-

$$(192 \times \text{revised effective Corporate Tax rate}) - (192 \times 0.3245) \text{ lac rupees}$$

Where,

192 is the return on equity in lacs considered in this order.

0.3245 is the effective Corporate Tax rate considered in this order.

Revised effective MAT rate shall be expressed as a fraction

Illustration:-

Considering effective IT rate from first April 2016 as 31.00%

Then, in FY 2016-17 the additional tax payable/ adjustable by the board to the IPP shall be as under:-

$(192 \times 0.31) - (192 \times 0.3245)$ lacs = 65.26 – 62.30 = -2.78 lac rupees (payable by the developer to the HPSEBL)

5.10.13 The payments/ adjustments, if any, on account of change in the rates of MAT and Corporate Tax on above lines shall be made at the end of each financial year as per above formulae.

-Sd/-
S.K.B.S. Negi
Chairman

Date: 28th April, 2016
Shimla