

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 434/GT/2014**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson  
Shri A.K. Singhal, Member  
Shri A.S. Bakshi, Member  
Dr. M.K. Iyer, Member**

**Date of Order: 30th March, 2017**

**IN THE MATTER OF**

Petition for determination of generation tariff of Karcham Wangtoo HEP (1000 MW) for the period 2014-19

**AND IN THE MATTER OF**

Himachal Baspa Power Company Limited,  
Regd Office: Juit Complex  
P.O.Dumehar Bani  
Kanda Ghat-173215  
Solani District  
Himachal Pradesh

.....Petitioner

**Vs**

1. PTC India Limited,  
NBCC Tower,  
15, Bhikaji Cama Place,  
New Delhi-110066
2. Haryana Power Generation Corporation Limited,  
Plot No. C-7, Sector-6, Panchkula  
Haryana-134 109
3. Uttar Pradesh Power Corporation Limited,  
Shakti Bhawan, 14, Ashok Marg,  
Lucknow-226 001
4. Jaipur Vidyut Vitran Nigam Limited,  
Vidyut Bhawan, Janpath  
Jaipur-302 005
5. Ajmer Vidyut Vitran Nigam Limited,  
Vidyut Bhawan, Panchsheel Nagar,  
Makarwali Road, Ajmer-305 004
6. Jodhpur Vidyut Vitran Nigam Limited,  
New Power House, Industrial Area,  
Jodhpur-342 003
7. Punjab State Power Corporation Limited,  
The Mall, Old PSEB Building,  
Patiala-147001

.....Respondents



## **Parties Present**

Shri Vishal Gupta, Advocate, JPVL  
Shri Sanjeev K. Goel, JPVL  
Shri Suren Jain, JPVL  
Shri Nitish Gupta, Advocate, PTC  
Shri Rajiv Srivastava, Advocate, UPPCL  
Ms Swapna Seshadri, Advocate, HPGCL & PSPCL  
Ms Anushree Bardhan, Advocate, Discoms of Rajasthan

## **ORDER**

### **Background**

Jaiprakash Power Ventures Ltd (JPVL) is the successor of Jaypee Karcham Hydro Corporation Ltd (JKHCL) for implementing the 1000 MW Karcham Wangtoo HEP (the project) comprising of 4 units of 250 MW each. JKHCL got amalgamated with JPVL vide scheme of amalgamation approved by the High Court of HP on 25.7.2011. JPVL on 21.3.2006 entered into a Power Purchase Agreement (PPA) with the Respondent No.1, PTC for purchase of 704 MW capacity of power for a period of 35 years from COD for onward sale on long term basis. Based on this, PTC entered into a Power Sale Agreements (PSA) with PSEB on 1.9.2006 for 200 MW, with HPGCL on 21.9.2006 for 200 MW, with UPPCL on 13.5.2006 for 200 MW and with the discoms of Rajasthan (AVVNL, JVVNL and JoVVNL) on 27.9.2006 for the balance 104 MW of power. The PSA with HPGCL and UPPCL have been approved by the respective State Electricity Regulatory Commissions of Haryana and Uttar Pradesh on 21.6.2007 and 12.5.2009 respectively. However, the PSAs with Punjab and Rajasthan are pending for approval before the concerned State Electricity Regulatory Commissions. A second supplementary agreement was executed on 20.12.2007 to amend the definition of the COD date of the project as 18.11.2011.

2. Petition No. 153/2009 was filed by the *erstwhile* JKHCL (now JPVL) before the Commission praying for in-principle approval of the capital cost of the project and the Commission by order dated 26.10.2009 held that the said prayer was not maintainable on the ground that the scheme of the 2009 Tariff Regulations do not provide for in-principle approval of capital cost. Subsequent to Unit-I of the generating station achieving commercial operation on 26.5.2011, the petitioner had declared the PPA void as the provision regarding determination of



tariff could not be enforced. Due to the termination of PPA by JPVL, the respondent, PTC invoked adjudication proceedings and the Arbitration Tribunal by a majority award dated 28.4.2011 declared that the Central Commission (CERC) did not have the power to determine or to decide or settle the tariff for supply of electricity by a generating company, such as Jaypee Karcham, to a trader, such as PTC. It was held that upon severance of the provision that required CERC to approve the tariff, the PPA would not remain enforceable. Against this, the respondent, PTC filed petition before the High Court, Delhi under Section 34 of the Arbitration & Conciliation Act, 1996 and by order dated 15.5.2012, the Single Bench of the High Court of Delhi set aside the majority award of the Tribunal and directed the petitioner to approach this Commission for fixation of tariff. The relevant portion of the judgment of the Hon'ble High Court dated 15.5.2012 is extracted as under:

*"66. The decision dated 26th October 2009 of the CERC rejecting Jaypee Karcham's application for approval of capital cost could not have formed a valid basis for Jaypee Karcham to conclude that the PPA was rendered void. The decision of Jaypee Karcham as communicated by its letter dated 17th December 2009 declaring the PPA void is contrary to the provisions of the EA and, therefore, unsustainable in law.*

*"67. As a consequence, the majority Award dated 28<sup>th</sup> April 2011 is hereby set aside. The view of the dissenting member of the Tribunal on the above aspect is, therefore, held to be correct and is approved. The parties are now to work out the respective rights and obligations under the PPA in accordance with law. JPVL will approach the CERC for fixation of the tariff for supply of electricity to the Petitioner within a period of four weeks from today."*

3. JPVL has filed FAO (OS) No. 244/2012 in the High Court of Delhi. Subsequently, JPVL had entered into a Settlement Agreement dated 5.8.2013 and accordingly, JPVL withdrew the said FAO which was allowed by the High Court of Delhi by order dated 8.8.2013. Pursuant to this, JPVL filed Petition No. 252/GT/2013 for determination of tariff of the generating station for the period from 26.5.2011 to 31.3.2014 in terms of the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (the 2009 Tariff Regulations). The respondent No.1, PTC filed Interlocutory Application (I.A.No.32/2013) for impleadment of other respondents (HPGCL, UPPCL, PSPCL and the three discoms of Rajasthan) and the Commission on 15.10.2013 allowed the said I.A and accordingly the respondents 2 to 7 were impleaded.



4. Thereafter, Interlocutory Application (I.A.No.2/2014) was filed by JPVL for fixation of provisional tariff for supply of power from the generating station in terms of the PPA with effect from 1.4.2014, subject to adjustment after determination of final tariff. Pending determination of provisional tariff, JPVL filed Interlocutory Application (1.A.No.48/2014) for withdrawal of the IA 2/2014 on the ground that the respondents have worked out an interim arrangement for payment of amounts to the petitioner against the power supply made from the generating station. Accordingly, the Commission by order dated 9.10.2014 allowed the prayer of JPVL and disposed of the said IA as under:

*“16. Considering the submissions of the parties, the interlocutory Application No.2/2014 is allowed to be withdrawn. Since the tariff petition in respect of the generating station is to be filed by the petitioner in terms of the 2014 Tariff Regulations, we find no reason to keep the Petition No. 252/GT/2013 pending. Accordingly, Petition No.252/GT/2013 is disposed of as withdrawn.*

*17. The petitioner is directed to file the tariff petition for determination of tariff in respect of this generating station for the period 2014-19, complete in all respects, in accordance with the provisions of the 2014 Tariff Regulations, on or before 27.10.2014. Accordingly, Interlocutory Application (I.A.No.48/2014) is disposed of.”*

5. In terms of the above order, JPVL has filed this petition for determination of tariff of Jaypee Karcham Wangtoo Hydroelectric Project ('the project') for the period 2014-19, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations"). The petition was heard on various dates and in compliance with the directions of the Commission, the petitioner has filed additional information and has served copies on the respondents. The petitioner has filed the additional information including the report of the DIA on vetting of capital cost in terms of the directions of the Commission, with copies to the respondents. The respondents 2 to 7, namely, HPGCL, UPPCL, Discoms of Rajasthan, and PSPCL have filed replies in the matter and the petitioner has filed its rejoinder to the said replies. Some individuals namely Shri M.C.Bansal and Shri Arvind Gupta have also filed their comments in the matter. The Commission after hearing the matter on 25.8.2015 reserved its order in the petition.

6. While so, pursuant to the sanction of a Scheme of Arrangement between JPVL and Himachal Baspa Power Company Limited (HBPCL) by the Hon'ble High Court of Himachal Pradesh on 25.6.2015, HBPCL filed Interlocutory Application (IA No. 29/2015) and submitted that



in terms of the Scheme of Arrangement, with effect from 1.9.2015, all pending suits, appeals or other proceedings, by or against JPVL, are to be continued and prosecuted by HBPCL. Accordingly, it had prayed for substitution of its name as the petitioner in Petition No.434/GT/2014 filed by JPVL for determination of generation tariff of the generating station for the period from 2014-19. The said IA was converted as Regulatory Compliance Application (29/RC/2015) and the Commission by order dated 9.3.2016, disposed of the said petition as under:

*"14.As the applicant has filed the order of the Hon'ble High Court dated 25.6.2015 before the ROC on 1.9.2015 (the appointed date) and the said date being the later date as demonstrated in para 13 above, the sanctioned Scheme of Arrangement, wherein the business of Baspa HEP, Stage-II and Karcham Wangtoo HEP has been transferred to Himachal Baspa Power Company Ltd, has come into effect from 1.9.2015. Consequent upon this, Petition No.434/GT/2014 filed by Jaiprakash Power Ventures Ltd for determination of generation tariff of Karcham Wangtoo HEP for the period 2014-19 is to be continued by Himachal Baspa Power Company Limited. Accordingly, the prayer of the applicant is allowed and the substitution of the Petitioner M/s Jaiprakash Power Ventures Limited with Himachal Baspa Power Company Limited, in Petition No.434/GT/2014 is ordered."*

7. Accordingly, the original petitioner JPVL has been substituted by Himachal Baspa Power Company Ltd. as the petitioner in the present petition.

### **Submission of the petitioner**

#### **Implementation Agreement, Scheduled CODs and Actual CODs of units/ generating station**

8. The petitioner in this petition has submitted that on 18.11.1999 an Implementation Agreement (IA) was executed between the erstwhile Jaiprakash Industries Limited (JIL) and Government of Himachal Pradesh (Govt of HP) for implementation of the project. The petitioner has also stated that as per the said IA, subject to grant of statutory clearances, tying up the transmission lines for evacuation of power and achieving financial closure, the commercial operation of the project was to be achieved within 120 months from the date of signing of the said IA. It has further stated that the IA shall remain in force for a period of 40 years from the date of COD of the project. Further, JIL is obliged to supply to Govt of HP, free of cost, 12 % of the net energy generated from the date of synchronization of the first generating unit up to 12 years from the COD of the project and 18% of the net energy generated for the remaining 28 years. Under clause 4.8.1 of the said IA, JIL was permitted to supply remaining energy, to any other party situated outside the State of Himachal Pradesh and was also permitted to utilize the energy for



their captive use for any industry to be set up in State of Himachal Pradesh. The petitioner has further stated that an addendum to the said IA was executed on 28.5.2001 to increase the specified period to start the construction of the project from 36 months to 48 months from the effective date i.e., date of signing the IA due to an unprecedented flash flood on river Sutlej on 31.7.2000. The petitioner has also stated that on 31.3.2013, Techno Economic Clearance (TEC) was accorded to the project by Central Electricity Authority (CEA) stating that the zero date for starting the implementation of the project would be January, 2004 and the completion date would be December, 2009. The petitioner has submitted that a second Supplementary agreement to the said IA was executed on 20.12.2007 to amend the definition of the Schedule COD of the project as 18.11.2011.

9. The actual date of commercial operation of the units of the generating station is 13.9.2011. After declaration of COD, the power generated from the project was sold in open market on Short term basis as the issue of validity of long term PPAs between the petitioner and the Respondent No. 1 (PTC) was under consideration of the Hon'ble Delhi High Court. After settlement of dispute with PTC, the petitioner has commenced the power supply to respondent No. 2 to 6 through PTC as under:

- i. From 00:00 hours of 1.5.2014 to the respondent No. 2 (Haryana Power Generation Corporation Limited / Haryana Power Purchase Centre).
- ii. From 00:00 hours of 1.6.2014 to the respondent No. 3 (Uttar Pradesh Power Corporation Limited)
- iii. From 00:00 hours of 1.10.2014 to the respondent No. 4 to 6 [Rajasthan Discoms Power Procurement Centre (RDPPC) /Jaipur VidyutVitrان Nigam Limited, Ajmer Vidyut Vitrان Nigam Limited and Jodhpur VidyutVitrان Nigam Limited].

### **Installed Capacity, Design Energy and Saleable Design Energy**

#### **(a) Installed Capacity**

10. The petitioner has submitted that as per TEC, the installed capacity of the project is 1000 MW and the TEC does not mention any specific overload provision in the generating units. It has also submitted that the project has been designed and developed with installed capacity of 1000 MW and the units have been designed for a rated capacity of 250 MW with continuous overload



capacity of 20% i.e. maximum generation capacity of each unit is 300 MW and thus total maximum generation can be upto 1200 MW. The petitioner has also submitted that considering the high silt content in the river Satluj water during the monsoon period, it was considered prudent to provide a higher overload capacity than the general practice of providing 10% overload capacity in the interest of optimizing the generation during few days of the monsoon period when adequate river flow is available and the silt concentration is less than permissible 5000 ppm at the intake. It has further submitted that each generating unit is capable of generating 300 MW of maximum continuous output and there is no further overload capacity in the plant. The petitioner has also pointed out that Clause 1 (8) of the Part-II of the Schedule to the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 which provides that *"The Hydro Generating Units shall be capable of generating upto 110% of rated capacity (subject to rated head being available) on continuous basis"*. The petitioner has further stated that it has provided 20% of continuous overload margin in the installed capacity of the generating units and as such, the generating unit of 250 MW installed capacity is capable of generating upto 300 MW. Considering the fact, that the generating station is a grid connected project, the petitioner has submitted that it shall be capable of generating upto 110% of rated / installed capacity on a continuous basis as per the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007. Accordingly, the petitioner has submitted that if only 10% continuous overload capacity is considered for the generating station, the deemed rated / installed capacity of each generating unit would work out to 272.75 MW. It has further stated that the deemed rated / installed capacity of the generating station, therefore, can be considered as 1091 MW (4 x 272.75 MW) with 10% overload on 1091 MW capacity as specified under the CEA (Technical Standards for Connectivity Regulations to the Grid) Regulations, 2007, which would mean total of 1200 MW capacity. The petitioner has also submitted that the issue related to the installed capacity is also under consideration of CEA and the Govt. of Himachal Pradesh and this aspect has been considered by Designated Independent Agency (DIA) in its report of August, 2012 on vetting of capital cost of the generating station. Accordingly, the installed capacity of the generating station is summarized as under:



	As per TEC	Actual	Deemed (as per petition)
Installed Capacity (MW)	1000 (2x250)	1000 (2x250)	1091
Overload Capacity	10%	20%	10%
Maximum possible power output (MW)	1100	1200	1200

**(b) Design Energy**

11. The petitioner has submitted that CEA while granting TEC had approved the Design Energy of the generating station as 4559.77 MU for an installed capacity of 1000 MW and the said design energy was based on the following parameters:

- (i) Hydrological series : from 1966 to 1999
- (ii) Release for aquatic life : 0.17 cumecs
- (iii) Installed Capacity : 1000 MW

12. The petitioner has also submitted the events affecting the above parameters resulting in consequential change in the design energy as under:

**(i) Hydrological Series**

The petitioner has submitted that CEA during December 2010 had forwarded a new enlarged flow series to the petitioner from 1972-73 to 2008-09 for planning of the project.

**(ii) Mandatory Release for Aquatic Life**

The petitioner has submitted that the Govt. of H.P during July, 2011 had directed that the water releases from the project for environmental consideration (aquatic life) shall not be less than 15% of minimum inflow observed in the lean season which works out to 7.38 cumecs based on 10 daily new flow series at Karcham Dam from the year 1972-73 to year 2008-09 as against earlier figure of 0.17 cumecs adopted by CEA in the TEC. Thus, according to the petitioner it is obliged to maintain minimum release of 7.38 cumecs from the Karcham Dam on environmental considerations.

**(iii) Installed Capacity**

The petitioner has submitted that in view of the overload capacity, 1091 MW installed capacity has been considered for computation of design energy as per details given as above.





**(iv) Net Head**

The petitioner has submitted that the Net Head as per TEC by CEA is 275.93 m whereas the DIA has considered the same as 269 m and as 264.50 m in Form-3 of the petition. Accordingly, the petitioner has submitted that the net head has been considered based on the executed parameters and works out to 264.50 m for a deemed installed capacity of 1091MW (4 x 272.75 MW). The reasons for the above variations submitted by the petitioner are submitted as under:

(A) The net head of 275.93m as per TEC by CEA was based on the design parameters as under:

Weighted average pond level	:	1806.73 m
Tail water level	:	1508 m
Overall efficiency of Plant	:	92%
Head loss	:	22.80 m
Design discharge	:	417 cumecs
Installed capacity	:	1000 MW

(B) The net head of 269m considered by DIA is based on the following:

(i)	Weighted average pond level	:	1806.73 m
(ii)	Tail water level	:	1513.67 m
(iii)	Overall efficiency of Plant	:	90.20%
(iv)	Head loss	:	24.06 m
(v)	Design discharge	:	421 cumecs
(vi)	Installed capacity	:	1000 MW

(C) The net head of 264.50 m as per Form- 3 of the petition is based on the actual executed parameters as under:

(vii)	Weighted average pond level	:	1806.73 m
(viii)	Tail water level	:	1514.22 m
(ix)	Overall efficiency of Plant	:	92.84%
(x)	Head loss	:	28.01 m
(xi)	Design discharge	:	453 cumecs
(xii)	Installed capacity	:	1091 MW

**Design Energy as per revised parameters**

13. The petitioner has submitted that based on above parameters, the design energy works out to 4114.60 GWh (Million Units) as per details submitted in Form-2 of the petition. It has also submitted that the issue of design energy and installed capacity of the generating station has also been taken up with CEA and the same was under the consideration of CEA.



## **Free Power to Govt. of Himachal Pradesh**

14. The petitioner has submitted that free power to the Govt of H.P shall be as per the provisions of IA dated 18.11.1999 which are as under:

- (i) *From the date of synchronization of first unit and for the first 12 years from the COD of the project – 12%.*
- (ii) *For the next 28 years after the expiry of 12 years from the COD of the project – 18%.*
- (ii) *The petitioner may be required to supply additional free power towards Local Area Development Fund (LADF) as is being insisted by Govt of H.P. It has not been considered in the determination of Tariff for the present but shall be duly considered as and when necessary.*

### **Saleable Design Energy**

15. The petitioner has submitted that the saleable design energy of the project has been arrived at after deducting the Auxiliary Consumption and Transmission losses and 12% free power to Govt. of H.P as per the IA and PPA for the purpose of determination of tariff.

16. During the hearing on 16.7.2015, the learned counsel for the petitioner made submission on the issue of approval of installed capacity and design energy of the project as under:

(i) The project comprises of four units of 250 MW each and tariff of the project is to be determined by the Commission in accordance with the 2014 Tariff Regulations. The generating units are designed for a rated capacity of 250 MW with continuous overload capacity of 20% and thus the total maximum generation can be upto 1200 MW.

(ii) In terms of Section 79 (1) (b) read with Section 61 of the Electricity Act, 2003 (EA 2003), the Commission has the jurisdiction and powers to approve the installed capacity of the project.

(iii) Section 8 of the EA 2003 provides for concurrence by the authority of a scheme for setting up of hydro generating station estimated to involve a capital expenditure as fixed by the Central Government from time to time, by notification. This section is an exception to Section 7 and does not override the provisions of Section 61 of the EA 2003 which provides for the guidelines to be adopted by the Commission for determination of tariff. Therefore, Section 8 and Section 61 are independent of each other. The petitioner has not violated any of the provisions of Section 8 as no material/evidence contrary to the dam design and safety of the plant has been furnished by any party.



(iv) The project was conceptualised in the year 1980 and the IA was entered into during 1999. The TEC which was accorded on 31.3.2003 in terms of the provisions of the Electricity Supply Act, 1948 does not mention any specific overload provision in the generating units.

(v) The word 'regulate' does not mean 'to restrict' and is intended to promote the objectives of the EA 2003. Thus, for optimising the generation during the few days of the monsoon season, it was considered prudent to provide a higher overload capacity, without compromising the safety and security of the plant. In order to provide an independent opinion about the adequacy/ safety of the project components and the designs for 20% overload condition, the petitioner had engaged the services of IIT Roorkee to carry out the assignment and a report dated 9.6.2015 has been submitted to the Commission for consideration.

(vi) Section 3 (33) of the 2014 Tariff Regulations defines the term "installed capacity" to mean as the summation of the name plate capacities of all the units of the generating station or the capacity of the generating station reckoned at the generator terminals as may be approved by the Commission from time to time. The project is capable of generating upto 110% of installed capacity on continuous basis. Keeping in view the spirit of CEA (Technical Standards Connectivity to the Grid) Regulations, 2007 (clause 1 (8) of Part-II of the Schedule) and for optimum use of natural resources, the deemed rated/ installed capacity can therefore be considered as 1091 MW (4 X 272.5 MW) with 10% overload on 1091 MW. The observations of CEA that hydro generators should be adequately compensated and allowed a liberal treatment to promote hydro-electric capacity addition in the country, thereby leading to much needed improved hydro-thermal mix in the country has been referred in Commission's order dated 10.7.2015 in Petition No. 157/MP/2013.

(vii) In response to CEA's letter for considering the capacity of the project as 1000 MW, the petitioner has submitted a request to CEA for considering the deemed installed capacity as 1091 MW. It is evident from the letter of POSOCO dated 22.5.2012 that the permission has been granted to the project to generate upto 1200 MW. Even from the minutes of the meeting taken by CEA on 15.5.2013, it is clear that the generating station has been permitted to generate 1200 MW. The Govt. of H.P has also given its no objection for generation of 1200 MW from the generating station.

(viii) The petitioner has not incurred any additional cost in providing 20% overload capacity, since payments to EPC Contractor were restricted to the contract price awarded based on TEC cost. However, in terms of the guidelines of the Commission, the vetting of capital cost of the project has been assigned to M/s. Energy Infra-tech Pvt. Ltd., the Designated Independent Agency (DIA). The report of the DIA has been submitted to the Commission on 29.6.2015.



(ix) Against the design energy of 4131.06 MUs approved by the CEA, the petitioner has made a representation and the same is pending. Hence, liberty may be granted to the petitioner to approach the Commission for revision if any, based on the decision of CEA.

### **Submissions of respondents**

17. The respondent, UPPCL vide affidavit dated 13.5.2015 and 15.7.2015 has submitted that the prayer of the petitioner to consider the installed capacity of the project as 1091 MW considering 20% overall capacity of the machines instead of 1000 MW capacity as accorded by CEA in TEC may not be accepted for the following reasons:

- (i) The original design and clearance of the project was 1000 MW capacity;
- (ii) The over load capacity is for ramp up and ramp down and to meet emergency conditions. If overload capacity is allowed to be planned capacity, then the entire project is to be redesigned and clearance of CEA must be obtained as per section 8 of the Electricity Act 2003.
- (iii) Commercial aspects like primary energy, early phase of secondary energy, risk of occurrence of instance of more deemed energy phases;

18. The respondents, HPGCL, PSPCL and the Discoms of Rajasthan have submitted as under:

- (i) The respondents have objection in the Commission deciding the installed capacity of the generating station while determining tariff. The DIA in its report of August, 2012 has also recommended that the installed capacity of the project may be considered as 1091 MW with a capital cost of `6900 crore. However, the capacity so decided by the Commission may be subject to restriction in capital cost and no additional cost burden may be imposed on the beneficiaries.
- (ii) The CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 restrict the generating station to generate upto the maximum limit of 110% of rated capacity on continuous basis. Hence, the contention of the petitioner for providing an overload capacity of 20% may not be accepted.
- (iii) The respondents are entitled to a pro rata increase in share of the installed capacity. Moreover, the increase in the capacity is not necessarily on account of increased capital expenditure incurred and increased availability of generation may be on account of circumstances prevalent without any increased cost to the petitioner.



(iv) Any change in design energy should be as per terms of PPA and the petitioner shall substantiate its claim for change in parameters leading to change in design energy

### **Comments of CEA**

19. During the hearing on 25.11.2014, the representative of the CEA submitted that the issue relating to deemed installed capacity of the generating station is under consideration and that the matter has been referred to Central Water Commission (CWC) for its views and the response of CWC is awaited. The Commission vide ROP of the hearing dated 25.11.2014 had requested the CEA to submit its views on the deemed installed capacity of 1091 MW as against the capacity of 1000 MW approved by TEC. The Commission had also requested CEA that the design energy of the project shall be re-examined in light of revised flow series of 1972-73 to 2008-09, revised mandatory release for aquatic life (7.38 cumecs indicated by the petitioner) in terms of latest orders of the Govt of H.P and the revised net head due to actually executed parameters. In response, the CEA vide letter dated 27.3.2015 has submitted its comments on the issue of Installed Capacity and Design Energy of the project as under:

*(i) The Techno Economic Clearance (TEC) was accorded to the Karcham Wangtoo HEP for installed capacity of 1000 MW (4X250MW) by CEA in March, 2003 (Copy enclosed). In this regard, it is reiterated that the capacity of the project is to be maintained as 1000 MW (4X250MW) as accorded in TEC.*

*(ii) Considering the revised mandatory release of 7.38 cumecs for aquatic life, design net head of 275.93 m and combined TG efficiency of 92% etc. mentioned in para 4 above, the revised design from the project in the 90% dependable year has been worked out as 4131.06 MU corresponding to the installed capacity of 1000 MW as against 4559.77 MU originally envisaged at the time of TEC by CEA in March 2003. As such, design energy from the project would decrease by 428.71 MU (about 9.40%) as result of the review on account of the various factors as given below:-*

<i>Factor affecting Design Energy</i>	<i>Reduction in Design Energy</i>
<i>Revised Hydrology</i>	<i>311.40 MU</i>
<i>Revised Mandatory release of aquatic life</i>	<i>117.31U</i>

20. The above letter of CEA was served on the parties and the parties were directed to file their response on the same. The comments of the parties are narrated as under:



## **Petitioner's response to comments of CEA**

21. The petitioner vide affidavit dated 13.5.2015 has reiterated its earlier submissions and has mainly submitted the following:

### **Capacity**

- (a) The communication of CEA that the capacity of the project is to be maintained as 1000 MW as accorded in TEC is without giving any reason on the request of the petitioner.
- (b) From the letter dated 22.5.2012 of POSOCO, it is clear that PSOSCO has given its permission for generation of upto 1200 MW by the project. After observance of oscillation in the system during August, 2012, POSOCO advised to avoid overload generation by the project. In the minutes of the meeting dated 15.5.2013 taken by CEA to review the restriction on generation from the project (Karcham Wangtoo and SJVNL), it was decided to allow the generation of full load capacity. Thus, it is very clear that the petitioner has been permitted to generate 1200 MW.
- (c) The Govt of HP vide its letter dated 26.11.2011 is also in agreement with POSOCO for generation of 1200 MW from the project.
- (d) As regards safety aspects, it is an undisputed fact that the project is operating safely at 1200 MW (whenever water is available) during the last three years. Further the petitioner has also assigned the task to IIT, Roorkee for reconfirmation /reassurance of safety/adequacy of various components of the project for generation of 1200 MW. Copy of the report dated June, 2015 is also enclosed.
- (e) The deemed capacity of the project as 1091 MW will result in more generation as to the generation capacity of 1000 MW. Although the petitioner has not incurred any additional cost in providing 20% overload capacity (as the payments to the EPC contractor were restricted to contract price awarded based on TEC cost), in order to satisfy the Commission, the petitioner has assigned the task to Energy Infratech Ltd. as DIA to work out the project cost considering the capacity of the project as 1000 MW.

### **Design Energy**

- (f) As regards Design Energy, CEA in its letter dated 27.3.2015 has communicated the Design Energy of the project as 4131.06 MU which is not in accordance with the procedure followed by CEA in determining 90% Dependable year and the corresponding Design Energy. CEA has considered 90% Dependable year as 1997-98 whereas the 90% Dependable year as communicated by CEA vide letter dated 2.12.2010 is 2000-01. The matter is being taken up with the CEA and any outcome of the same will be submitted to the Commission accordingly.



22. In response to the direction of the Commission vide ROP of the hearing dated 19.5.2015, the petitioner vide affidavit dated 25.6.2015 has stated that the DIA has furnished its report on the vetting of capital cost of the project during May, 2015. The petitioner has further submitted that DIA, in the said report has recommended the differential cost for 1000 MW capacity from 20% overload capacity to 10% overload capacity as Rs 140.34 crore. The petitioner has further submitted that IIT, Roorkee in its report of June 2015 on adequacy of project components for 20% overload operation has concluded that the electro mechanical equipments provided at the generating station are capable and safe to operate the plant at 1200 MW ( 4x 300MW).

### **Comments of Respondents on CEA letter/DIA report**

23. The respondent, UPPCL vide affidavits dated 26.11.2014, 13.5.2015 and 15.7.2015 has mainly submitted as under:

a) The report of the DIA recommending differential cost for 1000 MW plant from 20% overload capacity to 10% overload capacity leading to reduction in the capital cost is a correct decision. In any case, there was no justification for the capital cost to be determined on 1000MW plus 20% overload capacity. The report of the CEA has rightly pegged the cost of the project to be determined at capacity of 1000 MW as accorded in TEC. The original design of the project was for 1000 MW capacity and overload capacity by 10% is provided for ramp up, ramp down and for exigent situations. The overload capacity, if it is allowed to become the capacity of the plant, then the entire project has to be redesigned and clearance from CEA has to be obtained as per section 8 of the Act.

b) The report of the IIT, Roorkee without being disputed, nevertheless is not an answer as to why the recommendations of CEA for determining the capital cost of the project at 1000 MW capacity plus 10% overload capacity is to be rejected and determination of capital cost to be allowed at 1000 MW capacity plus 20% overload capacity. The commercial consideration of the developer may not be a justified component for determination of tariff of the project by this Commission. This respondent is in complete agreement with the findings of the DIA as regards capital cost of the project and the same is considered reasonable.

24. The respondents, PSPCL and HPGCL vide their affidavits dated 3.8.2015 and 23.4.2015 respectively have mainly submitted as under:



a) The tariff of the project must strictly be determined in accordance with the 2014 Tariff Regulations and no cost overrun or time overrun can be allowed unless it qualifies as change in law or force majeure event under the PPA read with the Power Sale Agreement (PSA).

b) The increase in Design Energy may be allowed in accordance with the 2014 Tariff Regulations and to the extent it leads to decrease in tariff. The design energy and saleable design energy may be considered as per PPA with adjustments for auxiliary consumption at 0.5% and transformation losses at 0.7% as provided in the PPA minus the supply of 12% free power to the State of H.P for the first 12 years and thereafter 18% from 13-35 years. The recommendations of the CEA for consideration of Design Energy as 4131.06 MU as per the TEC for 1000 MW capacity as against 4559.77 MU is incorrect. The project capacity has gone upto 1091 MW and the design energy should also increase accordingly.

c) The installed capacity shall be considered in terms of the CEA letter dated 27.3.2015. However, in case of revision in the installed capacity and the design energy considering the overload capacity of 10%, the project needs to be redesigned and the petitioner needs to obtain fresh concurrence from CEA.

d) Apart from the above, the petitioner has provided 20% continuous overload margin and can consistently generate 110% of its rated capacity which is permissible as per the CEA (Technical standards for connectivity to Grid) Regulations, 2007. POSOCO has allowed the petitioner to inject 1200 MW (ex-bus) into the Grid and therefore, the design energy is more than 4131.06 MU which has been stated by CEA.

25. The respondent, Discoms of Rajasthan vide affidavit dated 16.4.2015 has mainly submitted as under:

a) The respondents have no objection to the increase in the installed capacity so long as there is no increase in the fixed charges and variable charges and the benefit of the increased capacity proportionately reduces the per unit tariff. The respondents are also entitled to a pro rata increase in its share of the installed capacity. The increase in the capacity is not necessarily on account of increased capital expenditure incurred and increased availability of generation may be on account of the circumstances prevalent without any increased cost to the petitioner.

b) The installed capacity shall be considered in terms of the CEA letter dated 27.3.2015. However, in case of revision in the installed capacity and the design energy considering the overload capacity of 10%, the project needs to be redesigned and the petitioner needs to obtain fresh concurrence from CEA.





c) The increase in capital cost on account of factors attributable to the petitioner or its contractors or otherwise not envisaged in the PPA and PSA cannot be passed on to the beneficiaries. The deduction of 7.54 crore of revenue earned from sale of 24.60 MU of infirm power from Unit-I and II from the capital cost as per DIA report do not however, consider the sale of infirm power from Unit-III and IV till commencement of supply of power to respondents.

26. Shri M.C.Bansal, individual, vide his letters dated 9.12.2014, 27.12.2014 and 1.6.2015 has submitted his comments as under:

a) The petitioner has installed higher capacity of 1200 MW as against the TEC approved capacity of 1000 MW without any authorisation of CEA and also in deviation to the approved designed parameters. The construction of the project in violation of TEC parameters would adversely impact the safe operation of the project. As per environmental clearances accorded to the project, the installed capacity of the project cannot exceed 1000 MW.

b) The Commission while determining the tariff of the project may consider (i) the project capacity as 1000 MW and prohibit generation above 1000 MW at any point of time (ii) reduce the project cost on pro rata basis and disallow the return on equity component from tariff as no equity was actually invested in the project.

27. Dr. Arvind Gupta, Trustee IIPC in his letter dated 6.1.2015 addressed to the petitioner with the copy to this Commission has alleged serious deviations violating the design parameters of the project and gross violations of approvals granted by statutory authorities. He has also submitted that the approved design energy parameters detailed in TEC stipulated by CEA are sacrosanct and cannot be altered under any circumstances by the project proponent during commissioning unless authorized for some exceptional contingencies by CEA, CWC and GSI. He has further added that the hydro project is operating under serious threat of collapsing due to weak civil power structure and may collapse under operational stress.

### **Rejoinder of the petitioner**

28. In response to the replies of the respondents as above, the petitioner has mainly submitted as under:



a) In case the deemed installed capacity of the project is considered as 1091 MW, the design energy will increase and will lead to lower capacity charge and energy charge which will benefit the beneficiary states. The design energy is also required to be reworked after finalization of the installed/ deemed installed capacity of the project.

b) The recommendation of CEA that the design energy of the project shall be 4131.06 MUJ is not correct as CEA has considered 90% dependable year as 1997-98 whereas 90% dependable year as per letter dated 2.12.2010 is 2000-01.

c) As regards the submission of discoms of Rajasthan with respect to non-deduction of revenues earned from sale of infirm power from Units-3 and 4, it is clarified that at the time of commissioning of Units-3 and 4, there was no water available for testing of these units, over and above the water available and used for generation by Units-1 and 2. Under these circumstances for testing purposes, water which was being used by Units-1 and 2 was diverted to Units-3 and 4. In other words, if the water was not diverted for testing of Units-3 and 4, petitioner could not have declared COD of Units-3 and 4 in September, 2011 and this would have resulted in substantially increase in IDC. Therefore the power generated from Units-3 and 4 should be treated as generation by Units-1 and 2. The same is in line with Regulation 4(2)(iv) of the 2014 Tariff Regulations.

### **Analysis and Decision**

29. We have examined the submissions of the parties. The petitioner has submitted that in response to CEA letter dated 23.9.2013 it had made a request to CEA vide letter dated 5.10.2013 to consider the deemed installed capacity of the project as 1091 MW. However, CEA has recommended that the installed capacity of the project has to be maintained as 1000 MW as accorded in TEC without giving any reason on the request of the petitioner. The petitioner has further submitted that it had assigned the task to IIT Roorkee for reconfirmation/ reassessment of safety/ adequacy of various components of the project for generation of 1200 MW capacity and IIT Roorkee in its report of June 2015 has recommended that the electro mechanical equipments provided at the generating station are capable and safe to operate the plant at 4x 300 MW i.e. 1200 MW capacity continuously. While the respondent, UPPCL has maintained that the installed capacity should be considered as 1000 MW in terms of the recommendations of the CEA as contained in the TEC, the other respondents have submitted that the capacity of the project if



increased to 1200 MW, should be subject to restriction in capital cost and no additional burden on account of the increased capacity shall be passed on to the consumers.

30. Section 8 of the Electricity Act, 2003 (EA, 2003), provides as under:

*(1) Notwithstanding anything contained in section 7, any generating company intending to set-up a hydro-generating station shall prepare and submit to the Authority for its concurrence, a scheme estimated to involve a capital expenditure exceeding such sum, as may be fixed by the Central Government, from time to time, by notification.*

*(2) The Authority shall, before concurring in any scheme submitted to it under sub-section (1) have particular regard to, whether or not in its opinion,-*

*(a) the proposed river-works will prejudice the prospects for the best ultimate development of the river or its tributaries for power generation, consistent with the requirements of drinking water, irrigation, navigation, flood-control, or other public purposes, and for this purpose the Authority shall satisfy itself, after consultation with the State Government, the Central Government, or such other agencies as it may deem appropriate, that an adequate study has been made of the optimum location of dams and other river works;*

*(b) the proposed scheme meets the norms regarding dam design and safety.*

31. It is observed that CEA while granting TEC during the year 2003 had approved the Design Energy of the project as 4559.77 MU for the installed capacity of 1000 MW (4x 250 MW). The petitioner has submitted that the project being grid connected, shall be capable of generating upto 110% of rated/ installed capacity on a continuous basis as per the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007. According to the petitioner, if only 10% continuous overload capacity is considered for the project, the deemed rated/ installed capacity of each generating unit would work out to 272.75 MW. Based on this, the petitioner has considered the deemed rated/ installed capacity of the project as 1091 MW (4x 272.75 MW) with 10% overload on 1091 MW as specified under the above said regulation, which works out to 1200 MW. In support of this contention, the petitioner has submitted that the word 'regulate' does not mean to 'restrict' and is intended to promote the objective of the EA, 2003 and thus for optimizing the generation during the few days of monsoon season, it was considered prudent to provide the higher overload capacity, without compromising the safety and security of the plant.

32. The submissions of the petitioner, cannot, in our view, be accepted. From the plain reading of Section 8 of the EA 2003 (as quoted above), it is evident that prior to the concurrence of any scheme with respect to hydro-generating stations, the CEA shall have particular regard as



to whether the proposed scheme meets the norm regarding the dam design and safety. Moreover, Section 73(n) of the EA 2003 vests the CEA with the functions and duties to advise the Appropriate Govt. and the Appropriate Commission on all technical matters relating to generation, transmission and distribution of electricity. In our view, CEA had decided the capacity of the project as 1000 MW as per TEC during the year 2003, which does not mention any specific overload provision in the generating units. CEA, being a statutory body and mandated to advise the Commission on all technical matters, involved in deciding the Installed capacity and Design Energy of the project, we are inclined to consider the recommendations of the CEA for installed capacity of 1000 MW (4x250 MW). Accordingly, the prayer of the petitioner for consideration of installed capacity as 1091 MW is rejected. Accordingly, we proceed to determine the tariff of the generating station based on the installed capacity of 1000 MW and the design energy of 4131.06 MU as recommended by CEA. The prayer of the petitioner is disposed of as under:

- (a) The capacity of the generating station shall be 1000 MW (4 x 250MW) as accorded by CEA in TEC.
- (b) Overload Capacity of generating station shall be 10% as per provisions of CEA Regulations and IEGC. NLDC/NRLDC shall ensure that the scheduling of the station shall be based on the installed capacity of 1000 MW with overload capacity of 10%
- (c) The revised Design Energy of the generating station shall be 4131.06 MU corresponding to the installed capacity of 1000 MW as against 4559.77 MU originally envisaged at the time of TEC.
- (d) The Saleable Design Energy of the project shall be calculated after deduction of the Auxiliary Energy Consumption as specified under the 2014 Tariff Regulations, i.e. 1.2% & 12% free power to Govt. of H.P as claimed by the petitioner for the period 2014-19. Accordingly, Saleable Design Energy of generating station shall be 3591.71 MUs as detailed below:

	Million Units (MUs)
Revised Design Energy	4131.06
Less: Auxiliary Energy Consumption @ 1.2%	49.57
Net Design Energy	4081.49
Free Power to GoH.P @ 12% of Net Design Energy	489.78
Saleable Design Energy	3591.71

- (e) NLDC/NRLDC shall ensure that the scheduling of the station shall be based on the installed capacity of 1000 MW with overload capacity of 10%. For the purpose of



keeping the velocities in HRT and TRT within safe region as envisaged by CEA while approving TEC, the petitioner shall not be allowed to overload the machines beyond 1100 MW in any case. Further, availability declaration above 1100 MW, even when actual water inflow is more than required for generation of 1100 MW, shall not be allowed and considered for the calculation of Plant Availability Factor (PAF) and secondary energy benefits.

33. It is noticed that in terms of the IA dated 18.11.199 entered into between the petitioner and the Govt. of H.P, free power to the Govt. of H.P shall be 18% for the next 28 years from the expiry of the period of first 12 years. It is pertinent to mention that in terms of the 2014 Tariff Regulations, free energy to home state is limited to 13% or actual, whichever is less. However, the respondents in their respective PPAs have agreed to the enhanced free power to home state after 12 years. In this background and considering the fact that this issue of enhanced free power to home state after 12 years is not relevant for the purpose of determination of tariff of the generating station for the period 2014-19, the same has not been considered. However, the parties are at liberty to claim the relief and the same will be considered at an appropriate time as per the prevailing tariff regulations.

34. The petitioner has submitted that it may be required to supply additional free power towards LADF as insisted by Govt. of H.P. The petitioner has also stated that the same has not been considered for determination of tariff for the present but shall be duly considered as and when necessary. We are of the view that in case the petitioner is required to supply additional free power towards LADF, it may approach the Commission by an appropriate application for relief on this count.

### **CAPITAL COST**

35. The petitioner has submitted that TEC was accorded to the project by the CEA on 31.3.2003 for an estimated cost of US\$ 117.44 million + Rs 5345.88 crore with implementation schedule of 72 months from 1.1.2004 to 31.12.2009. It has also submitted that the capital cost approved by CEA in TEC was based on the facts and circumstances existing at that time. The petitioner has further submitted that the original capital cost of the project approved by CEA in 2003 however, increased during implementation of the project due to number of factors. It has



stated that the implementation of the project actually started from 18.11.2005 as against the original planned date of 1.1.2004 on account of the delay in grant of Environmental Clearance which was granted on 9.11.2005 and the Forest Clearance which was granted on 17.11.2005. It has submitted that the delay in start of works has resulted in the increase in cost due to inflation in a substantial manner. The petitioner has stated that there were changes in the scope of work of the project due to various notifications, by the State Govt., Central Govt., CEA, subsequent to the TEC and the recommendations of the National Committee on Seismic Design Parameters (NCSDP). As a result of the above, the petitioner has submitted that it had to carry out changes in the design of the dam, Spillway, Pothead yard, silt flushing ducts/ conduits, etc. which has also resulted in increase in the projected cost. According to the petitioner, the following issues have affected the scope of work and cost of the EPC contract as well as works directly undertaken by the petitioner:

- (i) delayed start of works;
- (ii) Change in design/ scope of works;
- (iii) Regulatory requirements;
- (iv) Additional spare runners and other spares; and
- (v) Miscellaneous costs

36. The petitioner has submitted that the EPC contract was awarded during July, 2003 duly taking in to consideration the IA signed by the Govt. of H.P. It has also stated that the EPC amount was finalized based on the TEC approved cost and that the completion cost of the works as per TEC was bifurcated into two parts i.e. cost/ expenditure to be carried out by the petitioner and the expenditure to be carried by the EPC contractor. The petitioner has further submitted that the petitioner's scope of work was mostly limited to land, environment , financing and management aspects and the execution of works comprising civil works, hydro mechanical works and electro mechanical works was assigned to the EPC contractor for US\$ 117.44 million + Rs 36159 million. It has also stated that the EPC contract amount necessitated the revision in March, 2010 to US\$ 185.45 million + Rs 43070.09 million due to various reasons and factors like additional cost for providing protection works, change in scope of dam work, procurement of additional spare runners to optimize generation, provision of increased water releases from the dam due to environmental considerations. The petitioner has added that it does not have any



approved revised completion cost estimate and the said report of the DIA may be considered as the approved revised completion cost estimate. The petitioner has submitted that the EPC contract amount necessitated revision during March, 2010 due to reasons and factors mentioned below:

- (i) Delay in start of EPC work to 18.11.2005 as compared to the original planned start date of 1.1.2004 in accordance with TEC.
- (ii) Additional cost of providing protection works in the dumping areas in pursuance of the Environment Clearance by MoEF, Gol.
- (iii) Change in scope of dam work due to adoption of a higher seismic coefficient as recommended by the NCSDP and aggradation of river bed in the dam vicinity.
- (iv) Provision of increased water releases from the dam due to environmental considerations as a result of Govt. of Himachal Pradesh directive.
- (v) Provision of independent draft tube gates with dedicated hoisting arrangement to meet CEA guidelines.
- (vi) Procurement of additional spare runners to optimize generation on account of high possibility of runners getting frequently damaged due to high level of silt in the river Satluj.
- (vii) Provision of additional dewatering pumps in the power house to comply with the CEA guidelines.

37. Accordingly, the petitioner has submitted that based on the above, the EPC Contract amount was revised from US\$ 117.44 million + Rs 36159.00 million to US\$ 185.45 million + Rs 43,070.09 million. The petitioner has further stated that during the execution of the works, certain changes were required in the scope of work as stated under and consequently a further revision in EPC contract amount was required due to the following inevitable reasons:

- (i) Change in design/scope of work in respect of Pot Head Yard on account of its shifting to an alternate location due to site conditions.
- (ii) Change in design/scope of work in the flushing ducts / conduits of the sedimentation changer complex on account of providing gravity slope in the flushing conduits as against reverse slope considered in the EPC Contract drawings on account of better flushing characteristics resulting, inter alia, in much longer length of flushing conduits / tunnel.
- (iii) On account of exchange rate fluctuations and change in rates of taxes and duties etc.



38. The petitioner has submitted that the EPC Contract amount was further revised from US\$ 185.45 million + Rs.43070.09 million to US\$ 185.45 million + Rs. 44895.20 million.

39. The petitioner has stated that the effect of changes in the cost of the non EPC works directly handled by the petitioner was also taken into account and this cost has increased due to increase in Land compensation amount, increase in requirements for environment and ecology, new provision for Local Area Development activities (LAD) introduced by the Govt. of H.P and increased charges for insurance, etc. The petitioner has however clarified that there is substantial reduction in the cost on account of Interest During Construction (IDC) and Financing Charges (FC). The petitioner has further submitted that it had entrusted the work of vetting of the capital cost of the project to M/s Energy Infratech Pvt. Ltd, DIA during March, 2011 and after considering all the cost related aspects, the DIA has recommended the completion cost of the project as Rs.6900.00 crore vide its report dated August 2012.

40. The respondents no. 4 to 6 have submitted that the increase in capital cost on account of factors attributable to the petitioner or its contractors or otherwise not envisaged in the PPA or PSA cannot be passed on to the beneficiaries. It has also submitted that the petitioner has also not furnished any explanation as to the reason for such cost being not already included in the DIA estimate. It has further stated that the petitioner has not submitted any reason as to how the additional IDC from COD of unit-I to IV as well as IDC on additional capitalization upto 31.3.2014 are in addition to the completion cost already recommended by DIA or in addition to TEC estimate of IDC. It has submitted that the petitioner has also not furnished any justification for the additional capital expenditure in terms of the 2014 Tariff Regulations and hence there is no question of IDC on such additional capital expenditure. It has further stated that only those cost that are incurred due to reasons beyond the control of generating company and not within its power to avoid the same despite efforts made, like natural calamities or any other factor and where there has been no imprudence on the part of the generating company in executing the project can only be considered. The respondents no. 2 and 7 have submitted that though DIA has analyzed the actual cost incurred during the project vis-a vis projected cost, in the light of the provision of PPA and PSA, it is not envisaged that increase in cost due to delay in start of





construction, change in scope of work should be borne by the beneficiaries. Accordingly, it has prayed that the Commission may not simply adopt the recommendations of DIA but approve the capital cost for the project only after duly scrutinizing the reasons for increase in capital cost. It has also stated that the Commission needs to determine the capital cost on the date of commissioning and thereafter account for depreciation, assets de-capitalized, un-discharged liabilities and revenue earned from power sold from the project. The respondent has stated that it has chosen to terminate the PPA and has signed a settlement agreement with respondent, PTC after a lapse of sufficient time and accordingly, it cannot take any benefit from this termination and IDC for this period cannot be allowed to the petitioner.

### **Completion Capital Cost**

41. The COD of the generating station is 13.9.2011. The capital cost of the generating station as recommended by the DIA is Rs. 6900.00 crore, whereas, the capital cost of the generating station based on actual cash flow and liabilities/ provisions works out to Rs. 6912.84 crore. The petitioner has submitted the details and reasons for the variation of Rs. 12.84 crore between the capital cost recommended by DIA and the Capital cost (actual cash flow + liabilities / provisions) under Note 11 of Form 5B of the petition. It has also submitted that the capital cost of Rs. 6912.84 crore does not include the following:

(i) Additional IDC from COD of Unit-I (26.5.2011) to COD of Unit-IV (13.9.2011) for Rs. 45.72 crore. The petitioner has submitted that it has capitalized all common facilities in the Books of Account at the time of capitalization of Unit-I as per the Accounting Practices and accordingly, the capitalized IDC in the Books of Account is as under:

	Rs in crore
Between COD of Unit-1 & COD of Unit-2	11.24
Between COD of Unit-2 & COD of Unit-3 & 4	28.88
Total (A)	40.12

42. The petitioner has stated that Regulation 4 (2) of the 2009 Tariff Regulations provides that common facilities shall be apportioned on the basis of the Installed Capacity of the Units and



accordingly the additional IDC has been considered in the capital cost for the purpose of tariff as under:

S.No		Rs. in Crores
a)	Between COD of Unit-1 & COD of Unit-2	30.11
b)	Between COD of Unit-2 & COD of Unit-3	54.14
c)	Between COD of Unit-3 & COD of Unit-4	1.59
Total (B)		85.84
Additional IDC capitalized in the capital cost (B-A)		45.72

*Note: calculation as per enclosure-I to Form 9E*

(ii) IDC on additional capital expenditure from COD of Unit-IV (13.9.2011) to 31.3.2014 amounting to Rs. 10.10 crore as per enclosure-I to Form 9E.

43. The petitioner has submitted that in consideration of the IDCs as stated above, the capital cost worked out for the project is as under:

S.No.		Rs/Crore
a)	Capital Cost	6912.84
b)	Additional IDC from COD of Unit-1 to COD of Unit-4 as above	45.72
c)	IDC on additional capitalization i.e. from COD of Unit-4 (13.9.2011) to 31.3.2014 as above	10.10
<b>Total capital cost (a+b+c)</b>		<b>6968.66</b>

44. The petitioner has also clarified that in order to arrive at the actual cash outflow (expenditure incurred), it has excluded the liabilities from the total capital cost worked out as above. Thus, according to the petitioner, the actual cash outflow (expenditure incurred) worked out as above has been considered for the purpose of determination of tariff.

45. The Commission vide ROP of the hearing dated 25.11.2014 had directed the petitioner to submit the details and reasons for the difference in capital cost of Rs. 6900.00 crore as recommended by the DIA and the capital cost of Rs. 6912.84 crore (excluding additional IDC) claimed by the petitioner. The petitioner was also directed to submit details of the procurement of three additional runners at the cost of Rs. 89.89 crore.

46. The respondent No. 3, UPPCL vide affidavit dated 26.11.2014 has submitted that the petitioner should furnish clarification for the increase in cost, the factors causing delay, change in law claimed by the petitioner, increase in land compensation. It has also submitted that there is a



huge difference in the capital cost claimed by the petitioner and the capital cost recommended by DIA and furnish reason as to why the capital cost recommended by DIA should not be accepted as the final capital cost.

47. The respondents Nos. 4 to 6, (discoms of Rajasthan) vide affidavit dated 16.4.2015 and respondent No. 2, HPGCL vide affidavit dated 23.4.2015 and respondent No. 7, PSPCL vide affidavit dated 3.8.2015 have submitted that since the petitioner has not furnished any clarification for the increase in capital cost of Rs 12.84 crore, in addition to the cost of Rs 6900.00 crore recommended by DIA, it is necessary to examine the reasons attributable to increase in capital cost. They have also submitted that the petitioner has not furnished any reason/justification for additional IDC, in addition to the completed cost recommended by DIA. As regards increase in the original capital cost, the respondents have submitted that the Commission may approve the capital cost of the project, after prudence check of the reasons furnished by the petitioner. They have also submitted that the revenue earned from sale of power through competitive bidding/short term power market and through sale of infirm power should be deducted from the capital cost of the project. However, respondent No. 2 has submitted that it is not liable to pay for any amount towards IDC or IEDC for the period from 2009 to 2011 on account of the fact that the PPA and PSA provides for the commissioning of the project by 18.11.2009 and the IA entered into by the petitioner and the Govt. of H.P provides for commissioning of the project by 18.11.2011 in which this respondent was not a party. Similar submissions have been made by the respondent, PSPCL as regards the non-payment of IDC or IEDC for the period from 2009 and 2011. As regards Cost of spares, these respondents have submitted that the same may be allowed in accordance with the provision of the PPA / Tariff Regulations.

48. In response, the petitioner vide affidavit dated 24.12.2014 has clarified that the variation of Rs. 12.84 crore between the capital cost recommended by DIA and the capital cost claimed before additional IDC (actual cash flow + liabilities / provisions) as explained under Note 11 of Form 5B is on account of expenses like Preliminary expenses (Rs. 2.01 crore) which has not



been considered in the capital cost recommended by DIA as the same has actually not been capitalized in the books of account as the accounting policy of the petitioner's company do not permit the same. The petitioner has however submitted that it has considered the same for the purpose of tariff under Note 9 of Form 5B. It has added that there are few other expenses such as Construction of Bithal building (Rs. 3.25 crore) which has been considered as additional capital expenditure but has not been included in capital cost recommended by DIA, as the said work had not been completed. As regards the procurement of additional runners, the petitioner vide affidavit dated 24.12.2014 has submitted that it has procured three additional spare runners along with other turbine parts which are prone to high damages due to very high silt content in the river Satluj. It has further submitted that the completion cost of these three additional spare runners and associated spares based on actual supply orders amounts to Rs. 89.89 crore (Rs. 27.48 crore and US \$ 13.612 million @ Rs. 45.82 per US \$ which is average rate actually paid).

49. In addition to the above, the petitioner vide affidavit dated 13.7.2015 and 21.8.2015 has clarified as under:

(i) "Required Commercial Operation Date" or "Required COD" or "RCOD" of the project as per the PPA is 17.11.2011. The definition of Required Commercial Operation Date as given in Article 1.1 of the PPA is reproduced below:

*"Required Commercial Operation Date" or "Required COD" or "RCOD" – means in relation to the Units, the following number of months from the zero date of the Project i.e. 18<sup>th</sup> November, 2005.*

(i) for Unit 1	:	69 Months;
(ii) for Unit 2	:	70 Months;
(iii) for Unit 3	:	71 Months;
(iv) for Unit 4	:	72 Months; and
in relation to the Project	:	72 Months;"

50. Accordingly, the RCOD as provided in the PPA and the actual Commercial Operation Date (COD) of the various Units are as below:

Unit	RCOD as per PPA	Actual COD
1	17.8.2011	26.5.2011
2	17.9.2011	23.6.2011
3	17.10.2011	8.9.2011
4 and Project	17.11.2011	13.9.2011



(i) There is no delay in the COD of the Project. On the contrary, the project has been commissioned 65 days ahead of schedule and therefore, no deduction in respect of IDC / IEDC can be made on this account. It was further submitted that there is no privity of contract between the Petitioner & Respondent No.2 i.e HPGCL.

(ii) The petitioner is claiming Tariff for the period 2014-19 based on the depreciated cost as on 1.4.2014, after deduction of depreciation from COD of Unit 1 to 31.3.2014. Therefore, there is no question of adjusting the capital cost on account of sale of power by the petitioner before start of supply of power to respondents under the PPA. The actual revenue from sale of power is lower than the amount, which would have been received by the petitioner for respective years if tariff would have been determined from the date of COD. However, the revenue from sale of infirm power has already been deducted from the capital cost of the project.

(iii) The petitioner has claimed additional IDC of Rs. 55.82 crore for the period from 26.5.2011 (COD of Unit-1) to 31.3.2014 on account of the difference in methodology adopted for capitalizing common facilities in books of accounts vis-à-vis for the purposes of tariff from 26.5.2011 to 12.9.2011 (Rs. 45.72 crore) and the IDC of Rs. 10.10 crore from COD of the project i.e. 13.9.2011 to 31.3.2014 on the basis of expenditure incurred during the said period. All common facilities have been capitalized in the Books of Account at the time of capitalization of Unit-1 as per the Accounting practices, whereas for the purposes of Tariff, it was required to apportion the common facilities on the basis of the Installed Capacity of the Units. Moreover, the additional IDC for the period from COD of the project i.e. 13.9.2011 to 31.3.2014 is based on the expenditure incurred during the said period.

(iv) The reasons for increase in capital cost and the reasons required for changes subsequent to the TEC as stated in the original petition is reiterated. The increase in cost of the Project is mainly attributable to two factors which are completely beyond the control of petitioner, namely (a) there was a substantial delay in grant of Environment and Forest Clearances which in effect led to delay in start of work resulting in increased cost due to



inflation and (b) there were changes in the scope of work of the project due to various notifications issued, subsequent to the TEC, by the State Govt., Govt. of India, CEA and recommendations of the NCSDP, as a result of which the petitioner had to carry out changes in the design of the Dam, Spillway, Pothead Yard, Silt Flushing Ducts/conduits etc. and this resulted in the increased cost. The DIA vide its letter dated 19.3.2014 has indicated that the cost of the project is the lowest per MW (Rs. 6.32 crore per MW based on the deemed capacity of 1091MW and cost as Rs. 6900.00 crore) in respect of hydro projects commissioned during the period from 2011-12 to 2014-15. It is reiterated that the reasons for increase in cost is beyond the control of the petitioner and is not attributable to the petitioner and hence, the increase in cost may not be disallowed on this account.

(v) The increase in land compensation amount is mainly attributable to two factors, namely (a) the amount of lease payments required by the Govt. of H.P increased substantially and (b) there has been an increase in the amount required for Rehabilitation and Resettlement paid /payable by the petitioner to the project affected families.

51. During the hearing, the learned counsel for the parties reiterated the above submissions and prayed that the capital cost of the generating station may be determined accordingly.

### **Recommendation of DIA on Time and Cost Overrun**

52. As regards time overrun, DIA in its report of August, 2012 on vetting of capital cost has recommended the following:

#### **"Time Overrun**

*"According to the TEC accorded by the CEA in the year 2003, the Zero (Starting) Date had been taken as 1<sup>st</sup> January, 2004 by assuming that all the balance inputs / clearances (environmental clearance, forest clearance, financial closure, etc.) would be available within a period of six months from the date of issue of TEC. The project execution timeframe had been taken as 72 months with commissioning of all 4 units to be achieved by 31<sup>st</sup> December, 2009. However, the environment clearance was issued by the MoEF, Gol on 9<sup>th</sup> November, 2005 and the approval for diversion of forest land was issued by the MoEF, Gol on 17<sup>th</sup> November, 2005. The financial closure was thereafter achieved on 30<sup>th</sup> March, 2006.*

*However, the Starting Date for the Project had been taken by the Generating Company as 18<sup>th</sup> November, 2005. The project execution timeframe accordingly got revised to 18.11.2005 - 17.11.2011 which was communicated by the Generating Company to Govt. of H.P as well to CEA, Gol. The Govt. of H.P, thereupon, entered into the second*



*Supplementary IA signed on 20.12.2007 with the Company wherein it was agreed that the Scheduled Commercial Operation Date (i.e. 18<sup>th</sup> November, 2011) shall be 144 months from the Effective Date of the initial IA which was 18.11.1999. The Generating Company had also taken up the issue of extension of TEC up to 31.3. 2006 with CEA vide letter No. KW-101 dated 5.3.2005 The CEA, however, replied vide letter dated 18.11. 2008 that with the enactment of the EA 2003, the fixation of tariff of all power projects is vested with the Regulatory Commissions. Therefore, FFP/Final Completion Cost of power projects is not to be approved by CEA. As such extending validity of TEC shall serve no purpose as the TEC remains valid in terms of Para 9 of CEA OM dated 31.3.2003."*

53. As regards time overrun, the DIA in its report of May 2015 has observed that there is no impact on overall time frame of construction schedule of the project with respect to the change in overload capacity of the plant and hence, schedule of execution for existing project does not have any impact if it would have been 1000 MW with 10% overload capacity or with 20% overload capacity. It is also concluded that there is no impact of cost due to change in overload capacity of the project.

### **Cost Overrun**

54. DIA in its report has examined the issue of cost overrun and has stated that the following issues/ reasons have impacted the completion cost of the project:

- i) Delayed start of works-
- ii) Change in design / scope of works
- iii) Regulatory requirements
- iv) Additional spare runners and other spares.
- v) Increase in Miscellaneous cost.

55. The above factors have been examined and the DIA in its report has recommended the following completion cost:

Capital Cost of the Project = TEC Cost + Increase in Cost  
= (USD 117.44 million + RS. 5345.88 crores) +(USD 68.01 million + Rs. 704.40 crores)  
= USD 185.45 million + Rs. 6050.28 crores  
= Rs. 849.71 + Rs. 6050.28  
= Rs. 6899.99 crores. Say Rs. 6900 Crores

56. The DIA has concluded that based on the various factors discussed in the report, the completion cost of Rs.6900.00 crore worked out by it is considered reasonable and the same has been recommended as the completion cost.

57. It is observed that as against the TEC completion cost of Rs.5909.59 crore, DIA has finally recommended completion cost of Rs.6759.66 crore. As such, there is



significant variation between the completion cost vetted by DIA and the TEC approved capital cost. It is pertinent to mention that the Commission while determining/revising the tariff of Central Government owned hydro generating stations of NHPC, SJVNL, THDC (after considering the report of DIA) has directed the Central Government owned hydro generating stations to seek revised cost estimates/completion cost of the project approved by the Central Government and place the same on record. In the process of approval of the revised cost estimates, the Central Government invariably consults and seeks recommendations from CEA and therefore, the capital cost of the hydro projects gets vetted by the CEA. The petitioner being a private company, its completion cost does not require the approval of the Central Government and therefore, CEA would not be involved to vet its capital cost. Accordingly, in absence of such recourse, Commission, for the present, has considered the DIA vetted cost, after carrying out the prudence check, as ceiling cost for the purpose of tariff. DIA report has considered certain un-discharged liabilities in the completion cost which have not been taken into account as the tariff has been based on the actual cash expenditure.

58. In this background, we proceed with the determination of completion cost based on DIA report and tariff of the generating station for the period 2014-19 based on Tariff Regulations 2014, as stated in subsequent paragraphs. The Commission is of the view that the expenditure may be vetted by the CEA before final truing up. Accordingly, we direct the petitioner to approach the CEA for vetting of the expenditure of the generating station on payment basis. CEA is requested to take expeditious action and vet the completion cost of the generating station within a period of 3 months. The same may be submitted along with the truing up petition by the petitioner.

#### **Analysis of Completion cost as vetted by DIA**

59. Considering the submissions of the parties and the DIA reports, the completion cost of the project is examined as under:





i) Delay in start of work of 23 months (approx.) due to non-receipt of Environment Clearance and approval for diversion of forest land is not attributable to the petitioner. Further, considering the second supplementary Implementation Agreement dated 20.12.2007 entered into between the Govt. of HP and the petitioner, wherein it was agreed that the Scheduled Commercial Operation Date (18.11.2011) shall be 144 months from the Effective Date of the initial Implementation Agreement dated 18.11.1999, the COD has been declared on 13.09.2011 ahead of revised scheduled COD by 65 days.

ii) The DIA in its recommendations had examined at length the issue of Cost overrun due to escalation on account of delay of 22 months and 17 days in start of work, change in scope of works and additional works/provisions due to directives of the Govt. of H.P and CEA. Considering the above aspects, DIA has recommended the completion cost of Rs. 6900 crore for Plant capacity of 1000 MW with 20% overload capacity.

iii) On scrutiny of the Cost overrun analysis as submitted by DIA, it is observed that the major contributors to cost overrun in comparison to TEC cost of Rs.5909.59 crore approved by CEA at December,2002 level are as follows:

Reason of cost over run	Cost overrun (Rs. in crore)
<b>Civil &amp; HM works</b>	
Increase in Civil and H&M works due to Delayed Start of Work	407.90
Increase due to Change in Scope of construction of Toe Walls, Retaining Walls etc. to meet the requirements of environmental clearance	10.80
Increase due to due to Change in Scope of work due to Revised Design of Dam & Spillway to account for the higher seismic parameters and revised energy dissipation	58.56
Increase due to Change in Scope of work in respect of Relocation of Pot head Yard to counter poor geological conditions faced near the original Pot head Yard	42.29
Increase due to Change in Scope of works in Revised Design of Silt Flushing conduits of the sedimentation chamber to counter high silt problem	140.22
Increase due to Change in Scope of work regarding Provision for higher release of water from Dam as per directives of GoHP	1.00
Increase due to Change in Scope of works regarding Alternative Hoisting Arrangement for the Draft Tube Gates as per recommendations of CEA post TEC	9.44
<b>Subtotal (a)</b>	<b>670.21</b>
<b>E&amp;M works</b>	
Increase in E&M works due to Delayed Start of Work	167.23 + USD 54.40 million* =416.48



Additional Spare Runners and Other Additional Spares for countering silt problems	27.48 + USD 13.61 million* =89.85
Additional Provision of Flood Pumps as per directives of CEA	8.69
<b>Subtotal (b)</b>	<b>203.4 + USD 68.01 million* =515.01</b>
Bonus on account of Early commissioning	13.41
Changes in rates of Taxes and Duties / additional taxes and duties	111.94
Increased Land compensation	30.17
Increased Requirement for Environment and Ecology Works	86.53
Increase in Insurance Cost	64.95
Provisions for Local Area Development Activities (LADA)	103.5
Decrease in Establishment Charges	-29.59
Decrease in IDC	-520.92
Decrease in FC	-21.66
Revenue on account of Infirm power	-7.54
FERV	-25.62
Total increase in comparison to TEC cost of Rs.5909. 59 crore	990.39

*\*considering exchange rate of Rs.45.82/USD*

iv) It is observed from the above that in addition to the increase in expenditure due to change in scope of works and additional works/provisions due to directives of the Govt. of H.P and CEA, the major contributors towards cost overrun are Increase in cost of Civil and H&M works due to delayed start of work (Rs. 407.90 crore) and Increase in cost of E&M works due to delayed start of work (Rs. 416.48 crore). Considering the fact that the EPC contract was awarded to one of sister concerns of the petitioner, it would be prudent to examine the methodology adopted by the petitioner to calculate the increase in the cost of Civil & HM works and E&M works due to delayed start of works and the consequent increase allowed in the revised contract cost of the EPC contractor.

**Increase in cost of civil works due to delayed start of works:**

(vi) Though TEC was awarded during March, 2003, the TEC had envisaged the start date as 1.1.2004 and the completion date as 31.12.2009 i.e. 72 months period was allowed by TEC for execution of the project. As per TEC, the completion cost of Civil & HM works was Rs. 3278.39 crore, excluding Rs. 15.00 crore towards insurance. Out of this, EPC contract was initially



awarded during July, 2003 at the cost of Rs. 3133.50 crore (3118.50 for Civil and HM works +15 crore for insurance) and the rest of the works amounting to Rs.159.89 crore (3278.39-3118.50) were within the scope of the petitioner. The completion cost of Rs.3118.50 crore was derived based on cost inputs at December, 2002 Price Level. Further, the following methodology was adopted by CEA to arrive at the completion cost of Rs.3118.50 crore as on 31.03.2009:

- a) The basic cost of Rs.2635.22 crore at December,2002 Price Level was escalated @ 3.5 % in order to arrive at the cost of Rs.2727.45 crore as on 01.01.2004 i.e start date
- b) Based on normative phasing of fund and CAGR of 5.25% per annum, escalation of 14.337%, had been applied on the basic cost of Rs.2727.45 crore as on 01.01.2004 to account for the price rise during execution period of six years. Accordingly, completion cost has been worked out as Rs. 3118.50 crore.

(vii) However, considering the fact that work started on 18.11.2005 i.e after delay of 22 months and 17 days, the following methodology has been adopted by the petitioner for revision of the EPC contract amount:

- a) The basic cost of Rs.2635.22 crore at December,2002 Price Level was escalated at actual price indices during the period from 01.01.2003 to 17.11.2005 (period of 34 months and 17 days). Accordingly, this resulted in total escalation of **17.037%** over the basic cost of Rs.2635.22 crore at December,2002 Price Level. As such, the cost of Civil & HM works worked out as Rs.3084.18 crore as on 18.11.2005 i.e. start date of the project.
- b) Based on normative phasing of fund and CAGR of 5.25% per annum as per TEC, escalation of 14.337%, was applied on the cost of Rs. 3084.18 crore as on 18.11.2005 to account for the price rise during execution period of six years. Accordingly, completion cost works out to Rs.3526.37crore with overall escalation of Rs.407.90 crore in comparison to TEC completion cost of Rs.3118.50 Crore.

(viii) It can be observed from the above, that the petitioner has considered the methodology adopted by CEA for revision of the EPC contract except that for the period from 1.1.2003 to 17.11.2005, the petitioner has adopted actual price indices in place of 3.5% as adopted by CEA for the period from 1.1.2003 to 31.12.2003. Similar methodology was adopted by the petitioner for revision of the EPC contract for E&M works after accounting for the price rise for delay in start of the works. As such, the price rise of 17.037% in Civil & HM works and 19.92% in E&M works



based on actual indices during a period of three years (34 months and 17 days) is considered to be logical and reasonable and has been allowed for the purpose of completion cost.

(ix) The cost overrun factors as indicated at the table under para 54 above to meet the change in scope of works during execution stage and additional works/provisions due to directives of the Govt. of H.P, Environmental clearance and CEA, have been discussed in detail and allowed by DIA in its recommendations as part of completion cost.

60. In our view, the additional expenditure on a) measures to counter high silt problems i.e change in design of flushing conduits and additional spares and runners, b) works/assets for meeting directives of CEA, the Govt. of H.P and the directives for compliance under the Environmental clearance norms, c) Re-location of pot head yard which eventually led to completion of project within time frame, d) increased Land compensation e) Bonus for early commissioning of the project by 65 days which eventually led to substantial reduction in IDC and establishment cost of the project, is justifiable. Accordingly, the completion cost of Rs.6900 crore of the project of 1000 MW capacity with 20% overload capacity, as recommended by DIA has been considered and allowed. This is, however subject to a) cost reduction corresponding to extra 10% overload capacity built by the petitioner over and above requirement of 10% as per IEGC and b) comparison of the completion cost of the generating station with recently commissioned projects.

61. Cost reduction corresponding to extra 10% overload capacity built by the petitioner over and above requirement of 10% as per IEGC:

- a) DIA in its supplementary report has recommended completed cost of *Rs. 6759.66 crore (Rs. 6900 - 140.34 )* for 1000 MW plant capacity with 10% overload capacity, after reduction of Rs.140.34 crore for creating additional 10% overload capacity. The respondents have not raised any specific issues with regard to the views of the DIA report. However, supplementary DIA report suggesting reduction of Rs.140.34 crore has been agreed to by the respondents.



- b) On scrutiny of the supplementary DIA report, it is observed that DIA has carried out a detailed appraisal of the capital cost of the project considering the capacity of the Project as 1000 MW (+10% continuous overload capacity) as derived from the EPC Contract of "As Built" Plant having an ultimate capacity of 1200 MW (deemed installed capacity of 1091 MW + 10% continuous overload) as the base line cost. DIA has recommended that there is no cost impact of change in the plant capacity on civil works comprising river diversion works, diversion dam, power intake, head race tunnel, d/s surge chamber, tail race & outfall works and pot head yard and hence there is no change in the cost of these works. There is cost implication for change in design and dimensions of Civil works comprising sedimentation chambers complex (Rs.37.26 crore), Surge shaft (Rs.1.21crore), Pressure shafts (Rs.8.92 crore), Power house and Transformer caverns (Rs.1.67 crore) due to change in capacity. The differential cost on account of change in size and the quantities thereof of the affected civil and hydro mechanical works has been worked out as Rs.49.06 crore.
- c) DIA has recommended cost reduction due to certain changes in dimension and weight in hydro turbine, hydro generator and spare runners besides some changes in technical requirement of cooling water system, isolated phase bus ducts and generator transformers due to change in the capacity. The cost reduction in generating equipment on account of change in plant capacity has been worked out as Rs.63.88 crore.
- d) The corresponding reduction in other items has been worked out as Rs.27.40 crore i.e adjustment of taxes and duties and foreign currency variation; insurance, Local Area Development Activities and IDC and FC. The total differential cost has been worked out as Rs.140.34 crore by DIA.
- e) DIA has suggested that there is, however, no effect of change in capacity on the cost of the main inlet valves, governing system, static excitation system, Isolated phase duct, SCADA, 400 kV GIS, 400 kV Pot head yard equipment, LT AC & DC Power Distribution System, mechanical and electrical auxiliary system.



f) It is observed that the cost has not been reduced in proportion as all civil/hydro mechanical/electro mechanical structures/components are not affected by the change in capacity. For project components which are affected, the cost implication has been evaluated considering the change in design, dimensions, weight and technical requirement etc. This approach is considered logical. Further, to assess the adequacy of reduction of Rs.140.34 crore, the project components for which DIA has recommended Zero cost differential has been examined. We agree that Civil works comprising River diversion works and Diversion dam being enabling works are not affected by the plant capacity. Further, there is no reduction in the cost of power intake, head race tunnel, d/s surge chamber, tail race & outfall works, Inlet valves which is on account of the fact that these have been constructed as per technical parameters envisaged in TEC of CEA and on account of inherent available margins were adequate for plant capacity of 1200 MW. For example, the HRT and TRT diameter as per TEC was 10.48 m which was retained by the petitioner even for 1200 MW capacity with increased velocity through HRT& TRT. As such, no cost reduction for power intake, head race tunnel, d/s surge chamber, tail race and outfall works as suggested by DIA, is acceptable. Regarding no cost reduction for Pot head yard equipment, it is understood that the cost depends on voltage class of the pot yard/transmission lines and number of feeder bays. Since both voltage class and number of bays has remained unchanged, the unit size 250/275 MW has no influence on the cost. As per DPR and TEC, the main inlet valve of diameter 3200 mm (1000 MW) was envisaged .In actual, the spherical valve of 3100 mm diameter (now used for 1091 MW) has been used. Thus DIA's recommendation that change in unit capacity had no cost impact is acceptable. We have in para 31 of this order decided that the capacity of the generating station shall be 1000 MW (4 x 250 MW).

g) We are also in agreement with the recommendations of DIA as regards no cost reduction in SCADA, Static Excitation System, Governing System, LT AC & DC Power Distribution System and Mechanical & Electrical Auxiliary System for the technical reasons (Digital equipments of standard designs and use of available margins) as mentioned in the



recommendation, which are not repeated here for the sake of brevity. Based on the above discussions, the cost reduction of Rs.140.34 crore towards differential overload capacity of 10% as recommended by DIA is acceptable.

62. It is noticed that for the downstream project of Naptha Jhakri of SJVNL which achieved COD on 18.5.2004, the completion cost is Rs.5.71 crore/ MW as per RCE-IV submitted to MOP, GOI. Accordingly, for this generating station, the completion cost of Rs.6.76 crore/MW considering the time gap of seven and half years appear reasonable. Based on this, we are inclined to accept the recommendations of the DIA for the completion cost of Rs. 6759.66 crore.

63. As regards the additional amount of Rs.12.84 crores claimed by the petitioner over and above the DIA recommended cost, the petitioner was directed to furnish the details of the expenditure which was not considered by the DIA. In response, the petitioner vide affidavit dated 24.12.2014 has submitted as under:

*"...the variation of Rs. 12.84 Crs between the capital cost vetted by DIA and the capital cost claimed before additional IDC (actual cash flow + liabilities/ provisions as explained in note 11 of the form 5B is majorly on account of the factors such as there are expenses like Preliminary expenses (Rs. 2.01 Crs) that have not been considered in the capital cost vetted by DIA because the same have actually not been capitalized in the books of account as the accounting principles does not allow for it. However, the same have been considered for the purpose of tariff as explained by the petitioner in Note 9 of the form 5B. Further, there are few expenses such as construction of Bithal building (Rs. 3.25 Crs) considered as additional capitalisation in forms and explained in note-4 of form 5B, which is not included in capital cost vetted by the DIA as the same was not completed. Also, there are few expenses that, although, were considered in the capital cost vetted by DIA but were subject to further reconciliation."*

64. It is noticed from the above that the petitioner has furnished details of an amount of Rs. 5.26 crore (Preliminary expenses of Rs. 2.01 crore and Rs. 3.25 crore towards construction of Bithal building) which was not considered by the DIA in its report. Since the petitioner has not furnished any explanation as regard the balance expenditure of Rs 7.58 crore (out of Rs 12.84 crore), the same has not been considered in the completion capital cost. However, as the petitioner has furnished details only as regards the expenditure of Rs 5.26 crore as stated above, we may consider the said amount for the purpose of completion cost in addition to the DIA recommended capital cost of Rs. 6759.66 crore, subject to vetting of the same by DIA.



65. Based on the above, the completed capital cost for tariff of the project is approved as Rs. 674369.11 lakh as summarized under:

Rs. in lakhs

SI No.	Description	Amount
1	Completed capital cost as prayed by the petitioner including additional IDC for 1000MW +20% overload capacity	696866.00
a)	Less: Disallowance on account of capacity of the project (1000MW) from 20% overload capacity to 10% overload capacity	14034.00
b)	Less: Disallowance on account of details not furnished by the petitioner	758.00
c)	Less: Disallowance on account of additional IDC for the period from 26.5.2011 to 12.9.2011 (Refer para no. 88)	4572.00
d)	Less: Disallowance on account of additional IDC for the period from 13.9.2011 to 31.3.2014 (Refer para no.92)	1010.00
e)	Less: Initial spares disallowed based on Tariff Regulations (Refer para no.109)	2122.89
2	Completed Cost allowed	674369.11*

\*The approved completion cost is subject to change based on vetting of completion cost by CEA.

### Capital cost for the purpose of tariff

66. The capital cost claimed by the petitioner as per Form- 9 E of the petition for the period 2009-14 is as under:

Rs. in lakh

	2011-12				2012-13	2013-14
	Unit - 1 (capital cost for tariff from 26.5.2011 to 22.6.2011)	Unit - 1 & 2 (capital cost for tariff from 23.6.2011 to 7.9.2011)	Unit - 1, 2 & 3 (capital cost for tariff from 8.9.2011 to 12.9.2011)	Station (Unit - 1, 2, 3 & 4) (capital cost for tariff from 13.9.2011 to 31.3.2012)		
Opening Gross Block Amount as per books including advances and other current assets	657838.22	672590.32	686546.02	686546.02	685766.86	684519.41
Opening Gross Block Amount as per books including advances and other current assets & additional IDC on account of capitalisation of common facilities	657838.22	674476.96	690959.22	691117.98	690930.33	689846.03
Amount of capital liabilities in A(a) above	44735.92	45719.85	50679.51	50679.51	24833.27	19766.33
Amount of IDC & FC in A(a) above	99338.38	100524.29	103497.07	103497.07	103497.07	103497.07
Amount of IEDC in A(a) above	19887.42	19910.74	37455.17	37455.17	37455.17	37455.17
Addition in Gross Block Amount during the period (Direct purchases)	14,752.10	13,955.70		(779.16)	(1247.45)	1857.81
Amount of capital liabilities in B(a) above	-	-	-	-	-	1,576.67





Amount of IDC & FC in B(a) above	1,185.91	2,972.78	-	-	-	-
Amount of IEDC in B(a) above	23.32	17,544.43	-	-	-	-
Closing Gross Block Amount as per books including advances and other current assets	6,72,590.32	6,86,546.02	6,86,546.02	6,85,766.86	6,84,519.41	6,86,377.22
Additional IDC on account of capitalisation of common facilities	1,886.65	2,526.56	158.76	591.50	163.15	255.52
Closing Gross Block Amount as per books including advances and other current assets & additional IDC on account of capitalisation of common facilities	6,74,476.96	6,90,959.22	6,91,117.98	6,90,930.33	6,89,846.03	6,91,959.36
Amount of capital liabilities in E(a) above	45,719.85	50,679.51	50,679.51	24,833.27	19,766.33	15,584.65
Amount of IDC & FC in E(a) above	1,00,524.29	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07
Amount of IEDC in E(a) above	19,910.74	37,455.17	37,455.17	37,455.17	37,455.17	37,455.17
Calculation of Capital Cost for the purposes of Tariff						
Amount after deduction of closing capital liabilities from the closing gross block	6,28,757.12	6,40,279.72	6,40,438.48	6,66,097.06	6,70,079.69	6,76,374.72
Cash outflow after deduction of closing capital liabilities from the closing gross block	15,654.82	11,522.60	158.76	25,658.59	3,982.63	6,295.02

67. The capital cost claimed by the petitioner as per Form- 9 E of the petition for the period 2014-19 is as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross Block Amount as per books including advances and other current assets	6,86,377.22	6,88,177.22	6,88,177.22	6,91,284.46	6,91,284.46
Opening Gross Block Amount as per books including advances and other current assets & additional IDC on account of capitalisation of common facilities	6,91,959.36	6,93,759.36	6,93,759.36	6,96,866.60	6,96,866.60
Amount of capital liabilities in A(a) above	15,584.65	6,917.58	2,584.84	-	-
Amount of IDC & FC in A(a) above	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07
Amount of IEDC in A(a) above	-	-	-	-	-
Addition in Gross Block Amount	37,455.17	37,455.17	37,455.17	37,455.17	37,455.17



during the period (Direct purchases)					
Amount of capital liabilities in B(a) above					
Amount of IDC & FC in B(a) above	1,800.00	-	3,107.24	-	-
Amount of IEDC in B(a) above	-	-	-	-	-
Closing Gross Block Amount as per books including advances and other current assets	6,88,177.22	6,88,177.22	6,91,284.46	6,91,284.46	6,91,284.46
Additional IDC on account of capitalisation of common facilities	-	-	-	-	-
Closing Gross Block Amount as per books including advances and other current assets & additional IDC on account of capitalisation of common facilities	6,93,759.36	6,93,759.36	6,96,866.60	6,96,866.60	6,96,866.60
Amount of capital liabilities in E(a) above	6,917.58	2,584.84	-	-	-
Amount of IDC & FC in E(a) above	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07	1,03,497.07
Amount of IEDC in E(a) above	37,455.17	37,455.17	37,455.17	37,455.17	37,455.17
Calculation of Capital Cost for the purposes of tariff					
Amount after deduction of capital liabilities from the closing gross block	6,86,841.78	6,91,174.52	6,96,866.60	6,96,866.60	6,96,866.60
Cash outflow after deduction of closing capital liabilities from the closing gross block	10,467.07	4,332.74	5,692.08	-	-

### Un-discharged liabilities

68. The petitioner has submitted vide affidavit dated 27.02.2015 the statements showing position of un-discharged liabilities (asset/ party wise), discharge and the reconciliation thereof with the balance sheet, duly certified by the auditor. On the basis of available details, following amounts of un-discharged liabilities have been considered to arrive at the capital cost on cash basis:

#### 2009-14

(Rs. in Lakh)						
26.5.2011	23.6.2011	8.9.2011	13.9.2011	31.3.2012	31.3.2013	31.3.2014
44735.92	45719.85	50679.51	50679.51	24833.27	19766.33	15584.65

#### 2014-19

Rs. in Lakh				
31.3.2015	31.3.2016	31.3.2017	31.3.2018	31.3.2019
6917.58	2584.84	0.00	0.00	0.00



## Current Assets and Advances included in capital cost

69. The capital cost claimed by the petitioner vide form 9E is inclusive of current assets and advances. In response to the directions given vide ROP dated 25.11.2014, the petitioner submitted vide affidavit dated 24.12.2014, the following values.

Rs. in lakh

Period		Other Currents Assets	Advances
26.05.2011 to 22.06.2011	Opening	161.30	8914.95
	Closing	68.45	8911.80
23.06.2011 to 07.09.2011	Opening	68.45	8911.80
	Closing	193.01	4322.48
08.09.2011 to 12.09.2011	Opening	193.01	4322.48
	Closing	193.01	4322.48
2011-12	Opening	193.01	4322.48
(13.09.2011 to 31.03.2012)	Closing	-	3568.13
2012-13	Opening	-	3568.13
	Closing	-	2135.70
2013-14	Opening	-	2135.70
	Closing	-	2104.13
2014-15	Opening	-	2104.13
	Closing	-	2104.13
2015-16	Opening	-	2104.13
	Closing	-	2104.13
2016-17	Opening	-	2104.13
	Closing	-	2104.13
2017-18	Opening	-	2104.13
	Closing	-	2104.13
2018-19	Opening	-	2104.13
	Closing	-	2104.13

70. The same have been considered for deduction from the capital cost claimed by the petitioner for arriving at the capital cost for tariff calculation. However, the petitioner is directed to submit the audited certificate in support of such submission with respect to current assets and advances.

### Treatment for revenue earned by the petitioner from sale of power through competitive bidding/short term power market:

71. The petitioner has been selling power through competitive bidding/short term power market from 26.05.2011 i.e COD of the first unit till 31.03.2014, instead of supplying it to Long



term customers through the first respondent, PTC. As such, the issue for consideration is to whether the revenue earned by the petitioner from sale of power through competitive bidding/short term power market should be deducted from the capital expenditure till 31.03.2014 for working out the Capital cost as on 01.04.2014. Accordingly, the Commission had directed the petitioner to submit the details of quantum of power sold after COD of Unit-1, income earned, expenditure/cost incurred and profit from the sale of power on short term basis from COD of Unit-1 i.e 26.05.2011 till date , along with the balance sheets of the respective years. In response, the petitioner vide affidavit dated 26.03.2014 has submitted as under-

(Rs. in lakh)

	26.05.2011- 31.03.2012	FY 12-13	FY 13-14 (up to Feb'14)
Energy Generated (MUs)	2543.13	4056.74	4534.16
Energy sold (MUs)	2248.12	3541.76	3925.04
Revenue from sale	87426.00	128502.00	120284.00
Other income	1127.00	1402.00	674.00
Total income	88553.00	129904.00	120958.00
Total expenditure	61347.00	96377.00	92554.00
Profit before Tax	27206.00	33527.00	28404.00

72. A comparison is made between the return on equity that would have been allowed for the relevant period and the profit before tax earned by the petitioner by selling power through short term market as follows:

(Rs. in lakh)

	2011-12	2012-13	2013-14
Profit before Tax	27206.00	33527.00	28404.00
Return on Equity	29058.01	38932.94	39701.72

73. The petitioner has submitted that the actual revenue from sale of energy in short term market is lower than the amount it would have received as per tariff claimed in the respective years. The comparison of the Annual fixed charges claimed by the petitioner and the revenue earned by the petitioner from sale of power in short term market is as below:



## Annual Fixed Charges claimed vs. Sale of power in short term market

(Rs. in Cr)

	26.5.2011 to 31.3.2012	2012-13	2013-14 (till February 2014)
Fixed charges calculated for the period	1038.48	1368.54	1234.29 (for 11 months on prorata basis)
Revenue from sale of power in short term market	874.26	1285.02	1202.84

74. It is observed that the profit before tax earned by the petitioner during the said period is less than the allowable return on equity. Further, revenue earned by the petitioner from sale of power in short term market in the same period is less than the Annual Fixed Charges claimed by the petitioner for the corresponding period. Accordingly, any further deduction in the capital cost on account of the revenue earned through competitive bidding/ short term power market has not been considered.

75. Accordingly, for working out the tariff for the period 2014-19, we have considered the figures of cumulative depreciation, cumulative repayment, etc. as on 31.3.2014 based on Tariff Regulations 2009.

### **Capital Work In Progress as on COD of each unit**

76. The petitioner in Form 9E of the petition has claimed the capital cost for the entire period (COD of unit-1 till 2018-19) based on the gross block values as on the respective dates. It is noticed that the gross block values as claimed in Form 9E are inclusive of Capital Work in Progress (CWIP) (as evident from the reconciliation of capital cost on station COD as per Form 9E with the balance sheet of the generating station submitted by the petitioner vide affidavit dated 24.12.2014). However, the capital cost to be considered for tariff as on COD of the each unit needs to be determined considering the capitalized value pertaining to the respective units only, excluding the CWIP. It is observed that the petitioner, vide Form 9F, has furnished the CWIP position only for the period from the COD of the generating station (13.09.2011) onwards and not for the period prior to 13.9.2011. Moreover, the petitioner has not submitted the balance sheets of the generating station as on COD of unit-I, II and III in order to ascertain the CWIP



position as on COD of each unit. Accordingly, the values of CWIP as on COD of unit-I, II and III are not available and the same has been derived as per the following methodology:

- i. The gross block values (inclusive of CWIP) as per Form 9E also includes current assets/ advances, preliminary expenses of Rs. 201.00 lakh not capitalized in the books of account (Note 9 of Form 5B), additional IDC claimed on capitalization of common facilities and Additional Capital Expenditure. This has been deducted from the gross block as per Form 9E.
- ii. The value of gross block as shown in Form 11 (for calculation of rate of depreciation) has been compared with the respective values as arrived at (i) above.
- iii. The difference of the above has been considered as CWIP value as on the respective dates. Necessary calculations are as under:

		Rs. in lakh			
S.No.		Gross Block as on	Gross Block as on	Gross Block as on	Gross Block as on
		26-05-2011	23-06-2011	08-09-2011	13-09-2011
a	Gross block as per Form-11	4,62,537.37	5,13,276.69	5,23,544.32*	6,81,665.85
b	Gross block claimed as per 9E	657838.22	674476.96	690959.22	691117.98
less:	IDC claimed toward capitalisation of Common facilities	0.00	1886.55	4413.11	4571.87
	Current assets and advances	9076.25	8980.25	4515.49	4515.49
	Preliminary expenses claimed in 9E, not in B.S.	201.00	201.00	201.00	201.00
c	Gross block as per 9E after above deductions	648560.97	663409.16	681829.62	681829.62
d	CWIP (balancing figure) c-a	1,86,023.60	1,50,132.47	1,58,285.30	163.77
e	Ratio of Gross Block on respective unit COD to total Gross Block as on COD of the station	95.12%	97.30%	100.00%	100.00%

*\*The petitioner has not furnished the gross block as on COD of unit-3 vide form-11 and has considered the rate of depreciation as on COD of unit-3 same as that on station COD; the difference between the two being only of 5 days. In absence of the information regarding gross block as on COD, the same has been considered as the weighted average of the gross blocks of preceding and succeeding CODs, which comes to Rs. 5,23,544.32 lakh.*

77. The CWIP as calculated above has been considered to arrive at the capital cost for the purpose of tariff. However, the petitioner is directed to furnish audited balance sheet as on COD of each unit at the time of truing up of the tariff for the period 2014-19 in order to ascertain the actual CWIP position.



## Interest during Construction

78. IDC & FC claimed by the petitioner as per Form 9E (inclusive of the amount of IDC & FC pertaining to CWIP as on the respective date) is as under:

Rs. in lakh			
COD of Unit 1	COD of Unit 2	COD of Unit 3	COD of Unit 4
26-05-2011	23-06-2011	08-09-2011	13-09-2011
99,338.38	1,00,524.29	1,03,497.07	1,03,497.07

79. The break-up details of the IDC & FC as on COD of Unit- IV as per affidavit dated 24.10.2014 furnished by the petitioner is as below:

Rs. in lakh	
IDC	98419.39
FC	5077.68
Total IDC & FC	103497.07

80. The petitioner has not furnished the amount of financial charges included in the IDC claimed on COD of the first 3 units and but has considered the same as on COD of the 4<sup>th</sup> Unit. Accordingly, the IDC claimed is as under:

Rs. in lakh			
COD-1	COD-2	COD-3	COD-4
26-05-2011	23-06-2011	08-09-2011	13-09-2011
94260.70	95446.61	98419.39	98419.39

81. The petitioner vide affidavit dated 27.10.2014 has submitted loan agreements and the bank wise details of the amount drawn, rate of interest applied etc. Based on this, the total interest from the 1st loan drawl till COD of each unit/ generating station has been calculated as Rs. 108399.12 lakh. However, the petitioner has not furnished the basis/ methodology of allocation of IDC to each of the units. In absence of this information, the IDC for tariff purpose has been allowed based on the amount of IDC as on 13.9.2011 claimed by the petitioner in Form 5B is Rs. 92829.00 lakh. Accordingly, IDC has been restricted to Rs. 92829.00 lakh as on 13-09.2011 for the purpose of tariff.

82. The capital cost allowed along with the IDC as above is subject to revision at the time of truing up exercise based on the balance sheet as on COD of each unit and basis of IDC



allocation, to be furnished by the petitioner. The petitioner is also directed to furnish the reconciliation of the debt position as per Form-14 with the books of accounts for each year at the time of truing -up in terms of the Regulation 8 of the 2014 Tariff Regulations.

### **Financing Charges & Syndication fees**

83. In compliance with the direction of the Commission to furnish reconciliation of the IDC & FC amounts claimed in Form 14 (Rs. 105517.39 lakh) and form 9E (Rs. 103497.07 lakh), the petitioner vide affidavit dated 24.12.2014 has submitted that the total amount of FC as per Form 14 includes syndication fees of Rs. 2020.32 lakh which has been included in IEDC in Form 9E. Accordingly, the break of IDC & FC claimed is as under:

		Rs. in lakh		Total IDC & FC
		Break up		
		IDC	Financing Charges	
1	As per Form 14	98419.39	7098.00	105517.39
2	As per Form 9E	98419.39	5077.68	103497.07
3	Difference (1-2)		2020.32	2020.32

84. The petitioner has submitted that the difference in the amounts furnished in the two forms is on account of syndication fees of Rs. 2020.32 lakh, which has been included as IEDC in Form 9E and as Financing charges in Form 14. However, the petitioner has not furnished any supporting document, break up details in justification of the financial charges and syndication fees claimed (considered as IEDC in Form 9E). Similar issue was considered in Petition no. 77/GT/2013 (determination of tariff of GMR- Kamalanga project for 2009-14), and the Commission by order dated 12.11.2015 had decided as under:

*“69. The petitioner has not furnished detailed calculations and breakup of the financial charges claimed, along with the supporting documents to substantiate the unit-wise allocation of the financing charges. In the absence of the same, financing charges have not been allowed as of now, as a conservative measure. However, the petitioner is granted liberty to submit the details of expenditure incurred towards the financing charges along with detailed breakup/ calculations, duly certified by Auditor, along with all supporting bank documents, including the basis of unit-wise allocation of the financing charges, at the time of revision of tariff based on truing-up exercise in terms of Regulation 6(1) of the 2009 Tariff Regulations.”*

85. In line with the above decision, the claim of the petitioner with respect to Financing charges and Syndication fees has not been allowed. However, the petitioner is granted liberty to





submit the details of expenditure incurred towards the financing charges/ syndication fees, detailed breakup/ calculations, duly certified by Auditor, along with all supporting bank documents, including the basis of unit-wise allocation of the financing charges, at the time of truing up of the tariff in terms of the Regulation 8 of the 2014 Tariff Regulations.

### **Additional IDC claimed**

86. The petitioner has claimed an additional IDC of Rs. 5582.04 lakh for the period from 26.05.2011 to 31.03.2014 and has submitted as under:

*“the additional IDC of Rs. 55.82 crores for the period from 26.05.2011 (COD of Unit-1) to 31.03.2014 has been claimed on account of the difference in methodology adopted for capitalizing common facilities in books of accounts vis-à-vis for the purposes of tariff from 26.05.2011 to 12.09.2011 (Rs. 45.72 crore) and the IDC from COD of Karcham Wangtoo HEP i.e. 13.09.2011 to 31.03.2014 (Rs. 10.10 crore) on the basis of expenditure incurred during that period.”*

87. The claim of petitioner has been examined as under:

#### **A. Additional IDC toward common facilities**

88. As regards the additional IDC of Rs. 45.72 crore for the period from COD of Unit-1 (26.5.2011) to COD of the Unit-IV / generating station (12.9.2011), we are of the view that apportioning of capital expenditure equally between the units, benefits the beneficiaries by way of reduced tariff during the period starting from the COD of first unit to COD of the last unit and the additional IDC which accrues to the generator on this account trades off the reduced tariff it has received till COD of the last unit. However, in the present case the beneficiaries have not availed the benefit of reduced tariff during the period starting from the COD of first unit to COD of the last unit as the generator was selling the power on short term basis.

89. Further, Regulation 4(2) of the 2009 Tariff Regulations provides as under:

*“4(2). For the purpose of determination of tariff, the capital cost of a project may be broken up into stages, blocks, units, transmission lines and sub-stations, forming part of the project, if required:*

*Provided that where break-up of the capital cost of the project for different stages or units or blocks and for transmission lines or sub-stations is not available and in case of on-going projects, the common facilities shall be apportioned on the basis of the installed capacity of the units, line length and number of bays”.*

90. The petitioner has submitted that it has capitalized common facilities in the Books of Account at the time of capitalization of Unit-1 as per the Accounting Practice and accordingly



capitalized the IDC in the Books of Account. In terms of the above regulation, all common facilities shall be apportioned on the basis of the installed capacity of the units, only where the break-up of the capital cost for different units is not available. However, in the present case, the unit-wise cost break up is available and hence, capacity wise allocation has not been undertaken.

91. In this background, we disallow the additional IDC of Rs. 45.72 crore claimed by the petitioner for the period from COD of Unit-1 (26.05.2011) to COD of the Unit-4 / generating station (12.9.2011).

**B. IDC on Additional Capital Expenditure**

92. The petitioner has claimed Rs. 10.10 crore towards IDC on additional capitalization from COD of unit -IV (13.9.2011) to 31.3.2014. However, the petitioner has not furnished any justification towards the claim for additional IDC on additional capital expenditure. It is also observed that the additional capital expenditure claimed by the petitioner during the period from 13.09.2011 to 31.03.2014 is mainly on account of discharge of the outstanding liabilities. In this regard, it is noticed from Form 9E of the petition that there has been no addition in gross block from CWIP during the said period, and addition in gross block by way of direct purchases is as stated under:

	Rs. in lakh		
	13-09-2011 to 31-03-2012	01-04-2012 to 31-03-2013	01-04-2013 to 31-03-2014
Addition in Gross Block Amount during the period (transfer from CWIP)	-	-	-
Addition in Gross Block Amount during the period (Direct purchases)	(-79.16)	(-1,247.45)	(-857.81)
Amount of capital liabilities in above	-	-	1,576.67

93. Accordingly, the addition in gross block by way of direct purchases is only in 2013-14 which is (on cash basis) Rs. 281.14 lakh only. It is evident from the above discussion that there has been no further fund infusion/ utilization/ transfer from CWIP after COD, whereas, IDC has been duly allowed on the entire debt infusion by the petitioner till COD. Accordingly, the claim of the petitioner is not justifiable and hence not allowed.



## Additional capital expenditure

94. The additional capital expenditure claimed by the petitioner for the period from COD till 31.3.2014 in Form- 9A of the petition is as under:

Rs. in lakh

2011-12	2012-13	2013-14	Total
25,658.59	3,982.63	6,295.02	35,936.24

95. In this regard, the petitioner has submitted as under:

*"The above shown sum total of "Amount of Additional Capitalization / Cash Outflow)" is towards the outstanding liabilities as on COD of Station (i.e. COD of Unit 4) which are also included in the actual capital expenditure shown in Form 5B and the other liabilities / items as shown in note 4 to 8 of Form 5B."*

96. The petitioner vide the notes 4,5,7 and 8 under Form- 5B of the petition has submitted as under:

### **Note-4:**

*Apart from the liabilities/ provisions included in the actual capital expenditure as on 13.09.2011 (COD) as per form 5B, the company also has an additional liability of Rs. 3.25 Crore in respect of additional capitalisation which is separately shown in Form 9F. Therefore, total capital expenditure will be capital expenditure incurred as on COD of the station as shown in column no. 5 plus Rs. 3.25 Crore plus liabilities to be paid as per note 4 to 8.*

### **Note-5**

*An amount of Rs. 30.64 Crore has been paid towards Service Tax and included in Sl No. 2.5 & 4.2. Subsequently, an amount Rs. 0.21 Crore has been capitalized towards Service Tax in FY13-14 and therefore, considered as Additional capitalization in Form 9A. The balance amount of Rs. 40.98 Crore towards Service Tax may require to be paid. The same shall be included in actual expenditure as and when paid. (i.e. Rs. 41.19 Crore not included in above shown cost of Rs. 6816.40 Crore)*

### **Note-7**

*An amount of Rs. 16.13 Crore has been paid towards Entry Tax upto COD but not included in actual cash expenditure upto COD. Subsequently an amount of Rs. 1.74 Crore has also been paid which has also not been included in actual cash expenditure upto COD. The paid amount is considered as Cash Out Flow in Form 9A. Further, an amount of Rs. 7.15 Crore has been capitalized towards Entry Tax in FY13-14 and therefore, considered as Additional capitalization in Form 9A. Balance amount Rs. 7.78 Crore may require to be paid. The same shall be included in actual expenditure as and when paid. (i.e. Rs. 32.80 Crore not included in above shown cost of Rs. 6816.40 Crore)*

### **Note-8**

*An amount of Rs. 10.45 Crore has been booked towards Tax & Liabilities in FY13-14 and therefore, considered as Additional capitalization in Form 9A. Balance amount of 0.31 Crore may require to be paid. The same shall be included in actual expenditure as and when paid. (i.e. Rs. 10.76 Crore not included in above shown cost of Rs. 6816.40 Crore)*



97. The petitioner vide the above notes in Form-5B has claimed liabilities items amounting to Rs.8799.98 lakh. Out of these, the petitioner was directed vide ROP dated 19.05.2015 to furnish details regarding the amount of Rs. 4907.25 lakh as in form 9E claimed as additional capital expenditure during the period 2014-19 as under:

*“The details of the works/assets against which additional capital expenditure of ` 1800 lakh and ` 3107.25 lakh (actual/projected basis) has been claimed towards service tax, entry tax and other taxes and duties during 2014-15 and 2016-17 respectively along with justification. Also, the reasons for withholding of payment and release of such payment shall be furnished.”*

98. In compliance with the above directions, the petitioner vide affidavit dated 25.06.2015, has clarified as under:

*“...That said taxes are related to the construction of Karcham Wangtoo HEP. The finalization of final liability on account of the aforesaid taxes is yet to be concluded by the respective appropriate authority(s). The petitioner has considered the demand raised by the respective authority(s) as well as the estimate of the other liabilities which may come in due course. The details of taxes and duties have been given in para 3.2.2.12 of the report of DIA submitted along with the final tariff petition filed on 27.02.2014. The timing of the payment of the said liability is based on the petitioner's own estimate. The release of payment towards such liability shall be furnished at the time of truing up of the tariff or earlier as per the provision of Hon'ble Commission's tariff regulation for the period 2014-19.”*

99. Taking into consideration the submission of the petitioner as above, the claim of the petitioner for additional capital expenditure has been examined in the subsequent paragraphs.

100. As regards the submission of the petitioner in Note-4, it is observed that the petitioner has not furnished any explanation or details regarding the amount stated to be an additional liability which was not included in the original undischarged liability up to COD. As regards the variation of Rs 12.84 crore between the completed cost claimed by the petitioner and the DIA recommended cost as submitted vide affidavit dated 24.12.2014, it is observed that the amount of Rs 3.25 crore indicated in note-4 of Form-5B is towards additional capital expenditure in respect to Bithal building. The amount claimed as above, which is indicated in Form- 9F as transfer from CWIP to gross block from 13.11.2011 to 31.3.2012 has been considered and allowed as additional capital expenditure for the purpose of tariff.



101. As regards the submission of the petitioner in Note-5, an amount of Rs 30.64 crore has already been included in the capital cost as on COD. In respect to the amount of Rs 21.00 lakh claimed as capitalization during the year 2013-14 as service tax, the petitioner has not clarified as to whether this amount pertains to undischarged liability included in the gross block value or is an amount accrued in the year 2013-14 and if so, on what account it has been accrued or paid. Similarly, as regards the claim for additional capital expenditure of Rs 4097.98 lakh during the period from 2014-17, the petitioner has submitted that the same is required to be paid. In the absence of proper justification, the claim of the petitioner is not allowed. Accordingly, the amount of Rs 21.00 lakh has been deducted from the gross block as on 31.3.2014 and Rs 4097.24 lakh from the gross block during the period from 2014-17 from the respective years as indicated in Form- 9A.

102. As regards the submission of the petitioner in Note-7, it is noticed that the petitioner has submitted that the entry tax amounting to Rs 17.87 crore (16.13 + 1.74) has been paid upto COD but has not been included in the capital expenditure. However, the reasons for not including the said amount in capital expenditure upto COD though paid, and claimed as additional capital expenditure has not been clarified by the petitioner. The petitioner has also submitted in Form-9A that the said amount has been considered as cash flow but it is not clear as to year in which the same has been considered. As regards the amount of Rs 7.15 crore and Rs 7.78 crore capitalized in 2013-14 and is required to be paid, no clarification has been submitted by the petitioner. Accordingly, the entire amount of entry tax amounting to Rs 32.80 crore has not been allowed on account of absence of information like the exact year of accrual/ payment, the reasons for not including the same in capital expenditure upto COD (stated to have been paid upto COD), the activities related to which the entry tax has been accrued after the period of COD. Accordingly, these amounts have been deducted from the closing gross block (Form-9E) of the respective years (post COD) to arrive at the capital cost for the purpose of tariff. As the year of claiming capitalization of Rs 17.87 crore is not evident from Form- 9 A, the same has been deducted from the gross block as on 31.3.2012.



103. As regards the submission of the petitioner in Note-8, no explanation has been submitted by the petitioner in respect of the entire amount of Rs 10.76 crore (10.45+ 0.31) claimed as additional capital expenditure towards tax and liabilities. Moreover, the petitioner has also not clarified on what account and for which period this amount has accrued and/or provided for. Accordingly, the claim of the petitioner towards tax and liability has not been allowed. Based on this, the amount of Rs 10.45 crore from the gross block as on 31.3.2014 and Rs 0.31 crore from the gross block as on 31.3. 2017 has been deducted.

104. As stated, the claim of the petitioner has not been allowed for want of proper justification and details. However, the petitioner is granted liberty to claim the said amount at the time of truing- up of tariff subject to submission of proper clarification/ details as regards the said claims.

### **Preliminary Expenses**

105. The petitioner in Note-9 in Form 5B of the petition has submitted as under:

*"The Company has incurred an amount of Rs. 2.01 Crore towards Preliminary Expenses which are not included in the capitalisation as per Accounting Practices. However, the same has been considered in Cash Out Flow in Form 9E."*

106. Though the petitioner has submitted that the claims have not been capitalized in the books of account, as per accounting practices, it is observed that the petitioner has not furnished any details and explanation as regards the said claims such as break- up of the expenses, reasons/ accounting practices on account of which such expenses have not been considered for capitalization. Accordingly, in the absence of detailed justification, the petitioner's claim for Rs 2.01 crore has not been allowed. The petitioner is however, granted liberty to approach the Commission at the time of truing up for 2014-19 subject to submission of details along with proper justification of the said claims.

### **Initial spares**

107. The cutoff date of the generating station is 31.3.2014. As regards the cost of initial spares to be included in capital cost, the petitioner has claimed initial spares amounting to Rs 116.64 crore based on the actual expenditure till COD, in addition to the cost of additional runners with



associated spares for Rs 89.95 crore. Thus the petitioner has claimed total cost of spares Rs 206.59 crore.

108. The respondent no. 7 has submitted that while the petitioner has claimed the actual spares, the DIA has recommended cost of spares for Rs 158.55 crore in accordance with Regulation 8 of the 2009 Tariff Regulations. This cannot be allowed in view of the specific provision of the Regulation 47 of the 2014 Tariff Regulations. It has further submitted that in terms of the schedule-E of the PPA entered into by the petitioner and PTC, it was agreed to limit the initial spares to 1.5% of the original capital cost as on the cut- off date. The respondent has stated that though the 2014 Tariff Regulations provide for 4%, only 1.5% of the initial spares may be allowed by the Commission in terms of the contractual agreement entered into by the parties.

109. While the admissibility of Rs 89.95 crore towards additional runner and associated spares has been decided, we discuss the ceiling limit of the spares allowable in terms of the 2009 Tariff Regulations. Sub-clause (iii) of Regulation 8 of the 2009 Tariff Regulations provides that initial spares shall be capitalized as percentage of the original project cost subject to ceiling norm of 1.5% for hydro- generating stations including pump storage hydro electric generating station. Accordingly, considering the capital cost of Rs 638197.15 lakh (prior to adjustment of capital spares) as on the cut-off date of the generating station, the cost of spares (without the cost of 3 additional runner as spares) works out to Rs 9541.11 lakh. Accordingly, the cost of initial spares allowable in terms of the Regulation 8(iii) of the 2009 Tariff Regulations is summarized as under:

Rs. in Lakh		
1	capital cost on 31.3.2014 before adjustment of initial spares	638197.15
2	Cost of initial spares included in above by petitioner	11664.00
3	Cost of initial spares allowed as per Regulation 8 of the 2009 Tariff Regulations	$1.5 \times (638197.15 - 11664) / 98.5 = 9541.11$
4	<b>Deduction on claimed initial spares</b>	$11664 - 9541.11 = \mathbf{2122.89}$



## Capital cost allowed for the purpose of tariff

110. In line with the above discussion the capital cost for the period 2009-14 and 2014-19 is summarized as under:

### Capital cost allowed for the period 2009-14

Rs. Lakh

Year/ Period	2011-12						2012-13	2013-14
	till 26.05.2011	For Unit - 1 (Capital Cost for Tariff from 26.05.2011 to 22.06.2011)	For Unit - 1 & 2 (Capital Cost for Tariff from 23.06.2011 to 07.09.2011)	For Unit - 1, 2 & 3 (Capital Cost for Tariff from 08.09.2011 to 12.09.2011)	For Station (Unit - 1, 2, 3 & 4) (Capital Cost for Tariff from 13.09.2011 to 31.03.2012)			
Opening capital cost allowed		3,82,211.52	4,37,325.05	4,41,433.25	6,02,141.06	6,26,532.28	6,31,784.20	
Closing Gross Block claimed as per form-9E	657838.22	674476.96	690959.22	691117.98	690930.33	689846.03	691959.36	
Less: CWIP	1,86,023.60	1,50,132.47	1,58,285.30	163.77	-	-	-	
less IDC claimed on account of capitalisation of Com facilities	0.00	1886.55	4413.11	4571.87	4571.87	4571.87	4571.87	
IDC claimed on account of ACE	0.00	0.00	0.00	0.00	591.50	754.65	1010.17	
Current assets and advances	9076.25	8980.25	4515.49	4515.49	3568.13	2135.70	2104.13	
Undischarged liabilities	44735.92	45719.85	50679.51	50679.51	24833.27	19766.33	15584.65	
IDC & FC claimed	99338.38	100524.29	103497.07	103497.07	103497.07	103497.07	103497.07	
Syndication fees included in IEDC	2020.32	2020.32	2020.32	2020.32	2020.32	2020.32	2020.32	
Cost reduction due to additional overload capacity	-	-	-	14034.00	14034.00	14034.00	14034.00	
Less: Deduction with respect to Notes to form 5B								
Note-5 to form 5B	-	-	-	-	-	-	21.00	
Note-5, 7, 8 to form-5B	-	-	-	-	-	-	-	
Note-7 to form 5B	-	-	-	-	1787.00	1787.00	2502.00	
Note-8 to form 5B	-	-	-	-	-	-	1045.00	
Preliminary expenses (Note-9)	201.00	201.00	201.00	201.00	201.00	201.00	201.00	





Add:	IDC Allowed	65768.77	72312.82	74085.82	92829.00	92829.00	92829.00	92829.00
	Capital cost before adjustment of initial spares	3,82,211.52	4,37,325.05	4,41,433.25	6,04,263.95	6,28,655.17	6,33,907.09	6,38,197.15
Less:	*Adjustment for initial spares	-	-	-	2122.89	2122.89	2122.89	2122.89
	Closing capital cost allowed	3,82,211.52	4,37,325.05	4,41,433.25	6,02,141.06	6,26,532.28	6,31,784.20	6,36,074.26

Capital cost allowed for the period 2014-19

		Rs. in Lakh				
		2014-15	2015-16	2016-17	2017-18	2018-19
	Opening capital cost allowed	6,36,074.26	6,44,741.33	6,49,074.07	6,51,658.91	6,51,658.91
	Closing Gross Block claimed as per form-9E	693759.36	693759.36	696866.60	696866.60	696866.60
less:	CWIP	-	-	-	-	-
less	IDC claimed on account of capitalisation of Com facilities	4571.87	4571.87	4571.87	4571.87	4571.87
	IDC claimed on account of ACE	1010.17	1010.17	1010.17	1010.17	1010.17
	Current assets and advances	2104.13	2104.13	2104.13	2104.13	2104.13
	Undischarged liabilities	6917.58	2584.84	-	-	-
	IDC & FC claimed	103497.07	103497.07	103497.07	103497.07	103497.07
	Syndication fees included in IEDC	2020.32	2020.32	2020.32	2020.32	2020.32
	Cost reduction due to additional overload capacity	14034.00	14034.00	14034.00	14034.00	14034.00
Less:	Deduction with respect to Notes to form 5B					
	Note-5 to form 5B	21.00	21.00	21.00	21.00	21.00
	Note-5,7,8 to from-5B	1800.00	1800.00	4907.24	4907.24	4907.24
	Note-7 to form 5B	2502.00	2502.00	2502.00	2502.00	2502.00
	Note-8 to form 5B	1045.00	1045.00	1045.00	1045.00	1045.00
	Preliminary expenses (Note-9)	201.00	201.00	201.00	201.00	201.00
Add:	IDC Allowed	92829.00	92829.00	92829.00	92829.00	92829.00
	Capital cost before adjustment of initial spares	6,46,864.22	6,51,196.96	6,53,781.80	6,53,781.80	6,53,781.80



less:	*Adjustment for initial spares	2122.89	2122.89	2122.89	2122.89	2122.89
	Closing capital cost allowed	6,44,741.33	6,49,074.07	6,51,658.91	6,51,658.91	6,51,658.91

## Debt- Equity Ratio

111. Regulation 12 of the 2009 Tariff Regulations provides as under:

*12 (1) For a project declared under commercial operation on or after 1.4.2009, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:*

*Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff:*

*Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.*

*Explanation.- The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.*

*(2) In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2009, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 shall be considered.*

*(3) Any expenditure incurred or projected to be incurred on or after 1.4.2009 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.*

112. The petitioner has claimed debt equity ratio of 70:30 for the purpose of determination of tariff. The debt raised and the equity infused by the petitioner as per Form- 14 and the actual expenditure claimed as per Form-14 A as on COD is as under:

		<i>(in lakh)</i>
a	Debt	443369.19
b	Equity	201000.00
c	Total Funds raised (a+b)	644369.19
d	Actual cash expenditure as per from 14A	635866.51

113. Based on the above regulation, the debt equity ratio has been calculated as under:

		<i>(in lakh)</i>
	Actual cash expenditure (A)	635866.51
	Debt raised till 13.9.2011 as per from 14/ balance sheet (B)	443369.19
	Equity (A-B)	198577.45
	Debt %	69.73%
	Equity %	30.27%



114. Since the equity deployed is more than 30%, the debt-equity ratio of 70:30 is considered for the purpose of tariff in terms of the above regulations.

### **Return on Equity**

115. Regulation 24 of the 2014 Tariff Regulations provides as under:

**“24. Return on Equity:** (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii) additional RoE of 0.50% has been allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

116. Regulation 25 of the 2014 Tariff Regulations provides as under:

#### **Tax on Return on Equity:**

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the



corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess.

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis.

117. The petitioner has claimed return on equity for the period 2014-19 considering the base rate of 16.5% which has been grossed up with MAT rate of 20.961% for the year 2013-14, since the company has paid MAT during the year 2013-14. This has been allowed for the purpose of tariff subject to truing-up. Accordingly, Return on Equity has been computed as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Equity	190822.28	193422.40	194722.22	195497.67	195497.67
Addition of equity due to additional capital expenditure	2600.12	1299.82	775.45	0.00	0.00
Closing Equity	193422.40	194722.22	195497.67	195497.67	195497.67
Average Equity	192122.34	194072.31	195109.95	195497.67	195497.67
Return on Equity (Base Rate )	16.500%	16.500%	16.500%	16.500%	16.500%
Tax rate for respective years	20.961%	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity	20.876%	20.876%	20.876%	20.876%	20.876%
Return on Equity	40,107.46	40,514.54	40,731.15	40,812.09	40,812.09

(in lakh)

## Interest on Loan

118. Regulation 26 of the 2014 Tariff Regulations provides as under:

**“26. Interest on loan capital:** (1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of Decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization of such asset.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.



(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:

Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”

119. In terms of the above regulations, the normative loan outstanding as on 1.4.2014 needs to be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014. Accordingly, the cumulative repayment from COD of Unit-I (26.5.2011) till 31.3.2014 is calculated as under:

	Unit - 1	Unit - 1 & 2	Unit- 1, 2 & 3	For station	2012-13	2013-14
	26-05-2011	23-06-2011	08-09-2011	13-09-2011	01-04-2012	01-04-2013
	22-06-2011	07-09-2011	12-09-2011	31-03-2012	31-03-2013	31-03-2014
Gross Block						
Opening Gross block	3,82,211.52	4,37,325.05	4,41,433.25	6,02,141.06	6,26,532.28	6,31,784.20
Additional capital expenditure during 2014-19	55,113.53	4,108.20	1,60,707.82	24,391.22	5,251.92	4,290.06
Closing gross block	4,37,325.05	4,41,433.25	6,02,141.06	6,26,532.28	6,31,784.20	6,36,074.26
Average gross block	4,09,768.28	4,39,379.15	5,21,787.15	6,14,336.67	6,29,158.24	6,33,929.23
Freehold land	2488.44	2488.44	2488.44	2488.44	2488.44	2488.44
G.B. excluding Freehold land	407279.84	436890.71	519298.71	611848.23	626669.80	631440.79
<b>Depreciation</b>						
Rate of Depreciation	5.1310%	5.1457%	5.1800%	5.1791%	5.1791%	5.1791%
Depreciable Value	286725.01	307571.06	365586.30	430741.16	441175.54	444534.32



(70.40%)						
Remaining Depreciable Value	285112.11	301188.53	358833.52	406467.19	384316.87	354843.84
Depreciation for the period	1612.89	4769.63	370.25	17521.19	32584.71	32831.80
Repayment for the year (considered equal to depreciation)	1612.89	4769.63	370.25	17521.19	32584.71	32831.80
Cumm. repayment	1612.89	6382.52	6752.78	24273.97	56858.67	89690.47

120. Accordingly, the cumulative repayment as on 1.4.2014 is 89690.47 lakh (closing value as on 31.3.2014). Based on this, the interest on normative loan for the period 2014-19 is computed as under:

	(in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	445251.98	451318.93	454351.85	456161.24	456161.24
Cumulative Repayment upto Previous Year	89690.47	122857.95	156362.07	190045.32	223795.51
Net Loan-Opening	355561.51	328460.98	297989.78	266115.92	232365.73
Repayment during the year	33167.48	33504.12	33683.25	33750.19	33750.19
Addition due to Additional Capitalisation	6066.95	3032.92	1809.39	0.00	0.00
Net Loan-Closing	328460.98	297989.78	266115.92	232365.73	198615.54
Average Loan	342011.25	313225.38	282052.85	249240.82	215490.64
Weighted Average Rate of Interest on Loan	12.7845%	12.7805%	12.7757%	12.7704%	12.7643%
<b>Interest</b>	<b>43724.45</b>	<b>40031.92</b>	<b>36034.26</b>	<b>31829.12</b>	<b>27505.93</b>

## Depreciation

121. Regulation 27 of the 2014 Tariff Regulations provides as under:

**“27. Depreciation:**(1) *Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.*



*Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.*

*(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*

*(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:*

*Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:*

*Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:*

*Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.*

*(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.*

*(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-II to these regulations for the assets of the generating station and transmission system: Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.*

*(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2014 from the gross depreciable value of the assets.*

*(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.*

*(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.”*

122. In terms of above regulation, land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing the depreciable value of the asset. The petitioner



has however not furnished the details regarding land under reservoir. In absence of the same, the value of free hold land amounting to `2488.44 lakh has been excluded for the purpose of calculating depreciable value. The petitioner is granted liberty to furnish the details regarding land under reservoir at the time of truing up of tariff in terms of the Regulation 8 of the 2014 Tariff Regulations.

123. The first proviso to Regulation 27(3) of the 2014 Tariff Regulation provides that:

*“the salvage value shall be as provided in the agreement signed by the developers with the state Govt. for development of the plant.”*

124. It is noticed that the Implementation agreement dated 18.11.1999 between the Govt. of H.P and the petitioner provides that *“..the salvage value shall be as reflected in the annual accounts of the company as per Companies Act.”* In this regard, Part- C of Schedule II of the Companies Act 2013, states as under:

*“....the residual value of an asset is often insignificant but it should generally be not more than 5% of the original cost of the asset.”*

125. Accordingly, in line with the above regulation and in terms of the agreement between the Govt. of H.P and the petitioner, the salvage value for the purpose of tariff is to be considered as 5%. i.e.; the depreciable value shall be 95%. However, the second proviso to Regulation 27(3) of the 2014 Tariff Regulations provides as under:

*“Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.”*

126. In the present case, out of the 1000 MW capacity, 704 MW capacity (i.e. 70.4%) has been tied up under long-term PPA on cost plus basis. This implies that the depreciable value is to be limited up to 70.40%. Accordingly, the depreciable value has been considered as 70.40% of the gross block value (excluding free hold land). Based on this, calculation for depreciation is as under:





(in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Block as on 31.3.2014	6,36,074.26	6,44,741.33	6,49,074.07	6,51,658.91	6,51,658.91
Additional capital expenditure during 2014-19	8,667.07	4,332.74	2,584.84	-	-
Closing gross block	6,44,741.33	6,49,074.07	6,51,658.91	6,51,658.91	6,51,658.91
Average gross block	6,40,407.80	6,46,907.70	6,50,366.49	6,51,658.91	6,51,658.91
Free Hold land	2488.44	2488.44	2488.44	2488.44	2488.44
Value of Gross block excluding land	637919.36	644419.26	647878.05	649170.47	649170.47
Rate of Depreciation	5.18%				
Depreciable Value	449095.23	453671.16	456106.15	457016.01	457016.01
Remaining Depreciable Value	359772.06	331309.39	300369.14	267724.63	234103.32
Depreciation	<b>33167.48</b>	<b>33504.12</b>	<b>33683.25</b>	<b>33750.19</b>	<b>33750.19</b>

## O&M expenditure

127. Sub- clause (c) of clause (3) of Regulation 29 provides as under:

*“In case of the hydro generating stations, which have not been in commercial operation for a period of three years as on 1.4.2014, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation and resettlement works) for the first year of commercial operation. Further, in such case, operation and maintenance expenses in first year of commercial operation shall be escalated @6.04% per annum up to the year 2013- 14 and then averaged to arrive at the O&M expenses at 2013-14 price level. It shall be thereafter escalated @ 6.64%per annum to arrive at operation and maintenance expenses in respective year of the tariff period.”*

128. Regulation 3 (43) of the 2014 tariff Regulation defines original project cost as under:

*“Original Project Cost’ means the capital expenditure incurred by the generating company or the transmission licensee, as the case may be, within the original scope of the project up to the cut-off date as admitted by the Commission”*

129. Accordingly, the O&M expense for the first year of plant operation is as under:

	(in lakh)
Original project cost i.e approved capital cost as on cut-off date (a)	636074.26
Certified R&R cost as per Form-13B (b)	43.30
Capital cost for the purpose of O&M calculation (c)=(a)-(b)	636030.96
O&M expenditure for the first year of plant operation i.e 2011-12 @ 2% of above	12720.62

130. Accordingly, in terms of Regulation 29 (3) (c), the O&M expense for the period 2014-19 is allowed as under:

(in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
15253.44	16266.27	17346.35	18498.15	19726.42



## Interest on Working Capital

131. Regulation 28(1)(c) of the 2014 Tariff Regulations provides that the working capital for hydro based generating stations shall cover:

- (i) Receivables equivalent to two months of fixed cost;
- (ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and
- (iii) Operation and maintenance expenses for one month.

132. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

*"Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later."*

133. In terms of above interest on working capital has been worked out as under:

- (a) Receivables: Receivables equivalent to two months of fixed cost considered for the purpose of tariff is worked out as under:

2014-15	2015-16	2016-17	2017-18	2018-19
22631.43	22306.77	21882.60	21393.39	20872.30

(*in lakh*)

- (b) Maintenance Spares: Maintenance spares @ 15% of operation and maintenance expenses considered for the purpose of tariff is worked out as under:

2014-15	2015-16	2016-17	2017-18	2018-19
2288.02	2439.94	2601.95	2774.72	2958.96

(*in lakh*)

- (c) O&M Expenses: In terms of the provisions of above regulations, Operation and maintenance expenses for one month considered for the purpose of tariff is worked out as under:

2014-15	2015-16	2016-17	2017-18	2018-19
1271.12	1355.52	1445.53	1541.51	1643.87

(*in lakh*)

134. According to the regulation, bank rate as on 1.4.2014 (13.50%) has been considered for the calculation of interest on working capital. Necessary computations in support of calculation of interest on working capital are as under:



(in lakh)

Year	2014-15	2015-16	2016-17	2017-18	2018-19
Receivables	22631.43	22306.77	21882.60	21393.39	20872.30
Maintenance Spares	2288.02	2439.94	2601.95	2774.72	2958.96
O & M expenses	1271.12	1355.52	1445.53	1541.51	1643.87
<b>Total</b>	<b>26190.56</b>	<b>26,102.24</b>	<b>25,930.08</b>	<b>25,709.63</b>	<b>25,475.13</b>
Rate of interest	13.50%				
<b>Interest</b>	<b>3,535.73</b>	<b>3,523.80</b>	<b>3,500.56</b>	<b>3,470.80</b>	<b>3,439.14</b>

### Annual fixed charges

135. Based on the above discussions, the annual fixed charges has been worked out and allowed as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	40107.46	40514.54	40731.15	40812.09	40812.09
Interest on Loan	43724.45	40031.92	36034.26	31829.12	27505.93
Depreciation	33167.48	33504.12	33683.25	33750.19	33750.19
Interest on Working Capital	3535.73	3523.80	3500.56	3470.80	3439.14
O & M Expenses	15253.44	16266.27	17346.35	18498.15	19726.42
<b>Total</b>	<b>135788.55</b>	<b>133840.64</b>	<b>131295.57</b>	<b>128360.35</b>	<b>125233.78</b>

### Normative Annual Plant Availability Factor (NAPAF)

136. Regulation 3 (51) of 2014 Tariff Regulations, provides as under:

*“3. Definitions and Interpretations – In these regulations, unless the context otherwise requires-(51) ‘Run-of-River generating station with pondage’ means a hydro generating station with sufficient pondage for meeting the diurnal variation of power demand”*

137. Regulation 37 (1) of 2014 Tariff Regulations, provides as under:

*37. Norms of operation for hydro generating stations: (1) The following Normative annual plant availability factor (NAPAF) shall apply to hydro generating station:*

*(a) Storage and Pondage type plants with head variation between Full Reservoir Level (FRL) and Minimum Draw Down Level (MDDL) of up to 8%, and where plant availability is not affected by silt: 90%*

*(b) In case of storage and pondage type plants with head variation between full reservoir level and minimum draw down level is more than 8% and when plant availability is not affected by silt, the month wise peaking capability as provided by the project authorities in the DPR (approved by CEA or the State Government) shall form basis of fixation of NAPAF.*

*(c) Pondage type plants where plant availability is significantly affected by silt: 85%.*



*(d) Run-of-river type plants: NAPAF to be determined plant-wise, based on 10-day design energy data, moderated by past experience where available/relevant.*

138. The petitioner has submitted that the Normative Annual Plant Availability Factor (NAPAF) of 85% as per provisions of Regulation 37 (1) (c) of the 2014 Tariff Regulations, is allowed and further allowance may be permitted under special circumstances. The petitioner has further submitted that the generating station is a run of river with pondage hydro generating plant and is significantly affected by silt and hence is covered under Regulation 37 (1) (c) of the 2014 Tariff Regulation.

139. The respondent No. 4 to 6 vide its affidavit dated 16.4.2015 have submitted that in terms of the recommendations of the DIA, the project is a run of the river scheme on river Satluj and accordingly Regulation 37 (1) (d) will be applicable. Similar submissions have been made by the respondents No. 2 & 7. The respondent No. 3 has submitted that the projected cost of Rs 89.85 crore towards three additional spares is not justified. It has also submitted that silting in the river would damage the blades in the runners and not the entire runner as such. It has further submitted that spare blades can be acquired at a lower cost as compared to the runner. Accordingly, it has submitted that projected cost towards three spare runner is not justifiable and has not been allowed. In response, the petitioner vide affidavit dated 13.7.2015 has clarified that the project is a run of the river with pondage and is in accordance with Regulation 3 (51) of the 2014 Tariff Regulations. Accordingly, it has prayed that in terms of Regulation 37 (1) (c) of the 2014 Tariff Regulations NAPAF as 85% may be allowed.

#### **Analysis and Decision on NAPAF**

140. The submission of the parties has been considered. The issue for consideration is whether the project is a run of river plant with or without pondage and/ or whether the same is significantly affected by the silt or not. It is observed that the petitioner in Form – 2 of the petition has submitted that the project is able to meet the peaking demand for 3 hours even at 1200 MW capacity and accordingly the project is able to meet diurnal variation of power demand in terms of Regulation 3 (51) of the 2014 Tariff Regulations. In this background, the Commission is of the considered view that the project is a run of river plant with pondage. To the question as whether the project is significantly affected by silt or not, we are aware of the fact that the NapthaJhakri hydro generating plant of SJVNL which is situated in the downstream of this project is also significantly affected by the silt. It is noticed that on account of this high silt conditions, the Commission vide order dated 20.6.2014 in Petition No.168/GT/2013 had allowed 82% NAPAF for Nathpa Jhakri HEP for the period 2009-14. Considering the fact that both the projects (Nathpa



Jhakri and Karcham Wangtoo) are situated at River Satluj and that the project of the petitioner is in the upstream of Nathpa Jhakri HEP, we are of the considered view that the project of the petitioner is also significantly affected by silt. However, with the procurement of additional spares and development of in-house techniques like spray hard coating of underwater parts, the cost of which had been allowed by the Commission, Naptha Jhakri HEP of SJVNL was able to achieve NAPAF of more than 90% during the latter half of the tariff period 2009-14. Based on this, the NAPAF of 90% was considered for Naptha Jhakri HEP for the tariff period 2014-19. In the present case, the petitioner has also procured three additional spare runners amounting to Rs.89.95 crore and the same has been allowed by the Commission in this order on prudence check after examining the submissions of the petitioner. These additional spares, in our view, will reduce the down time of the units of the generating station operating under high silt conditions. In this background, we decide that the NAPAF of 90% shall be considered for this generating station.

#### **Application fee and the publication expenses**

141. The petitioner has sought approval for the reimbursement of fees amounting to Rs 48,00,400/- for the period 2014-19 towards filing the petition. The petitioner by affidavit dated 14.11.2014 has also filed affidavit of proof of publication of notice in newspapers in terms of the Regulation 3(8) of the CERC (Procedure for making of application for determination of tariff, publication of the application and other related matters) Regulations, 2004.

142. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover pro rata, the filing fees and the expenses incurred on publication of notices for the period 2014-15 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2017-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

143. The annual fixed charges approved for the period 2014-19 as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

144. Petition No. 434/GT/2014 is disposed of in terms of the above.

Sd-	sd-	sd-	sd-
<b>(Dr. M.K.Iyer)</b> <b>Member</b>	<b>(A. S. Bakshi)</b> <b>Member</b>	<b>(A. K. Singhal)</b> <b>Member</b>	<b>(Gireesh B. Pradhan)</b> <b>Chairperson</b>

