

**Approval of Capital Cost along with  
Additional Capitalization and Determination  
of Tariff for Integrated Kashang Hydro  
Electric Project (IKHEP) Stage-I (1x65MW)  
Date of Commercial Operation (COD) to  
Financial Year (FY) 2023-24**

**Himachal Pradesh Power Corporation  
Limited  
(HPPCL)**



**Himachal Pradesh Electricity Regulatory  
Commission  
June 05, 2024**

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

**PETITION NO: 24/2024**

CORAM

**Sh. DEVENDRA KUMAR SHARMA**

**Sh. YASHWANT SINGH CHOGAL**

**Sh. SHASHI KANT JOSHI**

In the matter of:

Approval of Capital Cost along with Additional Capitalization and Determination of Tariff for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I (1x65MW) from COD to FY 2023-24 under the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2011 and its amendments thereafter and under Section-62 read with Section 86 of the Electricity Act 2003.

AND

In the matter of:

Himachal Pradesh Power Corporation Ltd. (HPPCL).....the Petitioner

## **ORDER**

The Himachal Pradesh Power Corporation Limited (hereinafter referred to as 'HPPCL' or 'Petitioner' or 'Applicant') has filed a Petition with the Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as the 'Commission' or 'HPERC') for approval of capital cost and Determination of Tariff for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I (1x65MW) from COD to FY 2023-24 (hereinafter called the 'Project' or 'IKHEP Stage-I') under the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2011 as amended from time to time (hereinafter referred to as 'HPERC Hydro Tariff Regulation, 2011') and under Section-62 read with Section 86 of the Electricity Act 2003 (hereinafter referred to as the "Act").

The Petitioner took significant time in responding to the clarification and queries raised by the Commission. On several occasions, the information provided was either incomplete or did not address the query of the Commission adequately. As a result, even post the written submissions, clarifications were sought verbally from the Petitioner.

The Commission has heard the Applicant, interveners, stakeholders and stakeholder representatives through various representations. The Commission has also held formal interactions with the officers of the HPPCL and having considered the documents available on record.

After considering the Petition filed by the Applicant, the facts presented by the Applicant in its subsequent filings, the responses of the Applicant to the objections and documents available on record, and in exercise of the powers vested in it under Section 62,64 and 86 of the Electricity Act, 2003 accepts the application with modification, conditions and passes the following Order for determining the capital cost and tariff for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I (1x65MW) from COD to FY 2023-24.

The Commission has determined the Capital Cost and Aggregate Revenue Requirement (ARR) for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I (1x65MW) from COD to FY 2023-24 under the 'HPERC Hydro Tariff Regulation, 2011' and under Section-62 read with Section-86 of the Electricity Act 2003. The approach adopted by the Commission with regard to approval of capital cost and ARR for Integrated Kashang Hydro Electric Project Stage-I(1x65MW) from COD to Financial Year (FY) 2023-2024 have been summarized in the detailed Order.

**-Sd/-**  
**(SHASHI KANT JOSHI)**  
**Member**

**-Sd/-**  
**(YASHWANT SINGH CHOGAL)**  
**Member, Law**

**-Sd/-**  
**(DEVENDRA KUMAR SHARMA)**  
**Chairman**

**Shimla**

**Dated: 05<sup>th</sup> June 2024**

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# 1. INTRODUCTION

## 1.1 Himachal Pradesh Electricity Regulatory Commission

1.1.1 The Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as the 'HPERC' or 'Commission') constituted under the Electricity Regulatory Commission Act, 1998 came into being in December 2000 and started functioning with effect from 6<sup>th</sup> January, 2001. After the enactment of the Electricity Act, 2003 on 26<sup>th</sup> May, 2003, the HPERC has been functioning as a statutory body with a quasi-judicial and legislative role under Electricity Act, 2003.

### 1.1.2 Functions of the Commission

As per Section 86 of the Electricity Act, 2003, the State Commission shall discharge the following functions, namely

- a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State. Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;
- b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;
- c) facilitate intra-state transmission and wheeling of electricity;
- d) issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licence;
- f) adjudicate upon the disputes between the licensees, and generating companies and to refer any dispute for arbitration;
- g) levy fee for the purposes of this Act;
- h) specify State Grid Code consistent with the Indian Electricity Grid Code specified with regard to grid standards;

- i) specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
- j) fix the trading margin in the intra-state trading of electricity, if considered, necessary; and
- k) Discharge such other functions as may be assigned to it under this Act.

1.1.3 The State Commission shall advise the State Government on all or any of the following matters, namely

- a) promotion of competition, efficiency and economy in activities of the electricity industry;
- b) promotion of investment in electricity industry;
- c) reorganization and restructuring of electricity industry in the State;
- d) Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by State Government.

## **1.2 Himachal Pradesh Power Corporation Ltd.**

1.2.1 The Himachal Pradesh Power Corporation Limited (HPPCL), was incorporated in December 2006 under the Companies Act, 1956, with the objective to plan, promote and organize the development of all aspects of hydroelectric power on behalf of Himachal Pradesh Government (GoHP) and Himachal Pradesh State Electricity Board (now HPSEBL). As per the Electricity Act, 2003 (hereinafter to be referred as the 'Act'), the duties of a generating company shall be to establish, operate and maintain generating stations, tie-lines, sub-stations and dedicated transmission lines connected therewith in accordance with the provisions of the Act or the rules or regulations made there under. As per Memorandum of Association and Articles of Association dated 05.12.2006 the GoHP has a 60%, and the HPSEB has a 40% shareholding in the HPPCL.

1.2.2 The GoHP has allocated 22 hydroelectric projects to the HPPCL for development under the State sector, with a combined installed capacity of 2817 MW. The HPPCL achieved a significant milestone by commissioning its first hydroelectric project on 01.09.2016. Currently, the corporation operates three hydro power stations with a total installed capacity of 276 MW and is actively involved in constructing three additional hydro projects, which will add up to 628 MW upon completion.

1.2.3 Moreover, there are 10 projects under the stage of investigation and pre-construction clearances, with a combined capacity of 1325 MW. Additionally, there are eight projects in the pre-feasibility stage, with a total capacity of 927 MW. The HPPCL is also serving as the nodal agency for the development of the Kishau Multipurpose Project (660 MW), which will be executed through a Special Purpose Vehicle involving the Governments of Himachal Pradesh and Uttarakhand. Himachal Pradesh has a 50% share in this project, bringing the total allotted potential to 3147 MW.

1.2.4 The HPPCL, apart from Hydro Power Development, intends to diversify its power development activities in other areas such as thermal, renewable sources of energy (mainly solar power) etc.



### 1.3 Multi Year Tariff Framework

- 1.3.1 The Commission follows the principles of Multi Year Tariff (MYT) determination, in line with the provision of Section 61 of the Act.
- 1.3.2 The Commission has issued Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2011 vide notification dated 01.04.2011 (hereinafter referred to as 'HPERC Hydro Tariff Regulation, 2011' or 'Regulations').
- 1.3.3 Subsequently, the Commission has made the following amendments to the above Regulations:
- a) HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (First Amendment) Regulations, 2011 dated 30.07.2011.
  - b) HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (Second Amendment) Regulations, 2013 dated 01.11.2013.
  - c) HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (Third Amendment) Regulations, 2018 dated 22.11.2018.
- 1.3.4 In line with the provisions of the 'HPERC Hydro Tariff Regulation, 2011' as amended from time to time, the Petitioner has filed this Petition No. 24 on 24.06.2023 for seeking approval of Capital cost along with additional capitalization and Determination of tariff for Integrated Kashang Hydro Electric Project (IKHEP) (1x65MW) from COD to FY 2023-24.
- 1.3.5 The Commission has analysed the Petition filed by the HPPCL and has finalised this Order based on the detailed examination of the information contained in the Petition, additional submissions in response to data gaps, necessary clarifications submitted by the Petitioner and views expressed by the Stakeholders.

### 1.4 Interaction with the Petitioner

- 1.4.1 The HPPCL has filed the Application/Petition for approval of Capital cost along with additional capitalization and Determination of tariff for Integrated Kashang Hydro Electric Project (IKHEP) (1x65MW) from COD to FY 2023-24, with the Commission on 24.06.2023. Based on various observations/deficiencies pointed out by the Commission, the HPSEBL has submitted further details and clarifications subsequently.
- 1.4.2 Based on preliminary Scrutiny of the Petition, the Commission, through a letter dated 24.07.2023, directed the Petitioner to provide details regarding the first set of deficiencies identified in the Petition. The Petitioner has submitted its reply on 21.09.2023. The Commission admitted the aforementioned Petition vide interim Order dated 05.02.2024. There have been a series of interactions between the HPPCL and the Commission, both written and oral, wherein the Commission sought additional information/ clarifications and justifications on various issues, critical for the analysis of the Petition.
- 1.4.3 The Petitioner was asked to remove various deficiencies/ provide additional information vide the following communications:

**Table 1: HPERC Communication w.r.t deficiencies to the Petitioner**

| S. No. | Submission of the Petitioner  | Date (dd.mm.yyyy) |
|--------|---|-------------------|
| I      | HPERC-F(1)-65/2023-1166   | 24.07.2023        |
| II     | HPERC-F(1)-65/2023-2081   | 21.10.2023        |
| III    | HPERC-F(1)-65/2023-3136   | 26.12.2023        |
| IV     | HPERC-F(1)-65/2023-3810   | 13.02.2024        |
| V      | Deficiencies post Technical Validation Session: HPERC-F(1)-65/2023-3946 | 22.02.2024        |

1.4.4 The queries raised by the Commission vide above mentioned letters with respect to the Petition were replied by the HPPCL. However, delay in submission and non-submission of the complete information remained a major bottleneck. The following submissions made by the Petitioner in response there to, have been taken on record:

**Table 2: Petitioner response w.r.t deficiencies raised by the Commission**

| S. No. | Submission of the Petitioner  | Date (dd.mm.yyyy) |
|--------|---|-------------------|
| I      | Response to HPERC's Letter dated 24.07.2023   | 21.09.2023        |
| II     | Response to HPERC's Letter dated 21.10.2023   | 21.11.2023        |
| III    | Response to HPERC's Letter dated 26.12.2023   | 23.01.2024        |
| IV     | Response to HPERC's Letter dated 13.02.2024   | 01.03.2024        |
| V      | Deficiencies post Technical Validation Session: Response to HPERC's Letter dated 22.02.2024 | 15.03.2024        |

## 1.5 Public Hearings

1.5.1 The Petitioner published the salient features of the Petition by the way of a Public Notice in the following newspapers:

**Table 3: List of Newspapers for publication of Stakeholders comments**

| S.No. | Name of News Paper | Date of Publication |
|-------|--------------------|---------------------|
| I     | Dainik Jagran      | 18.02.2024          |
| II    | The Tribune        | 18.02.2024          |
| III   | Himachal Dastak    | 19.02.2024          |
| IV    | The Indian Express | 19.02.2024          |

1.5.2 The Commission invited suggestions and objections from the public on the Petition in accordance with Section 64(3) of the Electricity Act, 2003 subsequent to the publication of salient features by the Petitioner. The Public notice, issued by the Commission, inviting objections/ suggestions was published in the following newspapers:

**Table 4: List of Newspapers for Public Notice by the Commission**

| S. No. | Name of News Paper | Date of Publication |
|--------|--------------------|---------------------|
| I      | Dainik Bhaskar     | 23.02.2024.         |
| II     | The Tribune        | 23.02.2024          |

1.5.3 Through the aforementioned publications, the interested parties/ stakeholders were asked to file their objections and suggestions on the Petition for which dates were specified by the Commission in the publications.

- 1.5.4 The stakeholders were requested to file their objections by 21.03.2024. The HPPCL was required to submit replies to the suggestions/objections to the Commission by 22.03.2024 with a copy to the objectors.
- 1.5.5 The Commission decided to conduct the public hearing and, therefore, issued a public notice informing the public about the scheduled date of public hearing as 23.03.2024. All the parties, who had filed their objections/ suggestions, were informed about the date, time and venue of the public hearing for presenting their case.
- 1.5.6 The Commission has considered the submissions made by the Petitioner and the various objections raised by stakeholders carefully for the purpose of issuance of this Order. Further, the objections/suggestions received from the Stakeholders are discussed in subsequent chapter of this Order.

## 2. STAKEHOLDER OBJECTIONS

### 2.1 Introduction

- 2.1.1 As detailed out in Chapter-1 of this Order, the Commission through Public Notice in various newspapers informed the public/stakeholders about the date for filing comments/ objections and date of public hearing as 23.03.2024 on the Petition for Approval of Capital Cost along with Additional Capitalization and Determination of Tariff for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I from COD to FY 2023-24.
- 2.1.2 Accordingly, the public hearing was conducted on 23.03.2024 in the Commission. The Comments/Suggestions were received on the Petition from the Consumer representative, the Himachal Pradesh State Electricity Board Limited (HPSEBL) and the Himachal Pradesh Power Transmission Corporation Limited (HPPTCL). Issues raised by the stakeholders in their written submissions, along with replies given by the Petitioner and views of the Commission on the issues raised are summarized in the following paragraphs.

#### ***Stakeholders' Submissions***

- 2.1.3 The Consumer Representative has pointed out that the Petition submitted by the Petitioner for determination of capital cost and tariff from COD until FY 2023, as well as the request for approval of additional capitalization, lacks the necessary details required by the Commission's Regulations. The Petition does not clearly determine/define the annual fixed charges from COD until FY 2023-24, and are, therefore, vague, providing very few details.

#### ***Petitioner's Response***

- 2.1.4 The Petitioner has submitted that the Petition has been filed as per the relevant HPERC Regulations and procedures. Further, the Petitioner has submitted that the detailed replies on queries from the Commission with respect to the Petition stand submitted.

#### ***Commission's Observations***

- 2.1.5 The Commission partially concurs with observations of the stakeholder. However, the Commission while analyzing the Petition has raised multiple set of queries asking for requisite additional information and clarification required for processing the Petition and determining the Tariff for the respective years for the IKHEP. The details of clarifications sought and submissions with respect to the same are covered as part of Chapter 3 and 4 of this Order.

**Stakeholders' Submissions**

- 2.1.6 The Consumer Representative has also pointed out that the Petitioner has submitted the capital cost along with additional capitalization and tariff determination proposal based on projections for the Control Period for FY 2023-24. These projections seem to be based on annual costs/charges under each year of Control Period including true-up period. Since the matter regarding water cess was finally decided by the Hon'ble Court, the Petitioner needs to review the present Petition accordingly. A detailed tariff proposal regarding the category-wise tariff impact on the consumers based on increases proposed, should be submitted; otherwise, the utility may not be allowed to increase the tariff.

**Petitioner's Response**

- 2.1.7 The Petitioner has submitted that the needful will be done as per the directives of GoHP and water cess policy.

**Commission's Observations**

- 2.1.8 The Commission has noted down the comments of the stakeholders and has determined the capital cost of the project and tariff as per the provisions of the Act and the Regulations and after doing required prudence check.

**Stakeholders' Submissions**

- 2.1.9 The Consumer Representative has highlighted that the annual fixed charges, capital costs, additional capitalization, etc., need to be prudently worked out by the Petitioner to facilitate effective determination of the tariff by the Commission.

**Petitioner's Response**

- 2.1.10 The Petitioner has submitted that the annual fixed charges, capital costs and additional capitalization etc., in respect of IKHEP Stage-I has been worked out as per the relevant HPERC regulations & procedures.

**Commission's Observations**

- 2.1.11 The Commission has noted the submissions. The matter with respect to annual fixed charges has been discussed in Chapter 4 of this order. The Commission has undertaken detailed examinations of the capital cost and additional capitalization of the project as discussed in the Chapter 3 of this Order. Further, the annual fixed charges and energy charges have been worked out based on the approved capital cost and 'HPERC Hydro Tariff Regulation, 2011' in the Chapter 4 of this Order.

**Stakeholders' Submissions**

- 2.1.12 The Consumer Representative has also pointed out that the Petitioner is required to devise an effective mechanism to address its losses for the IKHEP

and for the company. It was also suggested that the Petitioner should submit a concrete proposal for addressing the losses to the Commission.

### ***Petitioner's Response***

- 2.1.13 The Petitioner has submitted that it has requested the Commission to devise a mechanism to overcome the loss/profit incurred since COD of the plant. It also mentioned that the right to decide the same rests with the Commission.

### ***Commission's Observations***

- 2.1.14 The Commission has proposed to determine the tariff for the plant based on the effective date of agreement between the Petitioner with the HPSEBL for supply of power from the IKHEP. The same is in line with the Order of the Commission passed on 13.02.2023 for entering into PPA with the HPSEBL. Generation being a delicensed activity, the Petitioner had chosen to sell its power through exchange, or any other mechanism in the past. Therefore, any power sold by the Petitioner prior to execution of the PPA was not under the current arrangement with the HPSEBL and therefore does not fall under the purview of the existing PPA. The Commission is of the firm view that any profit/loss incurred prior to the date of supply of power under the PPA is to the account of the Petitioner and the consumers of the state cannot be burdened with any additional cost incurred prior to the effective date of PPA.

### ***Stakeholders' Submissions***

- 2.1.15 The Consumer Representative has highlighted that legal/arbitration cases in respect of Civil, E&M and other works in IKHEP are quite high (Rs. 154.26 Cr.) which is going to escalate in future as matters are stated to be sub-judice envisaged in the Control Period. The stakeholder has suggested that a focused strategy to expedite settlement/disposal of these cases requires to be devised to curtail capital cost of the project.

### ***Petitioner's Response***

- 2.1.16 The Petitioner has submitted that the suggestions of the stakeholder have been taken up with the management and is being complied.

### ***Commission's Observations***

- 2.1.17 The Commission has taken note of the stakeholders' submissions with respect to the high cost under legal/arbitration cases. The Commission shall review the same based on the outcome of the same subject to prudence check and detailed analysis.

### ***Stakeholders' Submissions***

- 2.1.18 The Consumer Representative has mentioned that the Petitioner should explain its decision regarding the payment adjustment of permanent assets which have not been considered in the total capital costs of project and left to be considered

during true-up. The Petitioner is required to make serious efforts to settle these amounts and to submit a true capital cost for approval.

***Petitioner's Response***

2.1.19 The Petitioner has submitted that the suggestions of the stakeholder has been taken up with the management and is being complied.

***Commission's Observations***

2.1.20 The Commission has noted the submissions. Further, it observes that any additional cost would increase the tariff and scope for any hike is limited. The Petitioner should carefully examine any additional claim and reduce any further impact on the capital cost of IKHEP.

***Stakeholders' Submissions***

2.1.21 The Consumer Representative has pointed out that the Petitioner may be allowed to avail the benefits of Hydro Purchases Obligations (HPO)/Renewal Purchase Obligations (RPO) as per mandate of CERC/HPERC/MoP Regulations/ Notifications etc., on the matter issued from time to time.

***Petitioner's Response***

2.1.22 The Petitioner has submitted that the suggestion of the stakeholder has been taken up with the management and is being complied.

***Commission's Observations***

2.1.23 The Commission has noted the submissions. The entitlements of the HPO are as per the provisions of the relevant regulations. Further, the decision shall be taken based on the proposal submitted by the Petitioner in this regard.

***Stakeholders' Submissions***

2.1.24 The Consumer Representative has pointed out that the Petitioner has not submitted the collection efficiency for each year of the Control Period. The Petitioner is also required to submit the category-wise collection efficiency during the previous, i.e., 4th Control Period.

***Petitioner's Response***

2.1.25 The Petitioner has submitted that the category-wise collection efficiency does not have relevance with Generating Stations.

***Commission's Observations***

2.1.26 The Commission has noted the submissions and agree to the response submitted by the Petitioner.

**Stakeholders' Submissions**

- 2.1.27 The Consumer Representative has pointed out that efforts are required by the Petitioner to ensure maximum generation of power and sale thereof to increase revenue generation in each HEP and review their performance at regular intervals. An integrated approach to be ensured for sale of power of the IKHEP to the HPSEBL through Govt. and outside in view of sufficient net saleable energy available with these projects after their commissioning. Free power to Govt. agreement needs to be reviewed to bring it to minimal to have more power for sale to make these HEPs self-sustaining by generating revenue and profits.

**Petitioner's Response**

- 2.1.28 The Petitioner has submitted that the needful will be done as per the GoHP directions / policy in this regard.

**Commission's Observations**

- 2.1.29 The Commission agree with the Petitioner that the free power falls under the domain of the GoHP. However, the Commission has allowed the same in the tariff as per the Regulations and the National Tariff Policy.

**Stakeholders' Submissions**

- 2.1.30 The Himachal Pradesh State Electricity Board Limited (HPSEBL) has submitted that actual cost claimed as on COD is very high as compared to the DPR cost. The detail of actual capital cost of Stage-I also includes the civil works of powerhouse and transformer cavern as well as E&M works of IKHEP stage-II & III (after approval from Management of the HPPCL) which were not part of DPR of IKHEP Stage-I. The HPSEBL has requested the Commission to undertake prudence check for the expenditure incurred as per Regulations 11,12 and 13 of the HPERC Hydro Tariff, Regulations, 2011

**Petitioner's Response**

- 2.1.31 The Petitioner has submitted that the claim has been filed as per the provisions of the HPERC Tariff Regulations, 2011, as amended. Further, the detailed justification along with the supporting documents submitted with the main Petition and its subsequent replies against the queries raised by the HPERC are available at the HPPCL website.

**Commission's Observations**

- 2.1.32 The Commission has approved the claim of the Petitioner including IDC after doing required prudence check as discussed in the subsequent chapters of this tariff order.



**Stakeholders' Submissions**

- 2.1.33 The HPSEBL has submitted that at Para No. (3.3) of the Petition, the Additional Capital Expenditure incurred 'upto Cut-off date' and 'beyond Cut-off date' may be considered by the Commission as per Regulation 13 of the HPERC Hydro Tariff Regulations, 2011 and its amendments thereof, after prudence check of expenditure for the cut off period applicable for IKHEP Stage-I.

**Petitioner's Response**

- 2.1.34 The Petitioner has submitted that the claim has been filed as per the provisions of the HPERC Hydro Tariff, Regulations. Further, the detailed justification along with the supporting documents submitted with the main Petition and its subsequent replies against the queries raised by the HPERC are available at the HPPCL website.

**Commission's Observations**

- 2.1.35 The Commission has noted the submissions and has allowed the claim of the Petitioner for additional CAPEX after doing required prudence check as discussed in the subsequent chapters of this tariff order.

**Stakeholders' Submissions**

- 2.1.36 The HPSEBL has submitted that the Debt: Equity ratio has not been segregated for IKHEP Stage-I, II & III. Actual Debt:Equity ratio is 51.46%:48.54% and the claimed Debt:Equity ratio by the Petitioner is 70%:30% as on COD.

**Petitioner's Response**

- 2.1.37 The Petitioner has submitted that the claim has been filed as per the provisions of the HPERC Hydro Tariff Regulations, 2011. Further, the detailed justification along with the supporting documents submitted with the main Petition and its subsequent replies against the queries raised by HPERC are available at the HPPCL website.

**Commission's Observations**

- 2.1.38 The Commission agree to the submissions of the stakeholders and has allowed the debt: equity ratio as per the provisions of the Hydro Tariff Regulations, 2011 and as per the approved DPR/TEC of the Project.

**Stakeholders' Submissions**

- 2.1.39 The HPSEBL has submitted that the capital cost of the project claimed by the Petitioner includes the expenditures of Stage-I, II & Stage-III till COD. However, Stage-II & III are not functional at present due to non-availability of sufficient water. The tariff determined on this cost will unintentionally burden the HPSEBL Consumers. So, the HPSEBL has prayed the Commission that the capital cost pertaining to Stage-I only be considered for the benefit of the HPSEBL Consumers and the rest cost be considered during Stage-II & III tariff

determination. Also, time over run cost shall not be transferred to the beneficiaries.

### ***Petitioner's Response***

2.1.40 The Petitioner has submitted that the claim has been filed as per the provisions of the HPERC Hydro Tariff Regulations, 2011. Further, the detailed justification along with the supporting documents has been submitted with the main Petition and its subsequent replies.

### ***Commission's Observations***

2.1.41 The Commission noted the views of the Stakeholder. Moreover, the Petitioner has tied up the Power Purchase Agreement with the HPSEBL for 65 MW only i.e., for one unit due to unavailability of water. The Commission after doing required prudence check approve the capital cost the same has been discussed in the subsequent chapters of this tariff order.

### ***Stakeholders' Submissions***

2.1.42 The HPSEBL has requested the Commission to consider the capital cost of the Plant, as permitted by the Commission for the purpose of computation of depreciation in line with Regulation 20 of the HPERC Hydro Tariff Regulations, 2011 and its subsequent amendments.

### ***Petitioner's Response***

2.1.43 The Petitioner has submitted that the claim has been filed as per the provisions of the above HPERC Regulations.

### ***Commission's Observations***

2.1.44 The Commission has noted the submissions and has allowed the depreciation after doing required prudence check as discussed in the subsequent chapters of this tariff order.

### ***Stakeholders' Submissions***

2.1.45 HPPTCL has highlighted the Clause/Para 2.3 of the Petition which states that HPPCL has signed PPA with HPSEBL for varying periods and prices per unit. Initially, power was sold at Rs. 2.92/unit until March 31, 2017, extended to March 31, 2018, and then to May 6, 2018, at Rs. 2.20/unit. Short-term PPAs were later signed at Rs. 3.40/unit until March 31, 2023. Additionally, a long-term PPA for the Kashang HEP was signed for 40 years from April 1, 2023. In this long-term PPA, it was agreed that HPSEBL would bear evacuation liabilities. Further, the HPPTCL has stated that power from the Kashang HEP is evacuated through the HPPTCL's assets, and they raised transmission charges bills to HPPCL for the 220kV Kashang Bhaba line only, as per HPERC tariff as the charges for Wangtoo and associated systems are pending CERC's decision. HPPTCL has clarified that they being not a party to the PPAs between HPPCL and HPSEBL, transmission charge liability rests with HPPCL, which has been

communicated to them in a meeting on December 21, 2023, regarding HPPCL's letter dated June 27, 2023.

***Petitioner's Response***

2.1.46 The Petitioner has submitted that the submissions regarding the same already standsubmitted with the Commission and requests the Commission to pass such order considering the interests of the HPPCL.

***Commission's Observations***

2.1.47 The issue raised by the stakeholder (i.e., HPPTCL) is regarding payment of transmission charges by the Petitioner as per the LTA executed. The matter raised by the HPPTCL is not directly relating to the current Petition which pertains to the determination of capital cost and tariff of the hydro power project.

***Stakeholders' Submissions***

2.1.48 The HPPTCL has prepared that the effectiveness of the LTA between HPPTCL and HPPCL may be considered from 02.11.2019 to 01.11.2044 while devising the mechanism to overcome the loss/profit incurred to HPPCL since COD till 31.03.2023.

***Petitioner's Response***

2.1.49 The Petitioner has submitted that the submission regarding the same already stand submitted with the Commission and has requestedto pass such order considering the interests of the HPPCL.

***Commission's Observations***

2.1.50 The Commission has noted the submissions. As discussed above, the issue of the transmission charges is not the subject matter of this Petition, and the recovery of the transmission charges shall be as per the provisions of the relevant Transmission Tariff Regulations.

## 3. APPROVAL OF CAPITAL COST

### 3.1 Introduction

3.1.1 The Petitioner has submitted the present Petition for the Approval of Capital Cost along with Additional Capitalization and Determination of Tariff for Integrated Kashang Hydro Electric Project (IKHEP) Stage-I from COD (i.e., 01.09.2016) to FY 2023-24 under the 'HPERC Hydro Tariff Regulations, 2011' and its amendments under Section-62 read with Section 86 of the Electricity Act 2003.

3.1.2 The Petitioner has submitted that power from this plant was being sold on short-term basis through the power traders since COD. Subsequently, it was agreed between the HPPCL and the HPSEBL that sale/purchase of power from the HPPCL Hydro Electric Projects i.e., Kashang (1X65 MW), Sawra Kuddu HEP (3X37 MW) and 50% generation from Sainj HEP (2X50 MW) shall be undertaken by the HPSEBL for useful life of the projects at ex-bus as per the HPERC determined tariff. A PPA has been tied-up with the HPSEBL for sale of 100% net saleable energy at ex-bus of IKHEP Stage-I. The PPA between the HPPCL and the HPSEBL was signed on 29.03.2023 post approval of the HPERC Order dated 13.02.2023. The long-term PPA has come into force from 01.04.2023 and shall be operative till the useful life of the project.

3.1.3 Para No.13 of the Commission Order dated 13.02.2023 states the following:

*"The Petition for capital expenditure and determination of tariff in respect of the above Projects is yet to be filed and would take a considerable time for disposal after its filing. Since, the Commission had permitted to sell the power of the two Projects, i.e., Kashang 65 MW and Sawra Kuddu 111 MW on a mutually agreed tariff of Rs.3.40 per unit for the year 2022-23 and the authorised representative of the HPPCL has also prayed for allowing the Petition on the basis of provisional tariff, it would be prudent to fix a provisional tariff of Rs.3.40 per unit in respect of Kashang 65 MW, Sawara Kuddu 111 MW and 50% generation of Sainj HEP, which would, however, be subject to revision on determination of the actual tariff in respect of the all the three Projects."*

3.1.4 The Commission has reviewed the Petition filed by the Petitioner for determination of Capital Cost and corresponding tariff from the date of COD till FY 2023-24 i.e., the end of the Control Period. As per the Order dated 13.02.2023, the Commission has agreed to determine the capital cost and tariff in line with the applicable Tariff Regulations notified by the Commission for determination of tariff. The 'HPERC Hydro Tariff Regulation, 2011' as amended from time to timespecify the following:

*"(3) Where a power purchase agreement has been executed between the generating company and the utility after existence of the Commission and the power purchase agreement has been approved by the Commission, the*

*Commission shall determine such tariff in accordance with the terms and conditions of such approved power purchase agreement."*

3.1.5 Accordingly, the Commission has decided to determine the tariff for Integrated Kashang HEP (IKHEP) Stage-I based on the applicable 'HPERC Hydro Tariff Regulation, 2011'. Further, in line with the applicability of the PPA (i.e., for sale of IKHEP Stage-I power by the Petitioner from 01.04.2023 onwards), the Commission shall be determining the tariff for sale of power as per the date specified in the PPA and any power sale from the plant to the HPSEBL prior to the signing of the PPA does not form part of the tariff determination process.

3.1.6 With regard to the determination of capital cost, Regulation 11 of the 'HPERC Hydro Tariff Regulation, 2011' specifies the following:

*"(1) Capital cost for a project shall include-*

- a) *the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;*
- b) *capitalised initial spares subject to the ceiling norms as per regulation 12;*
- c) *additional capital expenditure determined under regulation 13:*  
*Provided that the assets forming part of the project, but not in use, shall be taken out of the capital cost.*

*(2) The capital cost admitted by the Commission, after prudence check, shall form the basis for determination of tariff:*

*Provided that in cases where benchmark norms have not been specified, prudence check may include scrutiny of the reasonableness of the capital expenditure, financing plan, interest during construction, use of efficient technology, cost over-run and time over-run, and such other matters as may be considered appropriate by the Commission for determination of tariff:*

*Provided further that the Commission may issue guidelines for vetting of capital cost of hydro-electric projects by independent agency or expert and in that event the capital cost as vetted by such agency or expert may also be considered by the Commission while determining the tariff for the hydro generating station:*

*Provided further that the Commission may issue guidelines for scrutiny and approval of commissioning schedule of the hydro-electric projects of a developer (not being a State controlled or owned company) as envisaged in the tariff policy:*

*Provided further that in case the site of a hydro generating station is awarded to a developer (not being a State controlled or owned company) by the State*

*Government, by following a two-stage transparent process of bidding, any expenditure incurred or committed to be incurred by the project developer for getting the project site allotted shall not be included in the capital cost....”*

- 3.1.7 In line with the provisions of the 'HPERC Hydro Tariff Regulation, 2011', the Commission has reviewed the proposed capital cost for IKHEP Stage-I and the ARR proposed for each year by the Petitioner from COD to FY 2023-24. The information provided in the Petition was inadequate or lacked justifications with respect to the capital cost, time and cost overrun, etc. Also, the Petition was deficient in terms of supporting documents and payment proofs against the various expense heads. In view of the shortcomings regarding data gaps and corresponding supporting documents, the Commission issued multiple set of deficiency letters for validation of the capital cost for the IKHEP Stage-I.
- 3.1.8 Further, it is observed that the Integrated Kashang HEP (IKHEP)scheme comprises of three units of 65 MW each which have been commissioned. However, due to unavailability of water, the Petitioner has currently signed the PPA with the HPSEBL for one unit only i.e., 65 MW referred as IKHEP Stage-I. During scrutiny of Petition, it is observed that the award of work was done by the Petitioner for the consolidated plant and various costs are representative of the complete cost for all three units. The Commission has clarified the same to the Petitioner and asked the Petitioner to provide segregated cost for one unit. However, the Petitioner in its response mentioned that the entire civil works were necessary for the power generation from IKHEP Stage-I and part of the cost therefore cannot be split to IKHEP Stage-II & III. The E&M work awarded by the Petitioner also consist of all the three units.
- 3.1.9 It is noted that the plant has been commissioned and the units are being operated alternately in view of the limited water availability which shall improve once the link tunnel is complete. Further, the Petitioner has submitted that the standby units are utilized during peak season to manage the excess discharge occasionally available in the Kashang-Khad as envisaged in the TEC of IKHEP Stage-I. Also, any excess power generated is sold to HPSEBL as per the signed PPA. Also, apart from the technical and commercial restrictions, placing the two commissioned units into preservation would result in loss of power generation. In view of the parallel operation of all the three units by the Petitioner and excess power being generated during time frame when water availability is high, the Commission feels it appropriate to consider the capital cost corresponding to all the three units. However, it is clarified that this arrangement shall be applicable only if the Petitioner shall tie-up for the balance capacity with HPSEBL which result in cost optimization. The Commission shall be constrained to recover any excess recovery allowed to the Petitioner on account of tariff determination for the combined units in case of sale of any share from Stage II and Stage III of the IKHEP to a beneficiary other than HPSEBL.
- 3.1.10 Accordingly, the Commission has undertaken detailed prudence check and adequate assumptions, wherever required, for approving the capital cost.
- 3.1.11 The relevant details and configuration of the Project are as follows:

**Table 5:Project Details**

| Name of the Project                                       | Capacity (MW) | Capital Cost as per DPR (Rs. Cr) | Capital Cost as on COD (Rs. Cr) | COD (Each Unit 65MW)   |
|---|---------------|----------------------------------|---------------------------------|--|
| Integrated Kashang Hydro Electric Project (IKHEP) Stage-I | 65 MW         | 478.02                           | 1003.23                         | Unit-I: 31.03.2017<br>Unit-II:01.09.2016<br>Unit-III: 03.03.2017 |

### 3.2 Summary of the Project

#### Petitioner's Submissions

- 3.2.1 The Integrated Kashang Hydro Electric Project (IKHEP) is a run of the river Hydel project located in District Kinnaur of the State of Himachal Pradesh. The Project envisages using of water from Kashang (Stage-I) and Kerang streams (Stage-II & III), right bank tributaries of river Satluj.
- 3.2.2 The IKHEP Stage-I enables energy generation of 245.8MU in a 90% dependable year for one unit only. The total length of HRT is approx. 1994.3 meter and 03 (three) number of Vertical Axis Pelton Turbines with Generating Units of 65 MW each has been installed.
- 3.2.3 The Petitioner has filed this Petition for the approval of capital cost taking into consideration additional capitalization and determination of tariff from COD 01.09.2016 to FY2023-24 for IKHEP Stage-1 with two standby units.
- 3.2.4 The HPSEB on 31.07.2008 accorded Techno Economic Clearance (TEC) to IKHEP Stage-I (1x65MW) at an estimated cost at bus bar of Rs. 478.02 Cr., including an Interest During Construction (IDC) of Rs. 66.15 Cr. and Local Area Development Fund (LADF) of Rs. 7.06 Cr., based on the price level of March 2008, detailed below:

**Table 6: HPSEB approved DPR Cost for IKHEP Stage-I (Rs. Cr.)**

| S. No.     | Cost Component              | Cost          |
|------------|-----------------------------|---------------|
| I          | Cost of Civil Works         | 290.13        |
| II         | Cost of E&M Works           | 114.67        |
| <b>III</b> | <b>Total Hard Cost</b>      | <b>404.80</b> |
| IV         | IDC                         | 66.15         |
| V          | LADF                        | 7.06          |
| <b>VI</b>  | <b>Total Cost (Rs. Cr.)</b> | <b>478.02</b> |

- 3.2.5 Further, the HPSEB on 10.09.2009 accorded TEC to IKHEP Stage-II & III (2 x 65 MW) at an estimated cost at bus bar of Rs. 488.19 Cr, including an Interest During Construction (IDC) of Rs. 54.47 Cr and LADF of Rs. 7.21 Cr, based on the price level of April 2009, detailed below:

**Table 7: HPSEB approved DPR Cost for IKHEP Stage-II & III (Rs. Cr.)**

| S. No. | Cost Component                     | Cost          |
|--------|------------------------------------|---------------|
| I      | Cost of Civil Works                | 303.18        |
| II     | Cost of E&M Works                  | 123.33        |
| III    | <b>Total Hard Cost</b>             | <b>426.51</b> |
| IV     | Interest During Construction (IDC) | 54.47         |

| S. No.    | Cost Component              | Cost          |
|-----------|-----------------------------|---------------|
| V         | LADF                        | 7.21          |
| <b>VI</b> | <b>Total Cost (Rs. Cr.)</b> | <b>488.19</b> |

### Commission's Analysis

- 3.2.6 The Commission has observed that the Kashang Hydro Electric Project is an integrated scheme which comprises of three units of 65 MW each. The project involves two diversion structures constructed on two different river streams (i.e., Kashang River and Kerang River). The water collected from these streams shall be directed towards the common HRT of the Project to operate all the three units. Further, the Commission noted that the DPR of the Kashang scheme was approved under two stages. (i.e., Stage-I and Stage-II & III). As per the approved DPR, Stage-I consist of one 65MW unit and Stage-II & III consists of two 65MW units. The cumulative design energy considering Stage-I, II & III is 790.63 MU (Million Units).
- 3.2.7 The Commission observes that the DPR and TEC accorded by the HPSEB on 31.07.2008 for IKHEP-Stage-I (for one unit of 65MW), was approved at a total cost is Rs. 478.02 Cr. including an IDC amount of Rs. 66.15Cr. and LADF of Rs.7.06 Cr. Further, the same for IKHEP Stage-II & III (with two units of 65 MW each) was accorded by the HPSEB on 10.09.2009 at a cost of Rs. 488.19 Cr. including an IDC amount of Rs. 54.47 Cr. and LADF of Rs. 7.21 Cr.
- 3.2.8 The Local Area Development Fund (LADF) of Rs. 7.06 Cr. for IKHEP Stage-I and Rs. 7.21 Cr. for IKHEP Stage-II & III is in accordance with the guidelines of the State Hydro Power Policy-2006 by the GoHP. As per the said Policy, a provision of 1.5% of the final cost for the projects above 5 MW capacity and 1% for the projects up to 5 MW capacity was made mandatory to be made by the project developer toward Local Area Development Fund (LADF).
- 3.2.9 After reviewing the Detailed Project Report (DPR) and Techno Economic Clearance (TEC) issued by the HPSEB, the Commission observes that the scheme Integrated Kashang Hydroelectric Project (IKHEP) is a run of the river Hydel project. The IKHEP distinct stages are detailed as under:
- **Stage-I (1X65 MW):** Comprising diversion of the Kashang stream, at El.2829m, to an underground powerhouse located on the right bank of Satluj near Powari Village.
  - **Stage-II & III (2X65 MW):** Comprising diversion of the Kerang stream, at El.2872m, into an underground powerhouse located on the right bank of Satluj near Powari Village.
- 3.2.10 The IKHEP enables a total energy of 790.63 MU (Million Units). Further, stage-wise salient features and energy generation for IKHEP is tabulated below (i.e., for Stage-I and Stage-II & III):

**Table 8: Salient Features of IKHEP Stage-I as per DPR**

| <b>Kashang HEP Stage-I (1x65 MW):</b>  |           |
|--|-----------|
| Capacity                               | 65 MW     |
| Number of Unit                         | 01 (One)  |
| Design Energy (in 90% dependable year) | 245.8 MU  |
| Design Head                            | 821 Meter |



| <b>Kashang HEP Stage-I (1x65 MW):</b> |  |
|---------------------------------------|--|
| Diversion Structure (Kashang River)   | Weir, 15 m (L), 2.20 m (W)                     |
| Head Race Tunnel                      | 1994.325 m long, D- Shaped with 3.50 x 4.115m. |
| Penstock/Pressure shaft               | Steel lined (Underground), Circular Shape      |
| Powerhouse Location                   | Powari Village, Kinnaur District               |
| Powerhouse                            | 1 No. vertical axis Pelton turbine             |
| DPR Approving Authority               | HPSEB  |
| Date of DPR Approval                  | 31.07.2008                                     |
| Cost as per DPR (Rs. Cr)              | Rs. 478.02 Cr.                                 |

**Table 9: Salient Features of IKHEP Stage-II & III as per DPR**

| <b>Kashang HEP Stage-II &amp; III (2x65 MW):</b> |   |
|--|---|
| Capacity   | 130 MW                                    |
| Number of Unit                                   | 02 (Two)                                  |
| Design Energy (in 90% dependable year)           | 544.83 MU                                 |
| Design Head                                      | 821 Meter                                 |
| Diversion Structure (Kerang River)               | Trench Weir                               |
| Kerang-Kashang (KK) Link Tunnel                  | 6300 m long, D- Shaped with 3.50 x 4.5m.  |
| Penstock/Pressure shaft                          | Steel lined (Underground), Circular Shape |
| Powerhouse Location                              | Powari Village, Kinnaur District          |
| Powerhouse                                       | 2 No. vertical axis Pelton turbine        |
| DPR Approving Authority                          | HPSEB                                     |
| Date of DPR Approval                             | 10.09.2009                                |
| Cost as per DPR (Rs. Cr)                         | Rs. 488.19 Cr.                            |

3.2.11 The Commission observes that the Head Race Tunnel (HRT), measuring approximately 1994.3 meters, is the common HRT for all the three stages (i.e., Stage-I, II & III) which collects the water from the diversion structure of the Kashang stream and the Kerang-Kashang (KK) Link Tunnel (approx. 6300 meters). This water is then directed to run all three units to generate power, each unit with a capacity of 65 MW. Further, the Commission noted that due to the ongoing Stage-II & III Civil and Hydro-Mechanical works for diversion of Kerang stream water through Kerang-Kashang Link Tunnel into the Head Race Tunnel (HRT), water is only available to run one unit of IKHEP.

### **3.3 Project Implementation and Timeline**

#### **Petitioner's Submissions**

3.3.1 The IKHEP Project comprises of Civil, Hydro-Mechanical (HM), Electrical & Mechanical(E&M) and other related works which were awarded by the Petitioner through competitive bidding process.

3.3.2 The Civil and Hydro-Mechanical work for the construction of river diversion structure, intake structure, power channel, Head Race Tunnel(HRT), Pressure Shaft, Valve Chamber, underground powerhouse complex, transformer hall, tail race tunnel (TRT)with other appurtenant structure in respect of Integrated Kashang HEP (3x65 MW) was awarded on an EPC basis through a tendering process to M/s Hindustan Construction Company(HCC) Limited on 13.02.2009 and the contract agreement was signed on 03.03.2009. Further, the awarded

contract amount was Rs.296.91 Cr., with a stipulated completion period of 45 months from the effective date (i.e., 09.04.2009), culminating on 08.01.2013.

- 3.3.3 The Civil construction work for the construction of river diversion structure of 'Kerang-Khad', trench weir, conveyance tunnel, connecting tunnel, 'Kerang-Kashang' link tunnel, hydro-mechanical (HM) works and other appurtenant structure including testing and commissioning in all respect of Integrated Kashang HEP (3x65 MW) was awarded on an EPC basis through a tendering process to M/s Patel Engineering Limited (PEL) on 06.09.2010 and the contract agreement was signed on 11.10.2010. The awarded contract amount was Rs.252.39 Cr., with a stipulated completion period of 48 months. However, due to litigation in NGT against Environment Clearance, the work could not be executed as per the schedule. Post the disposal of the litigation, and completion of related compliances, M/s PEL has been asked to resume the said works considering 10.03.2023 as the zero date and a completion period of 48 month. These works shall be capitalized under the capitalization schedule as and when the same are completed in the future control periods.
- 3.3.4 The Electro-Mechanical (E&M) work of the IKHEP Stage-I and II (2x65 MW) was awarded on an EPC basis through a tendering process to M/s Andritz Hydro Private Limited (AHPL) on 26.03.2010 and Stage-III (1x65MW) work was also awarded to the said firm on 21.11.2013. The contract for all the three units was awarded at an amount of Rs.166.72 Cr. The stipulated completion periods were 38 months for Unit-1, 39 months for Unit-2 from the effective date 01.12.2010 and 24 months for Unit-3 from the effective date 21.11.2013.
- 3.3.5 The details for the above-mentioned points shown below in the tabular format:

**Table 10: Project Timelines**

| S. No. | Particulars   | Date  |
|--------|---|---|
| I      | TEC for IKHEP Stage-I (1x65MW) approved by the HPSEB              | 31.07.2008  |
| II     | TEC for IKHEP Stage-II & III (2x65MW) approved by the HPSEB       | 10.09.2009  |
| III    | Date of Award of Civil and HM Contract to M/s HCC Limited         | 13.02.2009  |
| IV     | Date of Award of Civil and HM Contract to M/s PEL                 | 06.09.2010  |
| V      | Date of Award of E&M Contract to M/s Andritz Hydro (Unit-I & II)  | 26.03.2010  |
| VI     | Date of Award of E&M Contract to M/s Andritz Hydro (Unit-III)     | 21.11.2013  |
| VII    | Scheduled Commissioning Date (SCOD) as per contract awarded       | 01.02.2014 for Unit-1<br>01.03.2014 for Unit-2<br>21.11.2015 for Unit-3 |
| VIII   | Actual COD (ACOD) of the project for Unit-I, Unit-II and Unit-III | 31.03.2017 for Unit-1<br>01.09.2016 for Unit-2<br>03.03.2017 for Unit-3 |

- 3.3.6 The Petitioner has submitted time overrun of 1178 days in Civil works and 1126 days in Electro-Mechanical (E&M) works.
- 3.3.7 As part of the submissions, the Petitioner has indicated that out of total 1178 days of Civil Work delay, 444 days attributed to the HPPCL, 180 days to M/s HCC Ltd (Civil Contractor) and 554 days under Force Majeure. Furthermore, the Petitioner has submitted that the delay in E&M work was a direct consequence of civil works, and thus is attributed to the HPPCL. The reasons

and duration of time overrun as claimed by the Petitioner is summarized in table below:

**Table 11: Petitioner Submission w.r.t. Time Overrun in Civil Works**

| S. No. | Reasons for the Time Overrun in Civil Works   | No. of Days |
|--------|---|-------------|
| I      | Delay in excavation of valve chamber on account of delay in issue of GFC drawings.  | 17          |
| II     | Extra time consumed in construction of Adit to Valve Chamber on account of increase in length from 300m to 598.072m   | 107         |
| III    | Lock out of project by Pangi Sangharash Samiti  | 7           |
| IV     | Strike and interruption of work by local residents of Pangi village (2010)  | 17          |
| V      | Strike and interruption of work by local residents of Pangi village (2011)  | 12          |
| VI     | Damage to approach road to intermediate pressure shaft from RD 1720 m to 2051m (16-06-2013 to 25-07-2014).  | 405         |
| VII    | Closure of Intermediate Pressure Shaft (IPS) road due to damage, causing delay at lower inclined pressure shaft (19-02-2015 to 10-05-2015).   | 81          |
| VIII   | Disruption of work at Upper inclined Pressure Shaft due to prolonged excavation work in valve chamber   | 32          |
| IX     | Extra time consumed in construction of Adit to intermediate Pressure Shaft on account of increase in length from 250 m to 368.3m  | 47          |
| X      | Extra time required for excavation on account of increase in quantity of excavation from 13042 cum to 17139.051 cum.  | 122         |
| XI     | Extra time required for hauling of muck generated from geologically accepted over break for 917.395 cum quantity.   | 5           |
| XII    | Extra time required for backfill concrete 5211.03 cum over and above BOQ i/c quantity of backfilling of geological accepted over break.   | 66          |
| XIII   | Due to issue of revised construction drawing, 2 Nos. shells concrete backfilled in unit penstocks II & III were dismantled and 3 Nos. of new thrust collar shells 32 mm thick 1500 mm dia. were erected as per revised drawing which caused delay in activity of Pressure shaft | 32          |
| XIV    | The works relating to pressure shaft was completed on 14-01-2016. However, some Commissioning related works in Powerhouse Complex were still incomplete   | 48          |
| XV     | Non-availability of diesel.   | 8           |
| XVI    | Extra time required for backfill concrete 11313.33 cum in non-143 days accepted over break.   | 143         |
| XVII   | Stoppage of work due to strike by Contractor's labour (2016)  | 29          |
|        | <b>Total Delay in Days</b>  | <b>1178</b> |

**Table 12: Petitioner Submission w.r.t. Time Overrun in E&M Works**

| S.No. | Reasons for the Time Overrun in E&M Works   | No. of Days   |
|-------|---|---|
| I     | <b>Delay in Handing over Civil Front (Unit 1):</b> 56 days –Readiness of Unit-3 Barrel and floors, MIV Foundation. (20.05.2014 to 15.07.2014)   | <b>1126</b><br><i>(Total Delay in Project Commissioning as per ACOD and SCOD)</i> |
| II    | <b>Delay in Handing over Civil Front (Unit 2):</b> 137days–Readiness of Unit 2 Barrel & Floors, MIV Foundation. (31.05.2014 to 14.10.2014)  |   |
| III   | <b>Force Majeure Conditions:</b> During the period of 01.04.2014 to 30.06.2016, hindrances of 310 days occurred in the execution of E&M works   |   |
| IV    | <b>Delay in Handing over Civil Front (Unit 3):</b> 167days–Readiness of MIV Foundation. (25.07.2014 to 08.01.2015)  |   |
| V     | <b>Delay in Handing over Civil Front (Unit 1 &amp; 2):</b> 392days–Readiness of GIS Hall in all respects for GIS Erection. (30.06.2014 to 27.08.2015)   |   |
| VI    | <b>Delay due to five no. GIS Breakers during Transportation:</b> During mid of September 2015, it was noticed that 5 No. GIS Breakers were found damaged after the transportation from Store to Powerhouse. The same was not repairable and needed to be replaced. Finally, the 5 No. new breakers received at Bithal Store on dated 19.11.2015. The complete process of replacement took approx. 60 days. (15.09.2015 to 19.11.2015) |   |
| VII   | <b>Re-work at Unit-I as per observations made by M/s AHPL generator expert repaint of generator:</b> 74 Days of delay (24.11.2015 to 06.02.2016)  |   |

### Commission's Analysis

- 3.3.8 The Commission observes that the Integrated Kashang Scheme consist of two stages, Stage-I and Stage-II & III for which the HPSEB has issued the Techno Economic Clearance (TEC) approval on 31.07.2008 for IKHEP Stage-I with the commissioning schedule of 45 months and for IKHEP Stage-II & III with the commissioning schedule of 48 months.
- 3.3.9 The Commission has noted that the Petitioner awarded the work for Civil, Hydro-Mechanical and E&M through tendering process. According to the EPC contract agreement issued by the Petitioner (HPPCL), the commissioning schedule for the generating units were set at 38 months for Unit-1, 39 months for Unit-2 from the effective date 01.12.2010 and the time stipulated for Unit-3 was 24 months from the effective date 21.11.2013.
- 3.3.10 A total of two (02) bidders had participated in the competitive bidding process for the IKHEP Stage-I Works with regard to the construction of river diversion structure, intake structure, power channel, Head Race Tunnel(HRT), Pressure Shaft, Valve Chamber, underground powerhouse complex, transformer hall, tail race tunnel (TRT) with other appurtenant structure in respect of Integrated Kashang HEP (3x65 MW), which was awarded to M/s HCC Limited (L-1 Bidder) by the Tender Evaluation Committee on 13.02.2009 at a cost of Rs. 296.91 Cr. with a stipulated time period of 45 months from the effective date (i.e., 09.04.2009). The completion date for the work as per the timelines of the contract was estimated to be 08.01.2013. Further, the Commission noted that the Petitioner has taken the approval of Board of Directors (BOD) vide 15<sup>th</sup> BOD

meeting dated 20.02.2009 along with NOC from the ADB vide the letter dated 12.02.2009.

- 3.3.11 Further, with reference to IKHEP Stage-II & III works with regard to the construction of river diversion structure of 'Kerang-Khad', trench weir, conveyance tunnel, connecting tunnel, 'Kerang-Kashang' link tunnel, hydro-mechanical (HM) works and other appurtenant structure including testing and commissioning in all respect of Integrated Kashang HEP (3x65 MW), a total three bidders had participated in the tender floated. The work was awarded to M/s Patel Engineering Limited (PEL) at a cost of Rs. 252.39 Cr. with stipulated time period of 48 months from the date of signing of the contract agreement (i.e., 11.10.2010). However, as per the submission of the Petitioner, it is understood that the work could not be executed due to litigation in NGT against Environment and Forest Clearance of IKHEP Stage-II & III. Post clearance from NGT, M/s PEL has been asked to initiate the work with 10.03.2023 as the zero date. The above said work shall ensure adequate water supply for the project to operate all the three units. It is observed that currently the PPA of the Petitioner with HPSEBL is for 65 MW only, however, since the project has been developed in an integrated manner, the Commission shall consider the cost pertaining to this work post completion and subject to extension of the PPA capacity.
- 3.3.12 The E&M works for IKHEP Stage-I and II was awarded to M/s Andritz Hydro Private Limited (AHPL) (L-1 Bidder) on 26.03.2010 and Stage-III work was also awarded to the said firm on 21.11.2013. The contract amount for all three units (i.e., Stage-I, II and III) awarded at a cost of Rs. 166.72 Cr with a stipulated completion period of 38 months for Unit-1, 39 months for Unit-2 from the effective date 01.12.2010 and 24 months for Unit-3 from the effective date 21.11.2013.
- 3.3.13 Based on the Civil and E&M contract awarded by the Petitioner, the anticipated completion date for the project was 01.03.2014. However, the actual COD of the project occurred on 31.07.2017 as per the submission of the Petitioner, resulting in an overall delay of 1126 days in the project implementation.
- 3.3.14 With regard to the delay in commissioning of the project, the Commission raised several queries for providing relevant details and supporting documents. In response, the Petitioner provided the copy of Minutes of Meeting (MoM) of 62<sup>nd</sup> BOD meeting held on 28.09.2017 for granting extension for time overrun.
- 3.3.15 According to the submitted BOD minutes, the Commission has noted that the BOD had accounted 444 days of delay to the Petitioner, 180 days delay to the Civil and HM Contractor and 554 days under Force majeure conditions. The Commission tabulated the same details below:

**Table 13: Attribution of delay in Civil and HM works as per BOD MoM of Petitioner**

| S. No. | Reasons for the Time Overrun in Civil Works  | No. of Days | Delay Attributed to (from BOD MoM) |
|--------|--|-------------|------------------------------------|
| I      | Delay in excavation of valve chamber on account of delay in issue of GFC drawings. | 17          | HPPCL                              |

| S. No.                     | Reasons for the Time Overrun in Civil Works   | No. of Days | Delay Attributed to (from BOD MoM) |
|----------------------------|---|-------------|------------------------------------|
| II                         | Extra time consumed in construction of Adit to Valve Chamber on account of increase in length from 300m to 598.072m   | 107         | HPPCL                              |
| III                        | Lock out of project by Pangri Sangharash Samiti   | 7           | Force Majeure/None                 |
| IV                         | Strike and interruption of work by local residents of Pangri village (2010)   | 17          | Force Majeure/None                 |
| V                          | Strike and interruption of work by local residents of Pangri village (2011)   | 12          | Force Majeure/None                 |
| VI                         | Damage to approach road to intermediate pressure shaft from RD 1720 m to 2051m (16-06-2013 to 25-07-2014).  | 405         | Force Majeure/None                 |
| VII                        | Closure of Intermediate Pressure Shaft (IPS) road due to damage, causing delay at lower inclined pressure shaft (19-02-2015 to 10-05-2015).   | 81          | Force Majeure/None                 |
| VIII                       | Disruption of work at Upper inclined Pressure Shaft due to prolonged excavation work in valve chamber   | 32          | Force Majeure/None                 |
| IX                         | Extra time consumed in construction of Adit to intermediate Pressure Shaft on account of increase in length from 250 m to 368.3m  | 47          | HPPCL                              |
| X                          | Extra time required for excavation on account of increase in quantity of excavation from 13042 cum to 17139.051 cum.  | 122         | HPPCL                              |
| XI                         | Extra time required for hauling of muck generated from geologically accepted over break for 917.395 cum quantity.   | 05          | HPPCL                              |
| XII                        | Extra time required for backfill concrete 5211.03 cum over and above BOQ i/c quantity of backfilling of geological accepted over break.   | 66          | HPPCL                              |
| XIII                       | Due to issue of revised construction drawing, 2 Nos. shells concrete backfilled in unit penstocks II & III were dismantled and 3 Nos. of new thrust collar shells 32 mm thick 1500 mm dia. were erected as per revised drawing which caused delay in activity of Pressure shaft | 32          | HPPCL                              |
| XIV                        | The works relating to pressure shaft was completed on 14-01-2016. However, some Commissioning related works in Powerhouse Complex were still incomplete   | 48          | HPPCL                              |
| XV                         | Non-availability of diesel.   | 8           | Contractor                         |
| XVI                        | Extra time required for backfill concrete 11313.33 cum in non-143 days accepted over break.   | 143         | Contractor                         |
| XVII                       | Stoppage of work due to strike by Contractor's labour (2016)  | 29          | Contractor                         |
| <b>Total Delay in Days</b> |   | <b>1178</b> | <b>-</b>                           |

**Table 14: Attribution of the delay in E&M works as per BOD MoM of the Petitioner**

| S.No. | Reasons for the Time Overrun in E&M Works   | No. of Days   | Delay Attributed to (from BOD MoM) |
|-------|---|---|------------------------------------|
| I     | <b>Delay in Handing over Civil Front (Unit 1):</b> 56 days –Readiness of Unit-3 Barrel and floors, MIV Foundation. (20.05.2014 to 15.07.2014)   | <b>1126</b><br><i>(Total Delay in Project Commissioning as per ACOD and SCOD)</i> | HPPCL                              |
| II    | <b>Delay in Handing over Civil Front (Unit 2):</b> 137days–Readiness of Unit 2 Barrel & Floors, MIV Foundation. (31.05.2014 to 14.10.2014)  |   | HPPCL                              |
| III   | <b>Force Majeure Conditions:</b> During the period of 01.04.2014 to 30.06.2016, hindrances of 310 days occurred in the execution of E&M works   |   | Force Majeure/None                 |
| IV    | <b>Delay in Handing over Civil Front (Unit 3):</b> 167days–Readiness of MIV Foundation. (25.07.2014 to 08.01.2015)  |   | HPPCL                              |
| V     | <b>Delay in Handing over Civil Front (Unit 1 &amp; 2):</b> 392days–Readiness of GIS Hall in all respects for GIS Erection. (30.06.2014 to 27.08.2015)   |   | HPPCL                              |
| VI    | <b>Delay due to five no. GIS Breakers during Transportation:</b> During mid of September 2015, it was noticed that 5 No. GIS Breakers were found damaged after the transportation from Store to Powerhouse. The same was not repairable and needed to be replaced. Finally, the 5 No. new breakers received at Bithal Store on dated 19.11.2015. The complete process of replacement took approx. 60 days. (15.09.2015 to 19.11.2015) |   | Force Majeure/None                 |
| VII   | <b>Re-work at Unit-I as per observations made by M/s AHPL generator expert repaint of generator:</b> 74 Days of delay (24.11.2015 to 06.02.2016)  |   | Force Majeure/None                 |

3.3.16 The Commission has reviewed the submissions of the Petitioner with regard to the time overrun claimed. Further, the Commission has analysed the submission and documents provided by the Petitioner against each delay along with the reason(s) claimed in the Petition. The detailed observations of the Commission are covered below:

**I. Delay in excavation of valve chamber on account of delay in issue of GFC drawings.**

The Petitioner has mentioned that a delay of 17 days had occurred in excavation process of valve chamber on account of delay in issuance of GFC drawings. Further, the Petitioner has provided the 62<sup>nd</sup> MoM of BOD which accounted the delay to the Petitioner.

To verify the claim of the Petitioner, the Commission has sought detailed justification along with supporting documents for substantiating the claim. In response, the Petitioner submitted the MoM of the 62<sup>nd</sup>BOD. Further, it is to noted that the work could only be initiated when GFC drawing are approved. The rationale provided by the Petitioner shows that it is because of administrative delay which could have been avoided. Therefore, the

Commission in view of the recommendation of the BOD and after scrutinising the documents does not approve the 17 days delay claimed by the Petitioner.

**II. Extra time consumed in construction of Adit to Valve Chamber on account of increase in length from 300m to 598.072m**

The Petitioner has mentioned that 107 days of delay had occurred due to change in length of Adit to Valve chamber from 300m to 598.07m.

The Commission observes that the change in design occurred during construction stage because of the site and geology requirement. Further, the Commission sought detailed justification for the same. In response to the query of the Commission, the Petitioner has submitted the MoM of the 62<sup>nd</sup>BOD. Based on the review of the documents, the Commission observes that no detailed justification was highlighted in the submitted MoM with respect to delay claimed. Moreover, the Board has attributed the delay on account of the Petitioner. Therefore, in absence of the details and BOD recommendations, the Commission does not condone the delay of 107 days.

**III. Lock out of project by Pangji Sangharash Samiti**

The Petitioner has mentioned that the work was suspended by 7 days due to lock out of project by Pangji Sangharash samiti.

The Commission observes that, according to the conditions outlined in the tender document, the Petitioner is responsible for providing encumbrance-free land to the contractor before the contract is awarded. Furthermore, the General Conditions of Contract (GCC) and Particular Conditions of Contract (PCC) do not offer any leniency for delays caused by local groups. Therefore, the Commission does not condone any delays in this regard and considers this delay as a controllable factor, attributing it to the Petitioner.

**IV. Strike and interruption of work by local residents of Pangji village in year 2010 and 2011**

The Petitioner has mentioned that the work was suspended for 17 days during 2010 and 12 days during 2011 due to interruption by the local village residents.

The Commission observes that, according to the conditions outlined in the tender document, the Petitioner is responsible for providing encumbrance-free land to the contractor before the contract is awarded. Furthermore, the GCC and PCC do not offer any leniency for delays caused by local groups. Therefore, the Commission does not condone any delays in this regard and considers this delay a controllable factor, attributing it to the Petitioner.

**V. Damage to approach road to intermediate pressure shaft from RD 1720 m to 2051m (16-06-2013 to 25-07-2014).**

The Petitioner has mentioned that the work was suspended due to damage of approach road to intermediate pressure shaft, resulting in a total of 405 days delay.



The Commission noted that the delay occurred because of heavy rainfall, and it caused a ~300-meter section of the road to sink nearly 11 meters below its original level. As a result, the installation of ferrules had to be halted until the road could be restored, which was completed on 25.07.2014. During this time, access to the site was difficult due to the unavailability of the road and the onset of the monsoon season.

In support of the claim, the Petitioner has provided rainfall data, photographs of the damaged road, correspondence between the contractor and the Petitioner. Additionally, copies of the letters from the Contractor to the Petitioner highlighting the challenges faced in carrying out the work at the site were also provided.

Further, as per the PCC condition of the contract agreement, the event has to be considered as a Force Majeure event or uncontrollable factor if the work is stopped for more than 30 days due to the closure of the road. Considering these factors and the acceptance of the delay by the Board of Directors (BOD), the Commission concluded that the delay of 405 days was due to a force majeure event / uncontrollable factor. As a result, the Commission condones the delay of 405 days and approves the time overrun due to damage to the approach road because of heavy rains.

**VI. Closure of intermediate pressure shaft approach road due to snowfall and damage, causing 81 days delay at lower inclined pressure shaft**

The Petitioner has mentioned that the work was suspended due to closure of approach road to intermediate pressure shaft due to snowfall and damage, resulting in a total of 81 days delay.

The Commission noted that the delay occurred due to the avalanche, heavy snowfall and damage of approach road, which caused the closure of the intermediate pressure shaft road. Furthermore, the Commission observes that, according to the terms and conditions of the contract agreement, if events such as road closures persisted for more than 30 days, it would be considered force majeure conditions, necessitating a time extension for the Contractor.

Taking into account the aforementioned factors and the acceptance of the delay by the BOD, the Commission is of the view that the 81-day delay was due to a force majeure event. Consequently, the Commission has decided to condone this period of delay and grant an extension for the time overrun.

**VII. Disruption of work at Upper inclined Pressure Shaft due to prolonged excavation work in valve chamber**

The Petitioner has mentioned that extra time was consumed due to prolonged excavation work at upper inclined pressure shaft. The Petitioner has claimed total delay of 40 days on this account. Further only 32 days considered as delay under this head because of overlapping of 08 days under contract period for pressure shaft work.

The Commission sought detailed justification for the delay. In response to the Commission query, the Petitioner submitted the copy of MoM of 62<sup>nd</sup> BOD. The Commission noted that the period of delay overlapped with the

delay claimed under S. No. V and VI, as mentioned above where the Commission has already condoned the delay. Therefore, the Commission has not considered any additional days of delay on this account as the period has already been condoned under other reasons of delay.

**VIII. Extra time consumed in construction of Adit to intermediate Pressure Shaft on account of increase in length from 250 m to 368.3m.**

The Petitioner has mentioned that due to change in length of Adit to Pressure shaft from 250m to 368.3m, there was a delay of 47 days.

The Commission observes that the delay of 47 days in constructing the Adit to the Intermediate Pressure Shaft was primarily due to the increase in length from 250m to 368.3m. This change in length led to a delay because civil construction activities are often interdependent and, in this case, the delay in excavating the Adit has impacted the subsequent activities, prolonging the overall construction timeline.

The Commission asked the Petitioner to provide a detailed schedule of the construction activities to ensure that the delay attributed to the increased length did not overlap with any other delays which has already been condoned. However, the Petitioner failed to provide such a schedule. Instead, they submitted the MoM of the 62<sup>nd</sup>BOD meeting where the delay was attributed to the Petitioner itself. Therefore, in absence of the details and based on the recommendation of the BOD, the Commission does not approve the 47days delay claimed by the Petitioner on this account.

**IX. Extra time required for excavation on account of increase in quantity of excavation from 13042 cum to 17139.051 cum.**

The Petitioner has mentioned that extra time was consumed for excavation on account of increase in quantity of excavation. The Petitioner claimed total delay of 122 days on this account.

The Commission noted that the excavation quantity approximate increased by 4,097 cubic meter from the original BOQ, due to which a total delay of 122 days occurred. The Commission sought detailed justification for the claimed delays and in response, the Petitioner submitted the copy of MoM of the 62<sup>nd</sup> BOD meeting. As per the submissions of the Petitioner, no detailed justification was mentioned in the MoM. Additionally, upon reviewing the submitted documents and BOD MoM, the Commission found that the Board of the Petitioner has attributed the delay to the Petitioner itself. Therefore, the Commission does not condone the 122days delay claimed by the Petitioner.

**X. Extra time required for hauling of the muck generated from geologically over break.**

The Petitioner has mentioned that extra time was consumed for hauling of muck generated from geological overbreak. The Petitioner has claimed a total of 05 days delay on this account.

The Commission feels that such minor delays could be avoided during implementation of such large infrastructure projects by effective monitoring

and execution. Additionally, as per the BOD meeting minutes, the delay has been attributed on part of the Petitioner. Therefore, the Commission does not condone the 5 days delay claimed by the Petitioner.

**XI. Extra time required for backfill concrete of 5211.03 cum over and above BOQ including quantity of backfilling of geological accepted over break.**

The Petitioner has mentioned that extra time was consumed due to increase in quantity of backfill concrete due to geological overbreak. The Petitioner has claimed a total of 66 days delay on this account.

In the 62<sup>nd</sup> BOD meeting minutes, no details with regard to the delay on this account has been provided. Further, as per the MoM of 62<sup>nd</sup> BOD meeting the delay was attributed on account of the Petitioner. The Commission sought detailed justification along with supporting document with respect to the delay claimed. However, the Petitioner was unable to provide any documentary evidence and justification. In the absence of the supporting documents and considering the recommendations of the BOD, the Commission does not condone the delay of 66 days delay as requested by the Petitioner.

**XII. Delay in activity of Pressure shaft due to revised construction drawing as 2 Nos. shells concrete backfilled in unit penstocks II & III were dismantled and 3 Nos. of new thrust collar shells 32 mm thick 1500 mm dia. were erected.**

The Petitioner has mentioned that extra time was consumed due to issuance of revised construction drawings which resulted delay in the activity of the pressure shaft. The Petitioner has claimed a total of 32 days delay on this account. Further, the Petitioner has provided the MoM of the 62<sup>nd</sup> meeting of BOD which has accounted the delay to the Petitioner.

The Commission observes that the already executed thrust collar works were dismantled and fabricated again as per the revised drawings. This indicates that the Petitioner was not diligently monitoring the construction works, leading to the revision of the work. The Commission further reviewed the submitted BOD MoM, which clearly stated that the delay was attributed to the Petitioner. Therefore, in view of the above, the Commission does not condone the 32 days of delay as claimed.

**XIII. The works relating to pressure shaft was completed on 14-01-2016. However, some Commissioning related works in Powerhouse Complex were still incomplete.**

The Petitioner has mentioned that the extra time was consumed due to delay in completion of works related to the pressure shaft. The Petitioner has claimed a total of 48 days delay on this account.

The Commission observes that the time overrun had occurred due to completion of pressure shaft related works. Further, no detailed justification was submitted by the Petitioner apart from MoM of 62<sup>nd</sup> BOD meeting. The Commission noted that the BOD has attributed the delay to the Petitioner. Therefore, as per BOD recommendations and in the absence of detailed justification, the 48 days delay is attributed to the Petitioner.

**XIV. Non-availability of diesel.**

The Petitioner has mentioned that the work was suspended due to non-availability of diesel, resulting in a total of 08 days delay.

The Commission observes that according to the contract agreement and the nature of responsibilities, it was the Contractor's responsibility to arrange for fuel to operate the equipment properly. Therefore, the Commission does not condone any delay on this count.

**XV. Extra time required for backfill concrete 11,313.33 cum due to non-accepted over break.**

The Petitioner has mentioned that the work was suspended due to increase in backfill concrete quantity, resulting in a total of 143 days delay.

The Commission observes that no detailed justification was provided by the Petitioner in this regard. Further, as per the submitted MoM of the 62<sup>nd</sup> BOD meeting, the delay is accounted to the Contractor. Therefore, as per the recommendations of the BOD and in the absence of any supporting documents, the Commission has attributed the 143 days delay to the Contractor.

**XVI. Stoppage of work due to strike by Contractor's labour (2016)**

The Petitioner has mentioned that the delay had also occurred due to strike by the project area labour and has claimed 29 days delay on this account.

The Commission consider labour strike as lack of proper administration at the end of the Contractor and the Petitioner. Any delay in this regard is, therefore, not condoned being a Controllable factor and attributed to the Petitioner/ Contractor.

**XVII. E&M Works Delay due to delay in Handing over of Civil work fronts(Unit 1, 2 & 3)**

The Petitioner has stated that in E&M works, the delay had occurred due to delay in handing over of civil work fronts, as both the activities are interrelated, and E&M works could only be initiated post completion and handover of civil works. Additionally, the Petitioner has provided MoM of the 62<sup>nd</sup> BOD meeting justifying the time overrun.

The Commission has noted that the implementation of the hydro power project includes civil, mechanical, electrical, and other related works, all of which are planned to proceed in parallel. As a result, all activities are interlinked, with delays in one area potentially affecting others. Therefore, the Commission, in view of the above discussed points, has not considered the delay of E&M activities separately as the delay in hand over of civil works has only postponed the execution of E&M works.

**XVIII. Delay due to damage of five no. GIS Breakers during Transportation**

The Petitioner has stated that during mid of September 2015, it was noticed that 5 No. GIS Breakers were found damaged after the transportation from Store to Powerhouse. The same were not repairable and needed to be replaced. Finally, 5 (Five) number new breakers received at Bithal Store on dated 19.11.2015. The complete process of replacement took approx. 60

days. Additionally, the Petitioner provided the MoM of the 62<sup>nd</sup> BOD for the time overrun.

The Commission has noted that the delay occurred due to improper handling during transportation of equipment and could have been avoided. Therefore, the Commission does not condone the delay and attributes the same to the Petitioner.

- 3.3.17 After detailed examination of the various reasons and supporting documents, the Commission noted that the delay had occurred due to factors such as non-availability of access road, damage of approach road, non-working seasons, snowfall, labour strikes, variation in design, geological surprise and many other factors. Accordingly, the Commission has allowed total time overrun of 486 days for the unavailability of approach road and avalanche which was beyond the control of Petitioner and the balance delay is considered to be delay on account of the Petitioner including the delay on account of the contractor. A summary of the delay condoned is provided in the table below:

**Table 15: Details of Project delay condoned by the Commission (in Days)**

| S. No | Commission Analysis for the Time Overrun   | Total Delay | Delay Condoned | Delay not Condoned |
|-------|--|-------------|----------------|--------------------|
| I     | Delay in excavation of valve chamber on account of delay in issue of GFC drawings. (14.11.2011 to 31.11.2011)  | 17          | 0              | 17                 |
| II    | Extra time consumed in construction of Adit to Valve Chamber on account of increase in length from 300m to 598.072m  | 107         | 0              | 107                |
| III   | Lock out of project by Pangti Sangharash Samiti  | 7           | 0              | 7                  |
| IV    | Strike and interruption of work by local residents of Pangti village (2010)  | 17          | 0              | 17                 |
| V     | Strike and interruption of work by local residents of Pangti village (2011)  | 12          | 0              | 12                 |
| VI    | Damage to approach road to intermediate pressure shaft from RD 1720 m to 2051m (16-06-2013 to 25-07-2014).   | 405         | 405            | 0                  |
| VII   | Closure of IPS road due to damage w.e.f 19-02-2015 to 10-05-2015 causing delay at lower inclined pressure shaft.   | 81          | 81             | 0                  |
| VIII  | Disruption of work at Upper inclined Pressure Shaft due to prolonged excavation work in valve chamber  | 32          | 0              | 32                 |
| IX    | Extra time consumed in construction of Adit to intermediate 368.3m. Pressure Shaft on account of increase in length from 250 m to 368.3m   | 47          | 0              | 47                 |
| X     | Extra time required for excavation on account of increase in quantity of excavation from 13042 cum to 17139.051 cum.   | 122         | 0              | 122                |
| XI    | Extra time required for hauling of muck generated from geologically accepted over break for 917.395 cum quantity.  | 5           | 0              | 5                  |
| XII   | Extra time required for backfill concrete 5211.03 cum over and above BOQ i/c quantity of backfilling of geological accepted over break.  | 66          | 0              | 66                 |
| XIII  | Due to issue of revised construction drawing, 2 Nos. shells concrete backfilled in unit penstocks II & III were dismantled and 3 Nos. of new thrust collar shells 32 mm thick 1500 mm dia. | 32          | 0              | 32                 |

| S. No                   | Commission Analysis for the Time Overrun   | Total Delay | Delay Condoned | Delay not Condoned |
|-------------------------|--|-------------|----------------|--------------------|
|                         | were erected as per revised drawing which caused delay in activity of Pressure shaft   |             |                |                    |
| XIV                     | The works relating to pressure shaft was actually completed on 14-01-2016. However, some Commissioning related works in Powerhouse Complex were still incomplete | 48          | 0              | 48                 |
| XV                      | Non-availability of diesel.  | 8           | 0              | 8                  |
| XVI                     | Extra time required for backfill concrete 11313.33 cum in non-143 days accepted over break.  | 143         | 0              | 143                |
| XVII                    | Stoppage of work due to strike by Contractor's labour (2016)   | 29          | 0              | 29                 |
| XVIII                   | E&M Works Delay due to delay in Handing over Civil Front (Unit 1, 2 & 3)   | 0*          | 0*             | 0*                 |
| XIX                     | Delay due to five no. GIS Breakers during Transportation   | 0*          | 0*             | 0*                 |
| <b>Total Delay Days</b> |  | <b>1178</b> | <b>486</b>     | <b>692</b>         |

\*The delay in E&M works is not considered separately, as both Civil and E&M work activities are planned to proceed concurrently. Any delay in the E&M works is already accounted for in the Civil works schedule. Consequently, no additional delay is considered specifically for E&M activities.

3.3.18 As per the delay analysis, it is noted that the project experienced two main delays: one in civil works and another in E&M works. The civil work was awarded on 13.02.2009 with a completion period of 45 months. On the other hand, the E&M works were awarded on 26.03.2010 and 21.11.2013 with a completion period of 39 months. Despite the delay of 1178 days in execution of civil works as per Table 13 above, the Commission noted an overall delay of 1126 days in the completion of the project which is ascertained based on the Schedule Commissioning Date of the Project (i.e., 01.03.2014) and the actual Commissioning Date (i.e., 31.03.2017). Therefore, the Commission considered the project's overall delay as 1126 days.

3.3.19 As discussed above, 486 days has been approved as delay condoned on account of uncontrollable aspects and remaining delay is disallowed. The details of delay condoned for the Project is outlined in the table below:

**Table 16: Details of total delay condoned by the Commission (days)**

| Schedule Commissioning Date (SCOD) | Actual Commissioning Date (ACOD) | Total Project Delay in Days | Total Condoned Delay in Days |
|------------------------------------|----------------------------------|-----------------------------|------------------------------|
| 01.03.2014                         | 31.03.2017                       | 1126                        | 486                          |

### 3.4 Date of Commercial Operations (COD)

#### Petitioner's submissions

3.4.1 The Petitioner in the Petition has claimed CODs for Unit-I, Unit-II and Unit-III as 31.03.2017, 01.09.2016 and 03.03.2017 respectively. Further, the Petitioner has provided a certificate issued by the MD, HPPCL against the claimed COD for all the three Units along with the Petition.

### Commission's Analysis

- 3.4.2 The COD of the Project, as claimed by the Petitioner was only supported by the certificate issued by its Managing Director. However, the same has not been supported by any other agencies like the SLDC etc. In response to a query of the Commission, the Petitioner submitted subsequently a copy of the approval issued by the Directorate of Energy (DoE) (GoHP), for the COD of all the three units. As per the certificate, it is observed that the date of commissioning for each of the three units has been separate with Unit II having commissioned on 1.09.2016 followed by Unit III commissioning on 03.03.2017 and last unit (Unit I) commissioned on 31.03.2017.
- 3.4.3 The Commission is of the view that though the cost with respect to all the three units has been capitalized by the Petitioner, yet the energy generation is corresponding to one unit only due to limited water availability. Considering that the bifurcation of cost across the three units cannot be undertaken to reflect under the various ARR aspects, the Commission feels it appropriate to consider COD of the entire plant as 31.03.2017 in line with the commissioning date of last unit. This would also enable ease in computation and recovery of the various cost elements for tariff purposes.
- 3.4.4 In view of the above discussions, the Commission has considered the COD for all the three units of IKHEP as mentioned in the table below:

**Table 17: Commission approved Project COD**

| Unit             | Schedule COD | COD as per Petition | COD as per DoE | COD approved | Common COD for Tariff computation |
|------------------|--------------|---------------------|----------------|--------------|-----------------------------------|
| Unit-I (65 MW)   | 01.02.2014   | 31.03.2017          | 31.03.2017     | 31.03.2017   | 31.03.2017                        |
| Unit-II (65 MW)  | 01.03.2014   | 01.09.2016          | 01.09.2016     | 01.09.2016   |                                   |
| Unit-III (65 MW) | 21.11.2015   | 03.03.2017          | 03.03.2017     | 03.03.2017   |                                   |

### 3.5 Capital Cost

#### Petitioner's submissions

- 3.5.1 The Petitioner has claimed project cost of Rs.1003.23 Cr. towards IKHEP as on the COD against the DPR cost of Rs.478.02 Cr. The table below presents a comparative analysis between the DPR cost (as also approved by the HPSEB) vis-à-vis the claimed capital cost by the Petitioner.

**Table 18: Project Cost comparison between DPR and COD (Rs. Cr.)**

| S. No    | Particulars                               | DPR Cost Stage-I (A) | DPR Cost Stage-II & III (B) | Actual COD Cost (C) | Cost Variation (C-A) |
|----------|---|----------------------|-----------------------------|---------------------|----------------------|
| <b>1</b> | <b>DIRECT COST (Only for Civil Works)</b> |                      |                             |                     |                      |
| <b>I</b> | <b>Works</b>                              |                      |                             |                     |                      |
| A        | Preliminary                               | 13.13                | 25.81                       | 25.62               | 12.49                |
| B        | Land (Incl. R&R)                          | 13.59                | 8.56                        | 51.53               | 37.94                |
| C        | Works                                     | 19.23                | 194.70                      | 29.28               | 10.05                |

| S. No                             | Particulars                                    | DPR Cost Stage-I (A) | DPR Cost Stage-II & III (B) | Actual COD Cost (C) | Cost Variation (C-A) |
|-----------------------------------|--|----------------------|-----------------------------|---------------------|----------------------|
|                                   | <i>(Diversion and other related structure)</i> |                      |                             |                     |                      |
| J                                 | Power Plant Civil Works                        | 178.86               | 14.31                       | 350.24              | 171.38               |
| K                                 | Buildings                                      | 11.48                | 4.86                        | 6.58                | (4.90)               |
| M                                 | Plantation                                     | 0.43                 | 0.27                        | 0.00                | (0.43)               |
| O                                 | Miscellaneous                                  | 8.05                 | 5.89                        | 9.70                | 1.65                 |
| P                                 | Maintenance during construction                | 2.25                 | 2.20                        | 0.15                | (2.10)               |
| Q                                 | Special T&P                                    | 1.96                 | 0.74                        | 0.28                | (1.68)               |
| R                                 | Communications                                 | 12.68                | 3.65                        | 22.75               | 10.08                |
| X                                 | Environment and Ecology                        | 6.00                 | 18.12                       | 24.00               | 18.00                |
| Y                                 | Losses on stock                                | 0.60                 | 0.61                        | 0.00                | (0.60)               |
| <b>TOTAL: I-WORKS</b>             |  | <b>268.26</b>        | <b>279.72</b>               | <b>520.14</b>       | <b>251.88</b>        |
| II                                | Establishment                                  | 20.37                | 21.69                       | 112.24              | 91.86                |
| III                               | Tools and Plants                               | 2.00                 | 1.00                        | 0.01                | (1.99)               |
| IV                                | Suspense                                       | 0.00                 | 0.00                        | 0.00                | 0.00                 |
| V                                 | Receipt and Recoveries                         | (1.95)               | (0.68)                      | 0.00                | 1.95                 |
| <b>TOTAL(A): 1. DIRECT COST</b>   |  | <b>288.68</b>        | <b>301.73</b>               | <b>632.39</b>       | <b>343.71</b>        |
| <b>2</b>                          | <b>INDIRECT COST (Only for Civil Works)</b>    |                      |                             |                     |                      |
| i                                 | Capitalization of Abatement of Land Revenue    | 0.10                 | 0.05                        | 0.00                | (0.10)               |
| ii                                | Audit and Account Charges                      | 1.34                 | 1.40                        | 0.01                | (1.33)               |
| <b>TOTAL(B): 2. INDIRECT COST</b> |  | <b>1.44</b>          | <b>1.45</b>                 | <b>0.01</b>         | <b>(1.43)</b>        |
| <b>TOTAL (A+B)</b>                |  | <b>290.12</b>        | <b>303.18</b>               | <b>632.40</b>       | <b>342.28</b>        |
| <b>3</b>                          | Electro-Mechanical Works                       | 114.67               | 123.33                      | 209.34              | 94.67                |
| <b>4</b>                          | Interest During Construction                   | 66.15                | 54.47                       | 153.76              | 87.61                |
| <b>5</b>                          | LADF   | 7.06                 | 7.21                        | 7.74                | 0.68                 |
| <b>Total Cost (Rs. Cr)</b>        |  | <b>478.02</b>        | <b>488.19</b>               | <b>1003.23</b>      | <b>525.21</b>        |

3.5.2 The Petitioner has submitted cost as on COD for the IKHEP as Rs. 1003.23 Cr. which included all the three units while the work with respect to link tunnel is ongoing.

#### **Commission's Analysis**

3.5.3 The Commission observes that the HPSEB in its Techno Economic Clearance (TEC) issued on 31.07.2008 for IKHEP Stage-I (1x65MW) has approved the Capital cost of Rs 478.02 Cr including IDC of Rs.66.15 Cr and LADF of Rs.7.06 Cr at March 2008 price level.

3.5.4 However, based on the claim of the Petitioner, the Commission observes that the Petitioner has awarded the electromechanical work for the complete Project including Stage-II & Stage-III and has accordingly commissioned all the three



units together. Further, significant cost variations are observed in the completed cost of IKHEP with respect to the DPR cost. A comparison of the Civil works and E&M works in terms of DPR cost, awarded cost and actual cost is summarized below:

**Table 19: Hard Cost Comparison among DPR, Awarded and Actual Cost (Rs. Cr.)**

| S. No.    | Particulars            | Total DPR Cost | Contract Award Cost | Actual COD Cost |
|-----------|------------------------|----------------|---------------------|-----------------|
| 1.        | Civil Work             | 407.10         | 549.30              | 379.52*         |
| 2.        | E&M Work               | 238.00         | 166.72              | 209.34          |
| <b>3.</b> | <b>Total Hard Cost</b> | <b>645.10</b>  | <b>716.02</b>       | <b>588.86</b>   |

\*Work awarded to M/s PEL for Rs. 252.39 Cr. with respect to link tunnel is still under process and therefore not included as part of the actual COD cost

3.5.5 The Commission sought queries regarding justification for increase in the cost along with the BOD approval for the same. In response, the Petitioner has submitted the following rationale substantiating its claim for higher cost vis-à-vis the DPR cost:

- I. The HPSEB has approved the cost at March-2008 price level while the award of Civil and E&M works through tendering process was completed in the month of February-2009 and March-2010 respectively. The revisions in the market rates had resulted in the price variation between the DPR and awarded cost.
- II. The Civil work was awarded through International Competitive Bidding process in which the L1 Bidder (M/s HCC Ltd) had quoted Rs. 296.91 Cr. and for Kerang-Kashang link tunnel work awarded to M/s PEL at an amount of Rs. 252.39 Cr. The total civil work awarded cost was Rs. 549.30 Cr. which has resulted in an increase in cost vis-à-vis the DPR estimation of Rs. 407.10 Cr.
- III. The Civil work awarded at Rs. 296.91 Cr. to the L1-bidder includes the infrastructure works and related miscellaneous works of the Stage-I and the additional Powerhouse cavern, Transformer Hall cavern, Pot Head Yard etc. works of Stage-II & III. It is important to note that the cost Rs.198.09 Cr. approved by the HPSEB in DPR was only for IKHEP Stage-I civil project components. Further, the civil works were awarded with additional scope at international competitive bidding at ~10.98% higher than the revised estimate of the cost post approval of the BOD. However, the work awarded to M/s PEL at an amount of Rs. 252.39 with respect to link tunnel is still under process and, therefore, not included as part of the actual COD cost.
- IV. The E&M works was awarded through International Competitive Bidding process in which the L1 Bidder (i.e., M/s Andritz Hydro Pvt Ltd) quoted Rs. 166.72 Cr for IKHEP Stage-I, II & III. Further, the cost Rs. 144.67 Cr. approved by the HPSEB in DPR was only for IKHEP Stage-I. Therefore, the price variation incurred between the DPR and awarded cost.
- V. Price variation between the contract award cost and actual cost as on COD resulted due to change in scope of work, award of additional work, delay due to uncontrollable factors, quantity variation, price escalation, and change in FERV etc.

- 3.5.6 The Commission observes that there was significant difference in the awarded cost vis-à-vis the DPR cost. Since international competitive bidding was followed and necessary Board approvals have been submitted by the Petitioner, the Commission has considered the awarded cost as the base cost for reviewing the claimed cost against the Civil and E&M works.
- 3.5.7 The review of the HPSEB approved DPR for the IKHEP Stage-I indicates that the detailed estimate of the cost was based on planning and preliminary designs of various components of works after review of detailed field studies along with geological conditions. Further, it has been mentioned in the DPR that the provisions under various sub-heads were prepared based on "Guidelines for Formulation of Detailed Project Reports for Hydroelectric schemes, their acceptance and Examination for Concurrence" issued by CEA and "Guidelines for Preparation of Detailed Project Report of Irrigation and Multipurpose Projects" issued by the Ministry of Water Resources.
- 3.5.8 It is observed that these CEA Guidelines provides a detailed framework for approval of the various elements of capital cost for a hydroelectric project. The Commission has used the same for approval of the various cost elements for IKHEP as the same was applicable at the time of the DPR approval of the Petitioner.
- 3.5.9 While reviewing the various cost elements claimed by the Petitioner, the Commission has compared the same with DPR, awarded cost and provision for such expense items provided under the CEA Guidelines. Also, the Commission has validated the various expenses based on the documents and payment proofs submitted by the Petitioner along with auditor certificate and necessary BOD approvals.
- 3.5.10 The primary objective of conducting a detailed, item-wise review of the cost elements is to ensure that the Petitioner has not recorded any expenses under incorrect expense heads. If any expenses are found to have been booked under the wrong head, the Commission has reclassified such expenses in accordance with the DPR before assessing the prudence of those heads.
- 3.5.11 After detailed examination of the various cost elements and alignment with the sub-heads as per the DPR, the Commission has found that the Petitioner has allocated all the cost in line with the heads mentioned in the DPR. The Commission has, thus, approved the head wise cost in the following paras.
- 3.5.12 **Preliminary Expenses (A):** The Petitioner has submitted Rs. 25.62 Cr. expense under Preliminary cost as against the DPR approved cost of Rs. 13.13 Cr. Initially the Petitioner did not provide any supporting documents with respect to the claim against this cost. In response to a query of the Commission, the Petitioner submitted supporting documents including copy of work order awarded, payment proofs, and auditor certificate, in justification for the cost booked under this head. It is observed that the 'Preliminary' expenses, as per the DPR, are to be allowed with a maximum limit of 2% of the I-works cost. Accordingly, the Commission has limited the approval to Rs.10.40 Cr. towards Preliminary expenses as against the claim of Rs.25.62 Cr. The summary of Preliminary expense is summarized below:

**Table 20: Preliminary Cost- Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost         | Remarks                         |
|-----------|--------------------------------|--------------|---------------------------------|
| I         | Claimed Cost by the Petitioner | 25.62        | -                               |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>10.40</b> | <b>Limited to 2% of I-works</b> |

3.5.13 **Land Cost(B):** The Petitioner claimed Rs. 51.53 Cr. (Rs. 45.55 Cr. for Land and Rs. 5.98 Cr. for Resettlement & Rehabilitation, R&R) as expenses under the Land cost, which was higher than the DPR approved cost of Rs. 13.59 Cr. Further, the Commission sought clarification with regard to the higher cost claimed by the Petitioner along with details of land acquired as against the estimated land as per the DPR.

3.5.14 In response, the Petitioner has submitted the details of land acquired and copy of the payment proofs made by the Petitioner against land acquisition. The Commission reviewed the documents submitted by the Petitioner and noted that in the DPR, total 34 Hectare (Ha) of land was proposed which includes forest land of 18.50 Ha and private land of 15.50 Ha, but in actual approximately 35.84 Ha of land was acquired which included around 18.72 Ha of forest land and 17.12 Ha of private land. The details of land are outlined in the table below:

**Table 21: Land Acquisition: DPR and Actual**

| S. No | Particular          | Hectare (Ha) | Remarks   |
|-------|---------------------|--------------|---|
| I     | Land as per the DPR | 34.00        | Government Land: Nil<br>Forest Land: 18.50 Ha<br>Private Land: 15.50 Ha |
| II    | Land as per Actual  | 35.84        | Government Land: Nil<br>Forest Land: 17.12 Ha<br>Private Land: 18.72 Ha |

3.5.15 The Commission has noted that as per the DPR for 34.00 Ha of land, an amount of Rs. 13.59 Cr. was estimated. Further, the Petitioner has made the payment of Rs. 51.53 Cr. against the 35.84 Ha of land acquired.

3.5.16 The Commission in view of the supporting documents including payment proofs against the land acquired, ledger statement and auditor certificate has approved Rs. 51.53 Cr. (Rs. 45.55 Cr. for Land and Rs. 5.98 Cr. for R&R). The approved expense under this head is summarized below:

**Table 22: Land Cost- Claimed and Approved (Rs. Cr.)**

| S. No      | Particular   | Details      | Remarks   |
|------------|--|--------------|---|
| I          | Cost as per DPR (Rs. Cr.)                                  | 13.59        |   |
| II         | Claimed Cost by the Petitioner for IKHEP Stage-I (Rs. Cr.) | 51.53        | Rs. 45.55 Cr. as Land Cost and Rs. 5.98 Cr. as R&R Cost   |
| <b>III</b> | <b>Approved Cost (Rs. Cr.)</b>                             | <b>51.53</b> | <b>Approved in view of the supporting documents i.e., payment proofs against the land acquired, BOD approval and Auditor Certificate. The Cost has been approved for IKHEP Stage-I only</b> |

- 3.5.17 **Work (C):** The Petitioner has claimed expenses totalling to Rs. 29.28 Cr. against the DPR cost of Rs. 19.23 Cr. However, the Civil and Hydro-Mechanical (HM) Works were awarded to M/s HCC Ltd. (L-1 Bidder) by the Tender Evaluation Committee at a cost of Rs. 296.91 Cr., with a stipulated time period of 45 months from the date of signing of contract agreement (i.e.,03.03.2009). The completion date for the work was expected to be 08.01.2013. The awarded work of Rs. 296.91 Cr. includes amount of Rs 32.96 Cr. for 'Works(C)' and Rs.263.95 Cr. for 'Power Plant Civil Works(J)'.
- 3.5.18 As per the above statement, it is observed that the Petitioner awarded the 'Works(C)' at an amount of Rs 32.96 Cr. and has claimed Rs. 29.28 Cr. as on COD. The Petitioner has clarified that the reduction in cost as compared to awarded contract was due to change in design and quantity variation. After scrutinising the payment proofs, auditor certificate, BOD approvals etc., the Commission has approved the cost of Rs. 29.28 Cr. as summarised below:

**Table 23: Works (C) Cost – Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost         | Remarks                                   |
|-----------|--------------------------------|--------------|---|
| I         | Claimed Cost by the Petitioner | 29.28        | The actual awarded cost was Rs. 32.96 Cr. |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>29.28</b> | <b>Limited to 2% of I-works</b>           |

- 3.5.19 **Power Plant Civil Works (J):** The Petitioner has submitted expenses totalling to Rs. 350.24 Cr. under 'Power Plant Civil Works,' which exceeds the DPR-approved cost of Rs. 178.86 Cr. The contract for complete Civil and Hydro-Mechanical Works (i.e., Works(C) and Power Plant Civil Works(J)) was awarded to M/s HCC Limited on 03.03.2009 for Rs. 296.91 Cr. This cost includes the cost of 'Works(C)' amounting Rs. 32.96 Cr. and cost of 'Power Plant Civil Works (J)' amounting Rs. 263.95 Cr. However, the Petitioner has claimed Rs. 350.24 Cr. as the cost of 'Power Plant Civil Works' as of COD.
- 3.5.20 Furthermore, the Petitioner has provided reasons for the increase in claimed cost compared to the awarded cost of Rs. 263.95 Cr. The Commission noted that although the Petitioner has claimed Rs. 350.24 Cr., the total amount after considering the cost variation comes out to Rs. 346.56 Cr. In view of this discrepancy, the Commission sought a detailed reasoning and justification for the variation.
- 3.5.21 The Petitioner has responded by clarifying that the amount claimed under 'Price Escalation' was a typographical error and should be considered as Rs. 63.49 Cr. and not Rs. 54.26 Cr. as claimed in the Petition. The Petitioner has provided the payment proofs and supporting documents for this. After reviewing the Petition, related documents regarding 'change in order' and 'contract award agreement', the Commission has revised the claimed amount to Rs. 355.79 Cr., up from Rs. 346.56 Cr. as discussed above. The Petitioner has also submitted payment proofs for 'Price Escalation' and copies of 'change in order' to support the revised cost.
- 3.5.22 In summary, the Petitioner initially claimed Rs. 350.24 Cr. under 'Power Plant Civil Works.' However, after correcting a typographical error and considering the revised price escalation cost, submitted by the Petitioner against deficiency letter, the claimed cost has been revised to Rs. 355.79 Cr. as shown below:

**Table 24: Revised cost towards Civil Works claimed by the Petitioner (Rs. Cr.)**

| S. No                       | Cost Variation Reasons   | Claimed Amount | Revised Amount |
|-----------------------------|--|----------------|----------------|
| I                           | Power Plant Civil Work awarded cost  | 263.95         | 263.95         |
| II                          | Price escalation as approved by the Engineer-in-charge that was paid to the Contractor   | 54.26          | 63.49          |
| III                         | Variation due to installation of Geo Technical Instruments   | 6.55           | 6.55           |
| IV                          | Variations were encountered both in terms of quantity of material as per DPR provisions as well as Extra Items to be incorporated which were not part of the DPR | 21.80          | 21.80          |
| <b>Total Cost (Rs. Cr.)</b> |  | <b>346.56</b>  | <b>355.79</b>  |

3.5.23 The Petitioner has provided the following justification for the increased cost:

- I. The Civil work awarded at Rs.296.91 Cr. includes the civil infrastructure works of the Stage-I and the additional Powerhouse work of Stage-II & III which was not the part of the DPR. It is important to note that the cost of Rs. 198.09 Cr. in DPR was only for IKHEP Stage-I civil project components. Further, the Civil works were awarded with additional scope in international competitive bidding at ~10.98% higher than the revised estimate of the cost post approval of the BOD.
- II. According to 'Variation and Adjustment' Conditions of the Contract Agreement for Civil Work, price escalation was permissible to accommodate change in labour and material components etc. during the execution of the Contract. The price escalation as also approved by the Engineer-in-charge was paid to the contractor amounting to Rs.63.49 Cr.
- III. Variation due to Change order of additional work of installation of Geo-Technical Instruments amounting to Rs. 6.55 Cr.
- IV. The variation amounting to Rs. 21.80 Cr. occurred due to variation in quantity of material as per DPR provisions as well as extra items etc.

3.5.24 With regard to the cost variations in the Civil cost, the Commission has reviewed the submissions of the Petitioner along with the relevant documents including award of contract, provisions with regard to price variation, approval of competent authority, etc. Accordingly, the Commission has approved the following deviations:

- The cost variation with respect to the DPR has been allowed considering the award was based on international competitive bidding process and was approved by the BODs of the Petitioner.
- Claimed cost of Rs. 6.55 Cr. related to "change in order" as additional work for installation of Geo-Technical Instruments as per the technical requirements. The Petitioner has submitted the copy of supplementary contract agreement and approval from the competent authority to this account. The Commission as per the submissions of the Petitioner observes that the during detailed engineering and execution of the project, the requirement for installation of Geo-Technical instruments arose, and this additional work order pertains to the necessary technical requirement which is an essential activity for the project monitoring.

- With regard to the price escalation of Rs. 63.49 Cr., the Commission observes that the contract awarded to M/s HCC provided for the escalation on account of labour and material during the period of execution. Therefore, the Commission has approved the amount of price escalation during the original contract period and balance amount has been pro-rated based on the delay condoned as against the total delay in execution of the project.
- The cost variations were encountered during the construction stage due to quantity variation and extra works which were not part of the DPR, resulting a total variation of Rs. 21.80 Cr. This claimed cost has been approved by the Commission after prudence check of payment orders and Board approval.
- Therefore, the Commission has allowed Rs. 319.70 Cr. against Rs. 355.79 Cr. Claimed for Civil and Hydro-Mechanical works as shown below:

**Table 25: Power Plant Civil Works Revised and Approved (Rs. Cr.)**

| S. No | Cost Variation Detail  | Revised Amount | Approved Amount |
|-------|--|----------------|-----------------|
| I     | Power Plant Civil Work awarded cost  | 263.95         | 263.95          |
| II    | Price escalation as approved by the Engineer-in-charge that was paid to the Contractor   | 63.49          | 27.40           |
| III   | Variation due to installation of Geo Technical Instruments   | 6.55           | 6.55            |
| IV    | Variations were encountered both in terms of quantity of material as per DPR provisions as well as Extra Items to be incorporated which were not part of the DPR | 21.80          | 21.80           |
|       | <b>Approved Cost (Rs. Cr.)</b>   | <b>355.79</b>  | <b>319.70</b>   |

3.5.25 The Commission also notes that an additional contract civil construction work corresponding to IKHEP Stage-II & III (2x65MW) was awarded to M/s PEL on 06.09.2010 at a value of Rs.252.39 Cr. However, due to litigations in NGT against Environment Clearance, the work was held up for a very long time. Post disposal of the case, M/s PEL has been asked to resume the works considering 10.03.2023 as the zero date and a completion period of 48 month. Since the works shall be completed at a future date, the Commission shall review the same post commissioning and submission of details regarding the same by the Petitioner.

3.5.26 **Buildings (K):** The Petitioner has claimed a cost of Rs. 6.58 Cr. towards 'Buildings' as against the DPR approved cost of Rs. 11.48 Cr. However, the Commission has not found any supporting documents for justification of the claimed cost. In response to a query of the Commission, the Petitioner submitted the copy of Contract agreement awarded, ledger statement and auditor certificate. Post scrutiny of the documents, the Commission has approved Rs. 6.58 Cr. towards Building expense. The summary of expense towards buildings is summarized below:

**Table 26: Building Cost – Claimed and Approved (Rs. Cr.)**

| S. No | Particular                     | Cost        | Remarks  |
|-------|--------------------------------|-------------|--|
| I     | Claimed Cost by the Petitioner | 6.58        | -  |
| II    | <b>Approved Cost (Rs. Cr.)</b> | <b>6.58</b> | <b>As per the contract agreement, ledger statement and auditor certificate</b> |

3.5.27 **Plantation (M):** The Petitioner has claimed Nil cost towards 'Plantation' cost as against the DPR approved cost of Rs.0.43 Cr. Since Nil expense is claimed against this head, the Commission has considered the same as Nil.

3.5.28 **Miscellaneous (O):** The Petitioner has claimed Rs.9.70 Cr towards 'Miscellaneous' costs as against the DPR approved cost of Rs.8.05 Cr. As per the DPR, the provision for the 'Miscellaneous' expenses was computed based on a limit of 3% of the I-works cost. In absence of any supporting documents, the Commission sought necessary details in this regard. In response to the queries, the Petitioner has submitted the SAP statement, Ledger Statement, and auditor certificate. Following scrutiny of the submitted documents, the Commission has approved Rs.9.70 Cr. expense under this head as summarized below:

**Table 27: Miscellaneous Cost - Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost        | Remarks                               |
|-----------|--------------------------------|-------------|---------------------------------------|
| I         | Claimed Cost by the Petitioner | 9.70        | -                                     |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>9.70</b> | <b>As per the auditor certificate</b> |

3.5.29 **Maintenance during construction (P):** The Petitioner has claimed Rs.0.15 Cr. towards 'Maintenance during construction' costs as against the DPR approved cost of Rs.2.25 Cr. The provision outlined in the submitted DPR by the Petitioner provides that for 'Maintenance during construction' expenses is based on a maximum limit of 1% of the (C+J+K) works cost. In response to the query, the Petitioner has submitted the payment statement and auditor certificate. Following scrutiny of the submitted documents, the Commission has approved Rs.0.15 Cr. expense under this head as summarized below:

**Table 28: Maintenance during construction Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost        | Remarks                               |
|-----------|--------------------------------|-------------|---------------------------------------|
| I         | Claimed Cost by the Petitioner | 0.15        | -                                     |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>0.15</b> | <b>As per the Auditor Certificate</b> |

3.5.30 **Special T&P (Q):** The Petitioner has claimed Rs.0.28 Cr. cost as against the DPR approved cost of Rs.1.96 Cr. In the absence of any supporting documents, the Commission sought necessary details. In response to the query, the Petitioner has submitted the payment statement and auditor certificate. Following scrutiny of the submitted documents, the Commission has approved Rs.0.28 Cr. expense under this head summarized below:

**Table 29: Special (T&P) Cost - Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost        | Remarks                               |
|-----------|--------------------------------|-------------|---------------------------------------|
| I         | Claimed Cost by the Petitioner | 0.28        | -                                     |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>0.28</b> | <b>As per the Auditor Certificate</b> |

3.5.31 **Communications (R):** The Petitioner has claimed Rs. 22.75 Cr. towards 'Communications' cost as against the DPR approved cost of Rs.12.68 Cr. The provision outlined in the DPR for 'Communication' expenses is based on actual expenditure. It was observed that the communication cost primarily included the expense towards the approach road to access different sites of the project. Further, as per the conditions of the contract agreement, it was observed that the Petitioner was required to construct the roads and bridges to approach the

various sites of works. However, no supporting documents were submitted along with the Petition regarding the contract agreement and payment proofs for the claimed amount. In response to the queries, the Petitioner submitted that the works of the approach road for the project was awarded through tendering process. Also, the Petitioner submitted the copy of work awarded, payment proofs statements, and auditor certificate. Following scrutiny of the documents, the Commission has approved Rs. 22.75 Cr. towards construction of approach road as summarized below:

**Table 30: Communication Cost – Claimed and Approved (Rs. Cr.)**

| S. No | Particular                     | Cost         | Remarks  |
|-------|--------------------------------|--------------|--|
| I     | Claimed Cost by the Petitioner | 22.75        | -  |
| II    | <b>Approved Cost (Rs. Cr.)</b> | <b>22.75</b> | <b>As per the documents submitted i.e., payment vouchers, contract agreement and Auditor Certificate</b> |

3.5.32 **Environment and Ecology (E&E) (X):** The Petitioner has claimed Rs.24.00 Cr. cost towards 'Environment and Ecology' as against the DPR approved cost of Rs.6.00 Cr. The provision outlined in the DPR for 'Environment and Ecology' expenses was based on actual expenditure. The Commission raised deficiency letters to provide necessary details and supporting documents related to the expense claimed. In response to the query, the Petitioner submitted that the Payment amounting Rs. 24.00 Cr. was paid to 'Department of Forest' against 'Catchment Area Treatment' (CAT) plan and to the 'National Board for Wildlife Department'. Further, the payment vouchers as proofs and auditor certificate was submitted. Following scrutiny of the submitted documents, the Commission has approved Rs. 24.00 Cr. expense under this head as summarized below:

**Table 31: Environment & Ecology Cost - Claimed and Approved (Rs. Cr.)**

| S. No | Particular                     | Cost         | Remarks  |
|-------|--------------------------------|--------------|--|
| I     | Claimed Cost by the Petitioner | 24.00        | -  |
| II    | <b>Approved Cost (Rs. Cr.)</b> | <b>24.00</b> | <b>As per the response submitted documents and Auditor Certificate</b> |

3.5.33 **Losses on stock (Y):** The Petitioner has claimed Nil cost towards 'Losses on Stock' cost which has been considered by the Commission.

3.5.34 **Establishment (II):** The Petitioner has claimed Rs. 112.24 Cr. as 'Establishment' costs, against the DPR-approved cost of Rs. 20.37 Cr.

3.5.35 The Commission sought details of the manpower deployed, head office, design office, and other hired manpower. In response to the queries, the Petitioner submitted year wise list of manpower deployed at the site along with the salary structure and designation. Additionally, the payment against Head Office and Design Office costs was also included under this head. The Petitioner submitted that due to delay in the project, the cost towards establishment has increased. An Auditor certificate in support of the same was submitted by the Petitioner.

3.5.36 The DPR stipulate that 'Establishment' expenses should be the sum of "8% of Civil Cost excluding Land cost" (i.e., 'I-works' – 'B-Land') and "6% of E&M



works". As per Table No. 18, the Civil cost excluding land is Rs. 474.59 Cr. and 8% of the same is Rs. 37.97 Cr. Further, the E&M cost as per Table No. 18 is Rs. 209.34 Cr. and 6% of the same is Rs. 12.56 Cr. which is allowed as per the guidelines. However, after scrutiny of the establishment charges, it is observed that the expense booked under this head is significantly high and does not have any rationale. Therefore, after scrutinizing the submitted documents, the Commission limited the amount under this head and has approved the amount limited to Rs. 50.53Cr. in line with the framework prescribed in the DPR as summarized below:

**Table 32: Establishment Cost - Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost         | Remarks                 |
|-----------|--------------------------------|--------------|-------------------------|
| I         | Claimed Cost by the Petitioner | 112.24       | -                       |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>50.53</b> | <b>Limit as per DPR</b> |

3.5.37 **Tools and Plants (III):** The Petitioner has claimed Rs. 0.01 Cr. towards 'Tools and Plants' cost as against the DPR approved cost of Rs. 2.00 Cr. It has been observed that the 'Tools and Plants' cost primarily included the expense towards the procurement of office equipment and stationery. Following scrutiny of the payment statement and auditor certificate, the Commission has approved Rs. 0.01 Cr. under this head as summarized below:

**Table 33: Tools & Plant Cost - Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost        | Remarks                               |
|-----------|--------------------------------|-------------|---------------------------------------|
| I         | Claimed Cost by the Petitioner | 0.01        | -                                     |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>0.01</b> | <b>As per the Auditor Certificate</b> |

3.5.38 **Receipt and Recoveries (V):** The Petitioner has claimed Nil cost under this head and the same has been considered by the Commission.

3.5.39 **Indirect Cost (2):** The Petitioner has claimed Rs. 0.01 Cr. cost towards 'Indirect Cost' as against the DPR approved cost of Rs. 1.44 Cr. It has been observed that the 'Indirect Cost' primarily included the expense towards the audit and account charges. Following scrutiny of the auditor certificate, the Commission has approved Rs. 0.01 Cr. under Indirect cost as given below:

**Table 34: Indirect Cost - Claimed and Approved (Rs. Cr.)**

| S. No     | Particular                     | Cost        | Remarks                           |
|-----------|--------------------------------|-------------|-----------------------------------|
| I         | Claimed Cost by the Petitioner | 0.01        | -                                 |
| <b>II</b> | <b>Approved Cost (Rs. Cr.)</b> | <b>0.01</b> | <b>As per auditor certificate</b> |

3.5.40 **Electro-Mechanical Works (3):** The Petitioner has claimed an amount of Rs. 209.34 Cr. against the E&M works. The Petitioner has submitted that the E&M Works was awarded to M/s Andritz Hydro Private Limited at a cost of Rs. 166.72 Cr.

3.5.41 Upon reviewing the Petition and related documents, the Commission has tabulated the reasons for higher claimed cost vis-à-vis the awarded cost as under:

**Table 35: Cost as on COD for E&M Works (Rs. Cr.)**

| S. No                         | Particulars   | Amount        |
|-------------------------------|---|---------------|
| I                             | Actual Contract Award Cost  | 166.72        |
| II                            | Price escalation  | 26.50         |
| III                           | Change order for the Pothead Yard Structures and Wave Trap Mounted CVT              | 0.50          |
| IV                            | Change order for the HDPE pipes and Optical Fiber                                   | 0.10          |
| V                             | Change order for the firefighting System  | 1.70          |
| VI                            | Change order for the DG Sets and other LT Supply provision for BFV House and Intake | 0.80          |
| VII                           | Change order for the Change in transportation Route and GIS Hall Related            | 0.20          |
| VIII                          | Variation in the Taxes & Duties   | 11.50         |
| <b>Approved Cost (Rs. Cr)</b> |   | <b>208.02</b> |

3.5.42 Based on the above table, the Commission has identified a cost difference of Rs. 1.32 Cr. between the claimed cost and detailed breakup of the E&M cost. In response to the clarification sought, the Petitioner submitted details against the 'Price escalation', 'change in order' and 'Tax and Duties' etc. which summed up to Rs. 208.02 Cr. Accordingly, the Commission has revised the claimed cost to Rs. 208.02 Cr. against the E&M works as per the subsequent submissions of the Petitioner.

3.5.43 The justification provided by the Petitioner for the increased cost are as follows:

- I. According to the Contract Agreement for E&M Works, Price Escalation was permissible to accommodate change in labour and material components etc. during the execution of the Contract. The price escalation as also approved by the Engineer-in-charge was paid to the contractor amounting to Rs.26.50 Cr.
- II. Change order for the Pothead Yard Structures and Wave Trap Mounted CVT:
  - During the site survey, it was determined that it was not feasible to provide a rock ledge at the Pothead Yard of the Kashang HEP. As a result, it was concluded that an additional 3 towers with gantry needed to be provided. Additionally, due to space constraints, a CVT mounted wave trap was used in the Pothead Yard. These changes led to an added price implication of approximately Rs. 0.50 Cr.
- III. Change order for the HDPE pipes and Optical Fiber:
  - Due to the frequent landslides and shooting stones at the IKHEP project site, it was decided to route the OFC through the Penstock and HRT for greater reliability. This decision was made to avoid potential damage to the OFC if it was laid overhead. As a result, HDPE conduit was laid through the Penstock and HRT for Plant SCADA/communication purposes, leading to an added cost of Rs. 0.10 Cr.
- IV. Change order for the firefighting System:

- Due to lack of space, an overhead tank for the firefighting system couldn't be constructed and, therefore, was placed in the Ventilation Tunnel and filled from the Cooling Water Sump. Pumps in the tunnel create a 7bar pressure for the system, with a 160 kVA DG set as backup power. An additional local overhead tank was installed as a backup near NH 505. This change order, including pumps, piping, cables, and programming changes, costs approximately Rs. 1.70 Cr.
  - V. Change order for the DG Sets and other LT Supply provision for BFV House and Intake:
    - The main contracts for E&M and Civil packages did not include power supply provisions at BFV and Intake sites, except for a 250 kVA DG set at the intake site. To address this, a 100 kVA DG set was procured for emergency power supply at the BFV Cavern, along with a 5 kVA UPS for instrumentation backup. Additionally, a 10 kVA DG set was purchased for emergency power supply at the intake site. To provide LT supply, a construction power transformer was relocated from the intake rest house site to the intake site as a deposit work to the HPSEB. LT panels, power cables, and control cables were also procured for auxiliary power supply at both the BFV Cavern and intake site, resulting in an added cost of approximately 0.8 Cr.
  - VI. Change order for the Change in transportation Route and GIS Hall Related:
    - NH-505 blockage at Karchham necessitated an alternate route through Urni Dhank to Choling from Tapri. This resulted in additional delays and transportation costs, totalling approximately 0.20 Cr.
  - VII. The variation amounting to Rs.11.50 Cr. occurred due extra payment towards Tax and Duties. As per the E&M Contract, the awarded price was exclusive of taxes and duties which were to be reimbursed to the contractor on actual basis against production of documentary proof.
- 3.5.44 With regard to the cost variations in the E&M cost, the Commission has reviewed the submissions of the Petitioner along with the relevant documents including award of contract, provisions with regard to price variation, approval of competent authority, supplementary order etc. Accordingly, the Commission has approved the following deviations:
- i. It is observed that the total amount of Rs. 3.30 Cr. claimed under S. No. III to VII as discussed above related to 'change in order' of the E&M works against which the Petitioner submitted supplementary contract agreements. In view of the supporting contract agreements and approval of the same from the competent authority, the Commission observes that the 'change in order' had occurred due to site conditions and necessary technical requirements for commissioning of the project. Accordingly, the Commission has approved the cost of Rs 3.30 Cr. towards revision in works.
  - ii. With regard to the price escalation of Rs. 26.50 Cr., the Commission observes that the contract awarded to M/s Andritz provided for escalation on account of labour and material during the period of execution.

Therefore, the Commission has approved the amount of price escalation during the original contract period and balance amount has been pro-rated based on the delay condoned as against the total delay in execution of the project.

- iii. With regard to the payment made towards tax and duties, the Commission observes that Rs.11.50 Cr was paid for the same. The Commission has approved the amount paid during the original contract period and balance amount has been pro-rated based on the delay condoned as against the total delay in execution of the project. According to the submissions of the Petitioner, the Commission noted that the Petitioner has paid all the claimed amount within the contract period. Hence, the Commission has allowed Rs. 11.50 Cr. on this count.

- 3.5.45 After accounting for variations in E&M contract vale on account of price escalation, revision in scope, tax& duties, etc., the Commission approves Rs. 192.96 Cr. against Rs. 208.02 Cr. claimed by the Petitioner towards Electro-Mechanical works. The detailed break-up is summarized in table below:

**Table 36: E&M Cost approved by the Commission (Rs. Cr.)**

| S. No                         | Cost Variation Reasons for E&M Works  | Claimed Amount | Approved Amount |
|-------------------------------|---|----------------|-----------------|
| I                             | Actual Contract Award Cost  | 166.72         | 166.72          |
| II                            | Price escalation  | 26.50          | 11.44           |
| III                           | Change order for the Pothead Yard Structures and Wave Trap Mounted CVT              | 0.50           | 0.50            |
| IV                            | Change order for the HDPE pipes and Optical Fiber                                   | 0.10           | 0.10            |
| V                             | Change order for the firefighting System  | 1.70           | 1.70            |
| VI                            | Change order for the DG Sets and other LT Supply provision for BFV House and Intake | 0.80           | 0.80            |
| VII                           | Change order for the Change in transportation Route and GIS Hall Related            | 0.20           | 0.20            |
| VIII                          | Variation in the Taxes & Duties   | 11.50          | 11.50           |
| <b>Approved Cost (Rs. Cr)</b> |   | <b>208.02</b>  | <b>192.96</b>   |

- 3.5.46 **Interest During Construction (IDC) (4):** The Petitioner has claimed Rs.153.76 Cr. towards 'IDC,' compared to the DPR approved cost of Rs.66.15 Cr. During the review of loan and other related documents, the Commission has noted that the Petitioner had obtained a loan from the Government of Himachal Pradesh (GoHP) at a 10% interest rate. However, the loan was being received by the Petitioner under a tri-partiate agreement between Government of India (GoI), GoHP and Asian Development Bank (ADB) under the Himachal Pradesh Clean Energy Development Investment Programme (HPCEDIP) being funded by ADB. Since the state of Himachal Pradesh is a special category state, the entire multilateral funding from the GoI has been provided to GoHP as 90% grant and 10% as loan. However, the entire amount was further provided by GoHP to the Petitioner at an interest rate of 10% per annum without any conversion to grant.

- 3.5.47 The Commission is of the view that the arrangement of GoHP with GoI regarding the loan should be implemented with the Petitioner in order to avoid any unreasonable cost as part of tariff determination. The Petitioner is directed

to take up the matter with the GoHP and ensure that the terms and conditions with respect to availing the loan should be replicated under the agreement with the HPPCL. The Commission has provisionally considered the amount of IDC claimed as part of the capital cost and shall consider any changes in subsequent Control Period based on final decision from GoHP.

- 3.5.48 Further, it is observed that details with respect to working of IDC was not provided by the Petitioner in spite of repeated queries. In one of responses, the Petitioner submitted year-wise IDC amount booked without any working with respect to the same. During technical validation session, the Petitioner has clarified that adequate records for the past period were unavailable, but all records post 2012 are being compiled under SAP and the IDC is also certified as per the Auditor certificate. In the absence of any further details, the Commission has considered the IDC amount as per the Auditor certificate and has pro-rated the amount claimed vis-à-vis the approved cost and delay condoned to arrive at the approved IDC against the project. Accordingly, the Commission approves an amount of Rs. 97.57Cr. for IDC as summarised as under:

**Table 37: IDC Cost - Claimed and Approved (Rs. Cr.)**

| S. No | Particular                                   | Method  | Cost          | Remarks  |
|-------|--|---|---------------|--|
| I     | IDC Claimed by the Petitioner                | -   | 153.76        | As per the documents submitted with the Petition |
| II    | Total Project Cost Claimed by the Petitioner | -   | 1003.23       | Including IDC of 153.76 Cr.                      |
| III   | Project cost (excluding IDC)                 | (II-I)  | 849.47        | -  |
| IV    | <b>Approved Project Cost (excluding IDC)</b> | -   | <b>724.94</b> | <b>As per Table No. 39</b>                       |
| V     | Total Contract Period (in Days)              | -   | 1370          | As per the Contract award                        |
| VI    | Total Delay (in Days)                        | -   | 1126          | As per Table No. 16                              |
| VII   | Total Delay Condoned (in Days)               | -   | 486           | As per Table No. 16                              |
| VIII  | <b>Approved IDC Cost (Rs. Cr.)</b>           | $\frac{[I * (IV/III)] * [(V+VII)/(V+VI)]}{1}$ | <b>97.57</b>  | <b>On Pro-rata basis</b>                         |

- 3.5.49 **Local Area Development Fund (LADF) (5):** The Petitioner has claimed Rs. 7.74 Cr. cost towards the 'Local Area Development Fund (LADF)' as against the DPR approved cost of Rs. 7.06 Cr. The LADF expenses is governed under the State Hydro Policy, 2006 notified by the GoHP. This Policy mandates that project developers shall allocate 1.5% of the final cost for projects above 5 MW capacity and 1% for projects up to 5 MW capacity towards the LADF. Thus, the LADF being a mandatory fee is required to be considered as part of the project cost.
- 3.5.50 Based on the review of the Petition and information submitted, the Commission found that the Petitioner has paid an amount of Rs. 9.06 Cr. toward LADF (Rs. 7.05 Cr. as on COD and Rs.2.00 Cr. beyond COD). In response to a query with regard to the discrepancy in LADF amount, the Petitioner submitted a payment statement indicating that the payment was made to the 'The Chairman-LADA-Kinnaur' and 'The Deputy Commissioner-Kinnaur' as per the State Hydro

Policy-2006, along with an auditor certificate. After scrutinizing the payment statement and auditor certificate, the Commission has approved Rs.7.05 Cr. paid as on COD in accordance with the State Hydro Policy-2006.

**Table 38: LADF Cost- Claimed and Approved (Rs. Cr.)**

| S. No | Particular                     | Cost        | Remarks  |
|-------|--------------------------------|-------------|--|
| I     | Claimed Cost by the Petitioner | 7.74        | -  |
| II    | <b>Approved Cost (Rs. Cr.)</b> | <b>7.05</b> | <b>As per the documents provided with the Petition, multiple deficiencies response and Auditor Certificate</b> |

3.5.51 Based on the above discussions and detailed scrutiny of the cost elements, the Capital Cost approved by the Commission as on COD for the complete project is detailed below:

**Table 39: Project Cost for IKHEP- DPR, Actual and Approved (Rs. Cr.)**

| S. No                              | Particulars                                 | DPR Cost      | Actual Cost    | Approved Cost |
|------------------------------------|---|---------------|----------------|---------------|
| <b>1</b>                           | <b>DIRECT COST</b>                          |               |                |               |
| <b>I</b>                           | <b>Works</b>                                |               |                |               |
| A                                  | Preliminary                                 | 38.94         | 25.62          | 10.40         |
| B                                  | Land (Incl. R&R)                            | 22.15         | 51.53          | 51.53         |
| C                                  | Works (Diversion Structure)                 | 213.93        | 29.28          | 29.28         |
| J                                  | Power Plant Civil Works                     | 193.17        | 350.24*        | 319.70*       |
| K                                  | Buildings                                   | 16.34         | 6.58           | 6.58          |
| M                                  | Plantation                                  | 0.70          | 0.00           | 0.00          |
| O                                  | Miscellaneous                               | 13.94         | 9.70           | 9.70          |
| P                                  | Maintenance during construction             | 4.45          | 0.15           | 0.15          |
| Q                                  | Special T&P                                 | 2.7           | 0.28           | 0.28          |
| R                                  | Communications                              | 16.33         | 22.75          | 22.75         |
| X                                  | Environment and Ecology                     | 24.12         | 24.00          | 24.00         |
| Y                                  | Losses on stock                             | 1.21          | 0.00           | 0.00          |
| <b>TOTAL: I-WORKS</b>              |   | <b>547.98</b> | <b>520.14</b>  | <b>474.38</b> |
| II                                 | Establishment                               | 42.06         | 112.24         | 50.53         |
| III                                | Tools and Plants                            | 3.00          | 0.01           | 0.01          |
| IV                                 | Suspense                                    | 0.00          | 0.00           | 0.00          |
| V                                  | Receipt and Recoveries                      | (2.63)        | 0.00           | 0.00          |
| <b>TOTAL(A): 1. DIRECT COST</b>    |   | <b>590.41</b> | <b>632.39</b>  | <b>524.92</b> |
| <b>2</b>                           | <b>INDIRECT COST</b>                        |               |                |               |
| i                                  | Capitalization of Abatement of Land Revenue | 0.15          | 0.00           | 0.00          |
| ii                                 | Audit and Account Charges                   | 2.74          | 0.01           | 0.01          |
| <b>TOTAL(B): 2. INDIRECT COST</b>  |   | <b>2.89</b>   | <b>0.01</b>    | <b>0.01</b>   |
| <b>TOTAL (A+B)</b>                 |   | <b>593.30</b> | <b>632.40</b>  | <b>524.93</b> |
| <b>3</b>                           | Electro-Mechanical Works                    | 238           | 209.34         | 192.96        |
| <b>4</b>                           | Interest During Construction                | 120.62        | 153.76         | 97.57         |
| <b>5</b>                           | LADF (1.5%)                                 | 14.27         | 7.74           | 7.05          |
| <b>Total Project Cost (Rs. Cr)</b> |   | <b>966.21</b> | <b>1003.23</b> | <b>822.51</b> |

\*Work awarded to M/s PEL for Rs. 252.39 Cr. with respect to link tunnel is still under process and therefore not included as part of the actual COD cost

3.5.52 Therefore, the Commission approves Rs. 822.51Cr.as against the claimed cost of Rs. 1003.23 Cr. by the Petitioner as on COD. It is important to note that the cost approved by the Commission for the project has been for the combined three units of IKHEP excluding the civil works towards link tunnel for supplying water from the Kerang stream.

### 3.6 Additional Capital Expenditure (ACE)

#### Petitioner Submissions

3.6.1 The Petitioner in the Petition has proposed additional capital expenditure up to 'Cut-off Date' and 'Beyond Cut-off Date' amounting to Rs. 40.88Cr. and Rs. 0.13Cr. respectively.

3.6.2 Accordingly, the Petitioner has claimed additional capital expenditure as per the petition with breakup as follows:

**Table 40: Additional Capital Expenditure (ACE)**

| Particulars              | ACE<br>'Up to Cut-Off Date' |               |               | ACE<br>'Beyond Cut-Off Date' |               |               |                   |
|--------------------------|-----------------------------|---------------|---------------|------------------------------|---------------|---------------|-------------------|
|                          | FY<br>2017-18               | FY<br>2018-19 | FY<br>2019-20 | FY<br>2020-21                | FY<br>2021-22 | FY<br>2022-23 | FY<br>2023-<br>24 |
| Civil Work               | 20.56                       | 4.27          | (0.23)        | 0.00                         | 0.44          | 0.00          | 0.25              |
| E&M Works                | 10.32                       | 3.14          | 0.02          | (0.69)                       | 0.22          | 0.05          | 0.25              |
| Buildings                | 0.88                        | 0.09          | 0.33          | 0.00                         | (0.44)        | (1.02)        | 0.00              |
| Road                     | 1.27                        | 0.19          | 0.00          | 0.37                         | (0.34)        | 0.58          | 0.00              |
| Office Equip &<br>Others | 0.00                        | (0.04)        | 0.08          | 0.00                         | 0.05          | 0.40          | 0.00              |
| <b>Total</b>             | <b>33.03</b>                | <b>7.65</b>   | <b>0.20</b>   | <b>(0.32)</b>                | <b>(0.07)</b> | <b>0.02</b>   | <b>0.50</b>       |
| <b>Total (Rs. Cr)</b>    | <b>40.88</b>                |               |               | <b>0.13</b>                  |               |               |                   |

3.6.3 The Petitioner has submitted the detail of total project cost in Rs. Cr. along with the ACE as tabulated in the table below:

**Table 41: Project Cost including ACE (Rs. Cr.)**

| DPR Cost | Actual Cost | Actual Cost including<br>ACE<br>'Up to Cut-Off Date' | Actual Cost including<br>ACE<br>'Beyond Cut-Off Date' |
|----------|-------------|--|---|
| 478.02   | 1003.23     | 1044.11  | 1044.24   |

#### Commission's Analysis

3.6.4 In accordance with Regulation 13 of the 'HPERC Hydro Tariff Regulations, 2011' as amended from time to time, the Commission has verified the claimed 'Additional Capital Expenditure'. Further, the Regulations provides for the same as follows:

- 1) *The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date, may be admitted by the Commission, subject to prudence check, :-*

- a) *Undischarged liabilities;*
- b) *Works deferred for execution;*
- c) *Procurement of initial capital spares within the original scope of work, subject to the provisions of regulation 12;*
- d) *Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and*
- e) *Change in law:*

*Provided that the details of works included in the original scope of work, along with estimates of expenditure, undischarged liabilities and the works deferred for execution, shall be submitted along with the application for determination of tariff.*

2) *The capital expenditure incurred on the following counts after the cut off date may, in its discretion, be admitted by the Commission, subject to prudence check, :-*

- a) *liabilities to meet award of arbitration or for compliance of the order or decree of a court;*
- b) *change in law;*
- c) *any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation:*

*Provided that in any expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalisation for determination of tariff w.e.f. 1.4.2011.*

3.6.5 The Commission raised deficiency letters to seek details and nature of 'Additional Capital Expenditure' and its further classification as per the Regulations. In reply, the Petitioner has submitted that an expenditure of Rs. 40.88 Cr. was incurred up to 'cut-off date' and Rs. 0.13 Cr. 'beyond cut-off date' respectively on account of civil works, E&M works, buildings, roads and others for which an auditor certificate was submitted by the Petitioner.

3.6.6 The Petitioner has not submitted the copy of work orders, payment proofs, classification of work and other related information for prudence check. Therefore, following a prudent review, the Commission in absence of the documentary proofs has not allowed the claimed ACE. The Commission further directs the Petitioner to submit all the necessary details/documents with regard to the ACE in the subsequent tariff filing.

### **3.7 Arbitration/ Court Cases**

#### **Petitioner's Submissions**



- 3.7.1 The following cases related to the construction stage of IKHEP Stage-I are pending in Tribunals/Courts of Law. Further, the cases and the cost involved is sub-judice. Therefore, the below mentioned cost has not been considered in the total cost of the project and same shall be taken up during true-up based on the decision of Appellate Tribunals (AT)/ Hon'ble High Court.

**Table 42: List of On-going Arbitration Matters (Rs. Cr.)**

| S. No.                | Arbitration matter   | Sum Involved              | Status/Remarks  |
|-----------------------|--|---------------------------|---|
| 1.                    | CARPC No. 5 OF 2019 (Dispute no.1) titled HPPCL(IKHEP) vs M/s HCC  | 34.16+ Interest           | Arbitration Tribunal awarded Rs. 34.16 Cr + interest Rs. 10.86 Cr in favour of M/s HCC. The HPPCL has challenged AT decision in High Court and deposited Rs. 45.02 Cr in High Court as per direction of High Court on 30.07.2018. |
| 2.                    | Arbitration (Dispute no.2) titled HCC Ltd. Vs HPPCL(IKHEP) as submitted by M/s HCC Ltd. Before arbitration tribunal.   | 117.65 + Interest         | Arbitration Tribunal has awarded Rs. 67.50 Cr + 13% interest (amounting to 36.56 Cr) in favour of M/s HCC on dated 06.06.2023.  |
| 3.                    | Arbitration appeal HPPCL vs Karma Lama contractor, ReckongPeo relating to widening/ improvement of Pangi Intake Road from RD3120m to 3450m (Case no. 02/2016)  | 0.02 + Interest@15%       | The matter is Sub Judice in Distt Court of Kinnaur.   |
| 4.                    | Arbitration appeal HPPCL vs Karma Lama contractor, Reckong Peo relating to widening/ improvement of Pangi Intake Road from RD3120m to 3450m (Case no. 02/2016) | 0.03 + Interest @15%      | The matter is Sub Judice in Distt Court of Kinnaur.   |
| 5.                    | Dispute with respect to Entry Tax and Interest and Penalties thereof in the E&M contract   | 2.40 (Including Interest) | The matter is Sub Judice in Arbitration Tribunal.   |
| <b>Total (Rs. Cr)</b> |  | <b>154.26+Interest</b>    |   |

### Commission's Analysis

- 3.7.2 The Commission has noted the submissions of the Petitioner with regard to arbitration and legal matters as well as additional costs. It shall review the cost aspects of the project at the time of true-up.

## 3.8 Project Funding

### Petitioner's Submissions

- 3.8.1 The Petitioner has cited Regulation 16 of the 'HPERC Hydro Tariff Regulation, 2011' read along with its amendments in this regard.

- 3.8.2 The Petitioner has submitted that the Government of India (GoI) received a loan from the Asian Development Bank (ADB) to finance the implementation of the IKHEP as part of the Himachal Pradesh Clean Energy Development Investment Programme (HPCEDIP). This multilateral loan was channelized through the GoHP to the HPPCL i.e., the Petitioner. The loan was provided by the GoI to GoHP at 90% grant and 10% loan. Further, the loan was provided by the GoHP to the HPPCL at an annual interest rate of 10%. The total debt received from GoHP for IKHEP is tabulated as under:

**Table 43: Details of Debt Received (Rs. Cr.)**

| Financial Year        | Debt Amount Received | Remarks   |
|-----------------------|----------------------|---|
| 2010-11               | 57.17                | This is total loan amount against IKHEP Stage I, II & III as no separate accounts have been maintained for the different Stages of IKHEP Stage-I, II & III for the period upto 2016-17. |
| 2011-12               | 127.78               |   |
| 2012-13               | 120.03               |   |
| 2013-14               | 84.19                |   |
| 2014-15               | 80.23                |   |
| 2015-16               | 87.54                |   |
| 2016-17               | 41.74                |   |
| 2017-18               | 11.55                | This loan amount is for IKHEP Stage-I only.   |
| 2018-19               | 5.00                 |   |
| 2019-20               | 0.00                 |   |
| <b>Total (Rs. Cr)</b> | <b>615.23</b>        |   |

- 3.8.3 The Petitioner has not maintained project wise segregation of the equity in the books of accounts as the equity received is for multiple projects. However, an amount of Rs. 486.92 has been used up to COD and Rs. 511.25 Cr. has been used for IKHEP Stage-I up to cut-off date of 31.03.2020.

- 3.8.4 Debt Equity ratio claimed by the Petitioner is tabulated as under:

**Table 44: Debt-Equity Ratio as on COD (Rs. Cr.)**

| Particulars  | Debt:Equity ratio as per DPR | Debt:Equity ratio as per DPR in % | Debt:Equity ratio as per Actual | Debt:Equity ratio as per Actual in % | Funding Claimed | Normative Debt:Equity |
|--------------|------------------------------|-----------------------------------|---------------------------------|--------------------------------------|-----------------|-----------------------|
| Debt         | 334.61                       | 70%                               | 516.31                          | 51.46%                               | 702.26          | 70%                   |
| Equity       | 143.41                       | 30%                               | 486.92                          | 48.54%                               | 300.97          | 30%                   |
| <b>Total</b> | <b>478.02</b>                | <b>100%</b>                       | <b>1003.23</b>                  | <b>100</b>                           | <b>1003.23</b>  | <b>100%</b>           |

- 3.8.5 Total completion project cost including ACE is shown as under:

**Table 45: Debt-Equity Ratio including ACE**

| Particular    | Capital cost as on COD | ACE 'Up to Cut-off Date' |             |             | ACE 'Beyond Cut-off Date' |               |             |            | Project Cost as on 31.03.2024 |
|---------------|------------------------|--------------------------|-------------|-------------|---------------------------|---------------|-------------|------------|-------------------------------|
|               |                        | FY 18                    | FY 19       | FY 20       | FY 21                     | FY 22         | FY 23       | FY 24      |                               |
| <b>Debt</b>   | 516.31                 | 11.55                    | 5.00        | 0.00        | 0.00                      | 0.00          | 0.00        | 0.00       | 532.85                        |
| <b>Equity</b> | 486.92                 | 21.48                    | 2.65        | 0.20        | (0.32)                    | (0.07)        | 0.02        | 0.50       | 511.39                        |
| <b>Total</b>  | <b>1003.23</b>         | <b>33.03</b>             | <b>7.65</b> | <b>0.20</b> | <b>(0.32)</b>             | <b>(0.07)</b> | <b>0.02</b> | <b>0.5</b> | <b>1044.24</b>                |

**Commission's Analysis**

- 3.8.6 The Commission observes that as per the approved DPR by the HPSEB, the scheme was originally envisaged to be funded with the debt and equity ratio of 70:30.
- 3.8.7 The Commission observes that ADB has sanctioned a multilateral financing loan of \$800 million to the Government of India (GoI) under the Himachal Pradesh Clean Energy Development Investment Programme (HPCEDIP). The proposed Program combines physical investments in hydroelectric power generation in the state of Himachal Pradesh (HP) with nonphysical interventions in capacity development. The scope includes construction of four medium to large hydropower projects, the Sawra Kuddu (111 MW), Integrated Kashang (195MW), Sainj (100 MW) and Shongtong-Karcham (450 MW). All proposed hydropower projects for the Program are run-of-the-river design. As the name of the scheme itself implies that the financing support by the ADB is to promote the generation of clean energy in the State. Further, Himachal Pradesh being a special category state, the loan was received by Government of Himachal Pradesh (GoHP) from the GoI as 90% grant and 10% loan. However, the GoHP has provided the entire amount as loan to the HPPCL at an interest rate of 10% per annum.
- 3.8.8 In this specific instance, it is noted that the multilateral agency i.e., the ADB, is funding this project in collaboration with the GoI and the GoHP. However, the GoHP has amended the terms and conditions of the financial assistance for extending it to the HPPCL. The Commission is of the view that the GoHP should refrain itself from assuming the role of a financial institution and instead have ensured that the grant received under this arrangement was extended to the HPPCL for the benefit of the Consumers of the State as well as to promote clean energy in the State.
- 3.8.9 As per the submission of the Petitioner, actual loan drawn from GoHP is Rs. 516.31 Cr. i.e., ~51.46% of project cost as on COD. Further, the equity amounting to Rs. 486.92 Cr. which is approximately 48.54% of the project cost has been considered by the Petitioner.
- 3.8.10 To verify the Debt and Equity claimed by the Petitioner, the Commission vide deficiency letters sought details of Debt-Equity received, Loan Agreement, Tripartite agreement, Sanctioned Letters, Board of Director (BOD) approval and other relevant documents. In response to the queries, the Petitioner has submitted additional details and documents.
- 3.8.11 The Petitioner was unable to provide any specific details of the equity amount availed from the GoHP towards the said project and instead provided the lumpsum amount of Rs. 2321.12 Cr. of equity received from GoHP towards various projects.
- 3.8.12 The Commission after review of the documents has noted that due to financial constraints, the Petitioner sought deferment of loan repayment, which was approved by the GoHP until FY 2020-21. Further, the Commission noted that as on COD, no amount against the loan was repaid by the Petitioner to GoHP.
- 3.8.13 In accordance with regulation 16 of the 'HPERC Hydro Tariff Regulation, 2011', the Commission has followed the Debt-Equity ratio which is detailed below:

"2) New Stations:

(a) For new stations, the normative debt-equity ratio shall be considered to be 70:30 for determination of tariff.

(b) In case of a generating station where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.

(c) In case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff:

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

- 3.8.14 The Commission is of the view that since the funding of the IKHEP was secured in accordance with the DPR on which the HPSEB has also accorded its approval, it is therefore prudent to consider the debt and equity ratio as per the original DPR (i.e., 70:30). In line with the same, the debt:equity ratio is arrived against the approved capital cost for IKHEP Stage-I

**Table 46: Normative Debt-Equity for IKHEP Stage-I (Rs. Cr.)**

| Particulars  | Approved Cost (Rs. Cr.) |
|--------------|-------------------------|
| Debt         | 575.76                  |
| Equity       | 246.75                  |
| <b>Total</b> | <b>822.51</b>           |

- 3.8.15 Based on the scrutiny of the loan details, it is observed that the Petitioner is not making any repayment of loan or interest against the loan from GoHP. The Petitioner has also provided a copy of the loan documents including loan scheme agreement between GoHP and the HPPCL, tripartite agreement among ADB-GoI-GoHP, and various loan sanction letters. It has also submitted that the State of HP is a special category State, therefore, the entire multilateral funds were received by the State from Govt. of India in the ratio of 90% grant and 10% loan. However, the entire loan proceeds were extended by GoHP to the Petitioner as loan carrying interest rate of 10% per annum. The Petitioner has also submitted that the GoHP had allowed deferment of loan till 31.03.2021 and further deferment of loan has been sought by the Petitioner from GoHP and the decision in this regard is awaited.
- 3.8.16 The Commission takes serious note against consideration of the amount which is available as grant (90% of overall amount) to the State as loan which shall unnecessarily burden the consumers of the State due to such treatment. It is also observed that the Petitioner is already facing financial challenges and has been unable to service the loans against which deferment has been sought time and again. The Commission feels that it would be prudent that the Petitioner takes up the matter with the GoHP regarding restructuring of the loan amount availed against the project on same terms and conditions as envisaged under the original scheme of funding i.e., 90% of the amount to be converted to grant. This would be in interest of the utility as well as the consumers of the State which would have to bear the burden of the additional interest cost and repayment of such loan which has been provided as grant.

- 3.8.17 Accordingly, the Commission has provisionally considered the debt amount availed under the ADB scheme as 90% grant and 10% debt. Further, after reducing such amount of grant from the total approved capital cost, the Commission has consider debt:equity as 70:30 for the balance amount in line with Regulation 10(C) of the HPERC Tariff Regulations, 2011 which specify the following:

*"(b) the debt to equity ratio shall be considered in accordance with Regulation 16, after deducting the amount of financial support provided through consumer contribution, deposit work, capital subsidy or grant;"*

- 3.8.18 The details of the same is tabulated below:

**Table 47:Debt, Grant and Equity on Approved Cost for IKHEP (Rs. Cr.)**

| S. No.      | Particulars                               | Approved Cost | Remarks                           |
|-------------|---|---------------|-----------------------------------|
| I           | Total Project Cost Approved               | 822.51        | As per Table No. 38               |
| II          | Normative Debt                            | 575.76        | As per Table No. 45               |
| III         | Actual Debt                               | 516.31        | As per Table No. 44               |
| <b>IV</b>   | <b>Grant (90% of the ADB Scheme Loan)</b> | <b>464.68</b> | <b>Minimum (II and III) x 90%</b> |
| V           | Balance Requirement                       | 357.83        | (I-IV)                            |
| VI          | Debt (70%)                                | 250.48        | (V x 70%)                         |
| VII         | Equity (30%)                              | 107.35        | (V x 30%)                         |
| <b>VIII</b> | <b>Total</b>                              | <b>822.51</b> | <b>(IV+VI+VII)</b>                |

- 3.8.19 In case of ADB loans availed by HPPTCL, the Commission has been considering these as loans and allowing depreciation as well as interest for servicing of such loans. This treatment has been undertaken in view of limited information available to the Commission in this regard. However, the Commission has directed the Petitioner to re-negotiate with GoHP and align the terms and conditions in line with the tri-patriate agreement. The Commission shall take appropriate decision with regard to the treatment of such ADB loans during truing-up. Further, in case of funding through similar loan facility from ADB, the Commission has preferred to consider the availability of 90% of ADB loan as grant in line with the submission of the Petitioner and given the special category status to the State of Himachal Pradesh.
- 3.8.20 The Commission is of the view that the GoHP shall consider the transferring of Grant as availed from the Government of India to HPPCL for the benefit of the Consumers of the State instead of considering the loan as generally done by the Financial Institution.

## 4. APPROVAL OF ARR AND TARIFF

- 4.1.1 Background
- 4.1.2 The Petitioner has undertaken Annual Fixed Cost projections for IKHEP in line with the 'HPERC Hydro Tariff Regulation, 2011' for each of the component
- Operation and Maintenance (O&M) Expenses;
  - Depreciation;
  - Interest and Finance Charges on Loan;
  - Interest on Working Capital;
  - Return on Equity (ROE).
- 4.1.3 The Commission has examined the submissions including additional detail clarifications made by the Petitioner in response to the query letters for the purpose of approving the elements of ARR for the period from COD to Financial Year (FY) 2023-24.
- 4.1.4 The Commission has approved the Capital Cost as on COD for IKHEP as Rs. 822.51 Cr. after detailed examination as discussed in the previous Chapter. The same has been tabulated below:

**Table 48: Approved Project Cost by the Commission (Rs. Cr.)**

| Capital Cost as per DPR | Claimed Capital Cost as on COD | Approved Capital Cost as on COD |
|-------------------------|--------------------------------|---------------------------------|
| 478.02                  | 1003.23                        | 822.51                          |

- 4.1.5 The Commission has utilized the approved capital cost for the purpose of determination of Annual Fixed Charges in line with the provisions of the 'HPERC Hydro Tariff Regulation, 2011'.
- 4.1.6 In this chapter, the Commission has detailed the methodology for computing each component of the ARR for each year from COD till FY 2023-24 for IKHEP Stage-I of the HPPCL including O&M expenses, Interest on Loan, Depreciation, Return on Equity, Working Capital requirement, etc. The methodology followed and approved values for each component of the ARR is detailed in the subsequent sections.

### 4.2 Operation and Maintenance Expenses

#### Petitioner's Submissions

- 4.2.1 The Petitioner has cited Regulation 22 of the 'HPERC Hydro Tariff Regulation, 2011' and its amendments for the computation of O&M Expense.
- 4.2.2 Further, the Petitioner has claimed actual O&M expenses for FY17 to FY22 and projected O&M expenses for FY22 to FY24 as tabulated below:

**Table 49: O&M Expense submitted by Petitioner (Rs. Cr.)**

| Particulars                   | FY17          | FY18  | FY19  | FY20  | FY21  | FY22  | FY23             | FY24  |
|-------------------------------|---------------|-------|-------|-------|-------|-------|------------------|-------|
| <b>Total O&amp;M Expenses</b> | <b>Actual</b> |       |       |       |       |       | <b>Projected</b> |       |
|                               | 18.89         | 23.09 | 12.52 | 10.73 | 15.18 | 17.46 | 21.04            | 23.49 |

4.2.3 The Petitioner has further submitted that the account for FY23 and FY24 is yet to be audited and therefore, the actual O&M expenses for FY22 have been considered for the projections after applying escalation factor.

#### **Commission's Analysis**

4.2.4 In accordance with Regulation 22 of the 'HPERC Hydro Tariff Regulations, 2011' as amended from time to time, the Commission has computed the O&M Expense based on the approved capital cost by the Commission. The above-mentioned regulation for the computation of O&M Expenses is detailed below:

*"(4) In case of hydro generating stations, which have been in commercial operation for less than 5 years as on 31 March 2018, the operation and maintenance expenses shall be fixed at 2% of the original project cost, excluding cost of rehabilitation and resettlement works, and shall be escalated in accordance with the escalation principles specified in sub regulation (6).*

*(6) O&M expenses determined in sub-regulations (3) and (4), shall be escalated for subsequent years to arrive at the O&M expenses for the control period by applying the Escalation factor (EFk) for a particular year (Kth year) which shall be calculated using the following formula*

$$\text{EFk} = 0.20 \times \text{WPI}_{\text{Inflation}} + 0.80 \times \text{CPI}_{\text{Inflation}}$$

*Provided that, out of the O&M expenses so determined based on the above regulations, at least 30% shall be spent towards repair and maintenance activities:*

*Provided further that, the impact of pay revision (including arrears) shall be allowed on actual during the mid-term performance review or at the end of the control period as per audited / unaudited accounts, subject to prudence check and any other factor considered appropriate by the Commission."*

4.2.5 The Commission in para no.3.5.16 of this order has approved an amount of Rs.5.98 Cr. under the R&R works for IKHEP.

4.2.6 For the purpose of computation of escalation factor as per the provisions of the 'HPERC Hydro Tariff Regulation, 2011', the methodology for calculating the "WPI<sub>Inflation</sub>" and "CPI<sub>Inflation</sub>" is as below:

- CPI<sub>Inflation</sub> – is the average increase in the Consumer Price Index (CPI) for the three years immediately preceding the base year.
- WPI<sub>Inflation</sub> – is the average increase in the Wholesale Price Index (WPI) for the three years immediately preceding the base year.

4.2.7 In line with the provisions of the 'HPERC Hydro Tariff Regulation, 2011', the Commission has worked out the escalation rate as provided below:

**Table 50: CPI-WPI-Escalation Factor**

| Particulars                    | FY17   | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         |
|--------------------------------|--------|--------------|--------------|--------------|--------------|--------------|--------------|
| CPI Factor                     | 275.92 | 284.42       | 299.92       | 322.50       | 338.69       | 356.06       | 377.62       |
| CPI Inflation (%)              |        | 3.08%        | 5.45%        | 7.53%        | 5.02%        | 5.13%        | 6.05%        |
| WPI Factor                     | 111.62 | 114.88       | 119.79       | 121.80       | 123.38       | 139.41       | 152.53       |
| WPI Inflation (%)              |        | 2.92%        | 4.28%        | 1.68%        | 1.29%        | 13.00%       | 9.41%        |
| <b>Escalation factor (EFk)</b> |        | <b>3.05%</b> | <b>5.22%</b> | <b>6.36%</b> | <b>4.28%</b> | <b>6.70%</b> | <b>6.72%</b> |

4.2.8 The Commission has approved Rs. 822.51 Cr. as Capital Cost of the IKHEP. Further, as per the 'HPERC Hydro Tariff Regulation, 2011', the Rehabilitation and Resettlement Work Cost should be deducted from the Capital Cost before working out the O&M Expenses for first year. The working for the O&M expenses for first year is tabulated below:

**Table 51: O&M Expense for First Year (Rs. Cr.)**

| Particulars  | Details |
|--|---------|
| Approved Capital Cost (Rs. Cr)                       | 822.51  |
| Less: Rehabilitation and Resettlement Works (Rs. Cr) | 5.98    |
| Net Capital cost for O&M (Rs. Cr)                    | 816.53  |
| O&M @ 2% of Project Cost (Approved)                  | 2%      |
| O&M (FY-2016-2017 Level) (Rs. Cr)                    | 16.33   |

4.2.9 The Commission for FY17 has calculated the O&M Expense on pro-rata basis considering that the plant was in operation only for part year i.e., COD of 31.03.2017 upto 31.03.2017. Therefore, the O&M calculated for FY17 is only for 01 day. For the subsequent years, full year O&M expenses have been considered after providing for escalation as detailed above. O&M expenses approved for each year post COD of the plant upto FY 2023-24 is tabulated below:

**Table 52: O&M Expense approved by the Commission (Rs. Cr.)**

| Particulars                  | FY17  | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  | FY24  |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Total O&amp;M Expense</b> | 0.04* | 16.83 | 17.71 | 18.83 | 19.64 | 20.95 | 22.36 | 23.68 |

\*O&M Expense corresponding to the period from COD to end of the financial year

### 4.3 Depreciation

#### Petitioner's Submissions

4.3.1 The Petitioner has worked out the depreciation as per Regulation 20 of the 'HPERC Hydro Tariff Regulations, 2011' and its subsequent amendments. The Petitioner has submitted that it has considered depreciation rate as per Annexure I of the 'HPERC Hydro Tariff Regulation, 2011' for the first 12 years in line with the provisions of the Regulations.

4.3.2 The depreciation booked in the project since COD and its projection is tabulated as below:



**Table 53: Depreciation Expense submitted by the Petitioner (Rs. Cr.)**

| Particulars                | FY17         | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         | FY24         |
|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Opening GFA                | 1,003.23     | 1,003.23     | 1,036.26     | 1,043.91     | 1,044.11     | 1,043.80     | 1,043.73     | 1,043.74     |
| Addition during the year   | 0.00         | 33.03        | 7.65         | 0.20         | -0.32        | -0.07        | 0.02         | 0.50         |
| Less Grant                 | 0            | 0            | 0            | 0            | 0            | 0            | 0            | 0            |
| Closing GFA                | 1,003.23     | 1,036.26     | 1,043.91     | 1,044.11     | 1,043.80     | 1,043.73     | 1,043.74     | 1,044.24     |
| Average GFA                | 1003.23      | 1019.74      | 1040.08      | 1044.01      | 1043.95      | 1043.76      | 1043.73      | 1043.99      |
| Less Freehold Land         | 51.53        | 51.53        | 51.53        | 51.53        | 51.53        | 51.53        | 51.47        | 51.47        |
| Average GFA excluding Land | 951.70       | 968.22       | 988.56       | 992.48       | 992.43       | 992.23       | 992.27       | 992.52       |
| WAROD (%)                  | 3.85%        | 4.86%        | 4.74%        | 4.69%        | 4.69%        | 4.70%        | 4.70%        | 4.70%        |
| <b>Depreciation</b>        | <b>21.38</b> | <b>47.10</b> | <b>46.84</b> | <b>46.58</b> | <b>46.56</b> | <b>46.68</b> | <b>46.68</b> | <b>46.68</b> |

**Commission's Analysis**

4.3.3 In accordance with Regulation 20 of the 'HPERC Hydro Tariff Regulations, 2011', the Commission has computed the Depreciation based on the approved capital cost by the Commission. The Regulation 20 of the Hydro Tariff Regulation, 2011 for the for the computation of Depreciation provided as under:-

*"(1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.*

*(2) 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 the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable:*

*Provided also that in case of hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site:*

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

*(3) 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.*

*(4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in the Appendix to these regulations for the assets of the generating station:*

*Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the asset.*

(5) For generating station which are in operation for less than 12 years, the difference between the cumulative depreciation recovered and the cumulative depreciation arrived at by applying the depreciation rates specified in this regulation corresponding to 12 years, shall be spread over the period up to 12 years, and the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the asset.

(6) For the project in operation for more than 12 years, the balance depreciation to be recovered shall be spread over the remaining useful life of the asset.

(7) 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."

4.3.4 The Commission based on the submissions of the Petitioner and in accordance with above Regulations, has considered the asset-wise weighted average rate of depreciation (WAROD) as 4.80% from COD to FY 2023-24 for the calculation of depreciation. Further, as per the 'HPERC Hydro Tariff Regulation, 2011', the land cost has to be deducted from the Capital Cost for calculating the Depreciation. The Commission in para 3.5.16 above has approved an amount of Rs. 45.55 Cr. under the 'Land' for IKHEP.

4.3.5 The working with respect to opening GFA for depreciation has been tabulated below:

**Table 54: Opening GFA for Depreciation(Rs. Cr.)**

| Particulars  | Details       |
|--|---------------|
| Approved Capital Cost (Rs. Cr)                                   | 822.51        |
| Less: Land Cost (Rs. Cr)   | 45.55         |
| Less: Grant (Rs. Cr.)  | 464.68        |
| <b>Net Capital cost for Depreciation or Opening GFA (Rs. Cr)</b> | <b>312.28</b> |
| WAROD (%)  | 4.80%         |

4.3.6 Based on the WAROD above, the Commission has approved the depreciation for each year from the date of COD upto FY 2023-24. Further, the depreciation for Financial Year (FY)2016-17 has been pro-rated based on the number of days of operation during the first year. The approved depreciation for each year from the date of COD to FY 2023-24 is summarized below:

**Table 55: Depreciation approved by the Commission**

| Particular               | FY17         | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         | FY24         |
|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Opening GFA              | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       |
| Addition during the year | -            | -            | -            | -            | -            | -            | -            | -            |
| Closing GFA              | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       | 312.28       |
| <b>Depreciation</b>      | <b>0.04*</b> | <b>14.99</b> | <b>14.99</b> | <b>14.99</b> | <b>14.99</b> | <b>14.99</b> | <b>14.99</b> | <b>14.99</b> |

\*Depreciation corresponding to the period from COD to end of the financial year

#### 4.4 Interest and Finance Charges on Loan

##### Petitioner's Submissions

- 4.4.1 Interest and Finance Charges on loans is calculated based on the capital expenditure planned for the Control Period. The Petitioner has considered a Debt:Equity ratio of 70:30 for IKHEP. The Petitioner has cited Regulation 17 of the 'HPERC Hydro Tariff Regulation, 2011' and its subsequent amendments for the computation of Interest on Loan.
- 4.4.2 Accordingly, the Petitioner has computed interest on loan as shown in table given below:

**Table 56: Interest on Loan submitted by the Petitioner (Rs. Cr.)**

| Particulars                                       | FY17   | FY18   | FY19   | FY20   | FY21   | FY22   | FY23   | FY24   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|
| Opening Loan                                      | 702.26 | 680.88 | 656.90 | 615.42 | 568.98 | 522.19 | 475.47 | 428.80 |
| Add: Drawl (s) during the Year                    | 0.00   | 23.12  | 5.35   | 0.14   | -0.22  | -0.05  | 0.014  | 0.35   |
| Less: Repayments considered equal to depreciation | 21.38  | 47.10  | 46.84  | 46.58  | 46.56  | 46.68  | 46.68  | 46.68  |
| Closing Loan                                      | 680.88 | 656.90 | 615.42 | 568.98 | 522.19 | 475.47 | 428.80 | 382.47 |
| Rate of Interest on Loan on annual basis          | 10%    | 10%    | 10%    | 10%    | 10%    | 10%    | 10%    | 10%    |
| Interest on loan                                  | 70.23  | 68.09  | 65.69  | 61.54  | 56.90  | 52.22  | 47.55  | 42.88  |

##### Commission's Analysis

- 4.4.3 In accordance with Regulation 17 of the 'HPERC Hydro Tariff Regulations, 2011' and its amendments, the Commission has computed the Interest and Finance Charges on Loan based on the approved capital cost by the Commission. The Regulation provided as under:-

*"17. Interest and Finance Charges*

*(1) Interest and finance charges on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment in accordance with the terms and conditions of relevant agreements of loan, bond or non-convertible debentures.*

*Exception can be made for the existing or past loans which may have different terms as per the agreements already executed if the Commission is satisfied that the loan has been contracted for and applied to identifiable and approved projects.*

*(2) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project:*

*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, does not have actual loan, then the weighted average rate of interest of the generating company as a whole shall be considered:*

Provided further that if the generating company does not have actual loan, then one (1) Year State Bank of India (SBI) MCLR / any replacement thereof as notified by RBI for the time being in effect applicable for one (1) Year period, as may be applicable as on 1st April of the relevant Year plus 300 basis points shall be considered as the rate of interest for the purpose of allowing the interest on the normative loan.

(3) The interest rate on the amount of equity in excess of 30% treated as notional loan shall be the weighted average rate of the loans of the respective years and shall be further limited to the rate of return on equity specified in these regulations...

(4) In case any moratorium period is availed of in any loan, depreciation provided for in the tariff during the years of moratorium shall be treated as notional repayment during those years and interest on loan capital shall be calculated accordingly..."

4.4.4 In the previous Chapter, the Commission has approved the project funding through a mix of debt, grant and equity. The loan amount from GoHP along with the normative loan has been considered for the purpose of computation of interest on loan and an interest rate of 10% has been considered in line with the agreement between GoHP and the Petitioner with regard to the payment of interest on the loans. The Commission as per para 3.9.18 of the previous chapter and the 'HPERC Hydro Tariff Regulations, 2011', has considered the repayment of loan equal to depreciation and has computed the Interest on Loan from COD to FY 2023-24. The approved Interest on Loan for each year from the date of COD to FY-24 is summarized below:

**Table 57: Interest on Loan approved by the Commission (Rs. Cr.)**

| Particulars          | FY17          | FY18          | FY19          | FY20          | FY21          | FY22          | FY23          | FY24          |
|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Opening Loan         | 250.48        | 250.44        | 235.45        | 220.46        | 205.47        | 190.48        | 175.49        | 160.50        |
| Repayment            | 0.04          | 14.99         | 14.99         | 14.99         | 14.99         | 14.99         | 14.99         | 14.99         |
| Addition             | -             | -             | -             | -             | -             | -             | -             | -             |
| <b>Closing Loan</b>  | <b>250.44</b> | <b>235.45</b> | <b>220.46</b> | <b>205.47</b> | <b>190.48</b> | <b>175.49</b> | <b>160.50</b> | <b>145.52</b> |
| Rate of Interest     | 10%           | 10%           | 10%           | 10%           | 10%           | 10%           | 10%           | 10%           |
| <b>Interest Cost</b> | <b>0.07*</b>  | <b>24.29</b>  | <b>22.80</b>  | <b>21.30</b>  | <b>19.80</b>  | <b>18.30</b>  | <b>16.80</b>  | <b>15.30</b>  |

\*Interest corresponding to the period from COD to end of the financial year

## 4.5 Interest on Working Capital

### Petitioner's Submissions

4.5.1 The Petitioner has cited Regulations 18 and 19 of the 'HPERC Hydro Tariff Regulations, 2011' and its subsequent amendments for the computation of Interest on Working Capital.

4.5.2 The Petitioner has calculated the interest on working capital considering prevalent SBI MCLR as on 01.04.2023 respectively plus 300 basis points. Further, the Petitioner has calculated Rate of Interest on working capital @

11.50 percent (SBI Prime Lending Rate) in accordance with the above Regulations.

- 4.5.3 The interest on working capital thus computed by the Petitioner as per the 'HPERC Hydro Tariff Regulations, 2011' in the table given below:

**Table 58: Interest on Working Capital submitted by the Petitioner**

| Particulars                                     | FY17        | FY18         | FY19        | FY20        | FY21        | FY22         | FY23         | FY24         |
|---|-------------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|
| O&M Expenses for 1 Month                        | 2.70        | 1.92         | 1.04        | 0.89        | 1.26        | 1.32         | 1.75         | 1.96         |
| Maintenance Spares Equivalent to 15% of O&M     | 4.86        | 3.46         | 1.88        | 1.61        | 2.28        | 2.38         | 3.16         | 3.52         |
| Receivable Equivalent of 2 Months of Fixed Cost | 2.38        | 5.56         | 4.65        | 5.43        | -0.49       | 11.26        | 8.59         | 9.25         |
| Total Working Capital Requirement               | <b>9.94</b> | <b>10.95</b> | <b>7.57</b> | <b>7.93</b> | <b>3.05</b> | <b>14.96</b> | <b>13.50</b> | <b>14.74</b> |
| Interest on Working Capital %                   | 11.5        | 11.5         | 11.5        | 11.5        | 11.5        | 11.5         | 11.5         | 11.5         |
| <b>Interest on Working Capital</b>              | <b>1.14</b> | <b>1.26</b>  | <b>0.87</b> | <b>0.91</b> | <b>0.35</b> | <b>1.72</b>  | <b>1.55</b>  | <b>1.69</b>  |

#### Commission's Analysis

- 4.5.4 In accordance with Regulations 18 and 19 of the 'HPERC Hydro Tariff Regulations, 2011' and its amendments, the Commission has computed the Interest on Working Capital based on the approved capital cost by the Commission. The above regulations for the computation of Interest on Working Capital provided as below:-

*"The Commission shall calculate the working capital requirement for hydroelectric power stations containing the following components: -*

- (a) Operation & Maintenance (O&M) expenses for 1 month;*
- (b) Maintenance spares equivalent to 15% of O&M;*
- (c) Receivables equivalent to two months of fixed cost*

*Rate of interest on working capital to be computed as provided hereinafter in these regulations shall be on normative basis and shall be equal one (1) Year State Bank of India (SBI) MCLR / any replacement thereof as notified by RBI for the time being in effect applicable for one (1) Year period, as may be applicable as on 1st April of the Financial Year in which the Petition is filed plus 300 basis points. The interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures."*

- 4.5.5 The Commission has adopted the approach for calculation of interest on working capital as per above-mentioned 'HPERC Hydro Tariff Regulations, 2011'.
- 4.5.6 The Commission has calculated the interest on working capital considering prevalent SBI MCLR as applicable for one (1) Year period, as may be applicable as on 1st April of every financial year (FY) from FY20 to FY 24 respectively

adding 300 basis points as per the 'HPERC Hydro Tariff Regulation, 2011'(3rd Amendment). Further, for FY 17 and FY 19, the Commission considered the 'HPERC Hydro Tariff Regulations, 2011'(2nd Amendment) which states that the "Short Term Prime Lending Rate of the State Bank of India as on the 1st April of the relevant year" the words and figures "average Base Rate of State Bank of India for the last six months prior to the filing of the MYT Petition plus 350 basis points" shall be substituted.

- 4.5.7 The Commission based on the 'HPERC Hydro Tariff Regulation, 2011'and methodology has computed the Interest on Working Capital from COD to FY 2023-24. The approved interest on working capital for each year from the date of COD to FY 2023-24 is summarized below:

**Table 59: Interest on Working Capital approved by the Commission (Rs. Cr.)**

| Particulars                                     | FY17          | FY18          | FY19          | FY20          | FY21          | FY22          | FY23          | FY24          |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| O&M Expenses for 1 Month                        | 1.36          | 1.40          | 1.48          | 1.57          | 1.64          | 1.75          | 1.86          | 1.97          |
| Maintenance Spares Equivalent to 15% of O&M     | 2.45          | 2.52          | 2.66          | 2.82          | 2.95          | 3.14          | 3.35          | 3.55          |
| Receivable Equivalent of 2 Months of Fixed Cost | 12.52         | 12.47         | 12.36         | 12.28         | 12.14         | 12.10         | 12.09         | 12.11         |
| <b>Total Working Capital Requirement</b>        | <b>16.33</b>  | <b>16.40</b>  | <b>16.49</b>  | <b>16.67</b>  | <b>16.73</b>  | <b>16.99</b>  | <b>17.30</b>  | <b>17.63</b>  |
| <i>Interest on Working Capital %</i>            | <i>12.80%</i> | <i>12.60%</i> | <i>12.20%</i> | <i>11.55%</i> | <i>10.75%</i> | <i>10.00%</i> | <i>10.00%</i> | <i>11.50%</i> |
| <b>Interest on Working Capital</b>              | <b>0.01*</b>  | <b>2.07</b>   | <b>2.01</b>   | <b>1.93</b>   | <b>1.80</b>   | <b>1.70</b>   | <b>1.73</b>   | <b>2.03</b>   |

\*IOWC corresponding to the period from COD to end of the financial year

## 4.6 Return on Equity

### Petitioner's Submissions

- 4.6.1 The Petitioner has cited Regulation 21 of the 'HPERC Hydro Tariff Regulations, 2011'and its subsequent amendments in this regard.
- 4.6.2 The Return on Equity as per the above Regulations is provided in the table given below:

**Table 60: ROE submitted by the Petitioner (Rs. Cr.)**

| Particulars     | FY17         | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         | FY24         |
|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Opening balance | 300.97       | 300.97       | 310.88       | 313.17       | 313.23       | 313.14       | 313.12       | 313.12       |
| Addition        | 0.00         | 9.91         | 2.29         | 0.06         | -0.10        | -0.02        | 0.00         | 0.15         |
| Closing Balance | 300.97       | 310.88       | 313.17       | 313.23       | 313.14       | 313.12       | 313.12       | 313.27       |
| Average balance | 300.97       | 305.92       | 312.03       | 313.20       | 313.19       | 313.13       | 313.12       | 313.20       |
| Rate of RoE     | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       |
| <b>ROE</b>      | <b>27.21</b> | <b>47.42</b> | <b>48.36</b> | <b>48.55</b> | <b>48.54</b> | <b>48.53</b> | <b>48.53</b> | <b>48.55</b> |

**Commission's Analysis**

- 4.6.3 In accordance with Regulation 21 of the 'HPERC Hydro Tariff Regulations, 2011 and its amendments, the Commission has computed the Return on Equity based on the approved capital cost by the Commission. The Regulation for the computation of Return on Equity is detailed below:

*"(1) Return on Equity shall be computed on the equity determined in accordance with regulation 16 and on pre-tax basis at the base rate of 15.5% to be grossed up as per sub-regulation (3) of this regulation:*

*(2) The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate as per latest available audited accounts of the generating company:*

*Provided that in line with the provisions of the relevant Finance Acts of the respective year, the return on equity with respect to the actual tax rate applicable to the generating company during the years of the control period shall be trued up separately for each year during the mid-term performance review and at the end of the control period along with the tariff petition filed for the next control period."*

- 4.6.4 The Commission has noted that as of now, the Petitioner has not incurred any income tax liability due to continuous losses since its incorporation. Accordingly, the Commission as per the 'HPERC Hydro Tariff Regulations, 2011' considered the ROE at 15.50 %.
- 4.6.5 The Commission in Chapter 03, para 3.8 (Project Funding) has detailed the working of debt, grant and equity. The Commission as per para 3.8.18 and the 'HPERC Hydro Tariff Regulations, 2011', has computed the ROE from COD to FY 2023-24. The approved ROE for each year from the date of COD to FY 2023-24 is summarized below:

**Table 61: ROE approved by the Commission (Rs. Cr.)**

| Particulars    | FY17         | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         | FY24         |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Opening Equity | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       |
| Addition       | -            | -            | -            | -            | -            | -            | -            | -            |
| Closing Equity | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       | 107.35       |
| RoE (%)        | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 15.50%       | 14.00%       |
| <b>RoE</b>     | <b>0.05*</b> | <b>16.64</b> | <b>16.64</b> | <b>16.64</b> | <b>16.64</b> | <b>16.64</b> | <b>16.64</b> | <b>16.64</b> |

\*RoE corresponding to the period from COD to end of the financial year

#### 4.7 Summary of Annual Fixed Charges

##### Petitioner's Submissions

4.7.1 The summary of annual fixed charges as computed with the above components by the Petitioner is presented in the table below:

**Table 62: AFC submitted by the Petitioner (Rs. Cr.)**

| Particulars                     | FY17          | FY18          | FY19          | FY20          | FY21          | FY22          | FY23          | FY24          |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Operation & Maintenance Charges | 18.89         | 23.09         | 12.52         | 10.73         | 15.18         | 17.46         | 21.04         | 23.49         |
| Interest on Loan                | 70.23         | 68.09         | 65.69         | 61.54         | 56.90         | 52.22         | 47.55         | 42.88         |
| Depreciation                    | 21.38         | 47.10         | 46.84         | 46.58         | 46.56         | 46.68         | 46.68         | 46.68         |
| Interest on Working Capital     | 1.14          | 1.26          | 0.87          | 0.91          | 0.35          | 1.72          | 1.55          | 1.69          |
| Return on Equity                | 27.21         | 47.42         | 48.36         | 48.55         | 48.54         | 48.53         | 48.53         | 48.55         |
| <b>Total AFC</b>                | <b>138.84</b> | <b>186.95</b> | <b>174.28</b> | <b>168.31</b> | <b>167.53</b> | <b>166.61</b> | <b>165.34</b> | <b>163.29</b> |

##### Commission's Analysis

4.7.2 The Commission computed the summary of annual fixed charges. The same has been tabulated below:

**Table 63: AFC approved by the Commission (Rs. Cr.)**

| Particulars                    | FY17         | FY18         | FY19         | FY20         | FY21         | FY22         | FY23         | FY24         |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| O&M expense                    | 0.04         | 16.83        | 17.71        | 18.83        | 19.64        | 20.95        | 22.36        | 23.68        |
| Depreciation                   | 0.04         | 14.99        | 14.99        | 14.99        | 14.99        | 14.99        | 14.99        | 14.99        |
| Interest & Finance charges     | 0.07         | 24.29        | 22.80        | 21.30        | 19.80        | 18.30        | 16.80        | 15.30        |
| Interest on working capital    | 0.01         | 2.07         | 2.01         | 1.93         | 1.80         | 1.70         | 1.73         | 2.03         |
| Return on equity               | 0.05         | 16.64        | 16.64        | 16.64        | 16.64        | 16.64        | 16.64        | 16.64        |
| <b>Annual Fixed Cost (AFC)</b> | <b>0.21*</b> | <b>74.82</b> | <b>74.14</b> | <b>73.68</b> | <b>72.86</b> | <b>72.58</b> | <b>72.52</b> | <b>72.64</b> |

#### 4.8 Operational Norms

##### Petitioner's Submission

4.8.1 The Petitioner has cited Regulation 23 of the 'HPERC Hydro Tariff Regulation, 2011' and its subsequent amendments for the Operational Norms.

4.8.2 The Petitioner has submitted the design energy data of the project in the following table:

**Table 64: Monthly Energy from COD**

| Month   | Period (Every 10 Days) | Design Energy (MU) |
|---------|------------------------|--------------------|
| January | I                      | 2.04               |
|         | II                     | 1.90               |



| Month     | Period (Every 10 Days) | Design Energy (MU) |
|-----------|------------------------|--------------------|
|           | III                    | 1.86               |
| February  | I                      | 1.81               |
|           | II                     | 1.81               |
|           | III                    | 1.74               |
| March     | I                      | 1.90               |
|           | II                     | 1.78               |
|           | III                    | 1.81               |
| April     | I                      | 1.80               |
|           | II                     | 2.06               |
|           | III                    | 3.85               |
| May       | I                      | 4.07               |
|           | II                     | 5.15               |
|           | III                    | 5.70               |
| June      | I                      | 6.41               |
|           | II                     | 8.14               |
|           | III                    | 9.38               |
| July      | I                      | 12.25              |
|           | II                     | 13.68              |
|           | III                    | 12.35              |
| August    | I                      | 12.05              |
|           | II                     | 11.03              |
|           | III                    | 9.12               |
| September | I                      | 6.59               |
|           | II                     | 5.65               |
|           | III                    | 5.29               |
| October   | I                      | 4.36               |
|           | II                     | 4.14               |
|           | III                    | 3.70               |
| November  | I                      | 3.33               |
|           | II                     | 3.24               |
|           | III                    | 2.93               |
| December  | I                      | 2.91               |
|           | II                     | 2.89               |
|           | III                    | 2.71               |

4.8.3 **Auxiliary Energy Consumption:** The Petitioner has cited Regulation 23 (b) of the 'HPERC Hydro Tariff Regulation, 2011' and its subsequent amendments specifies as under:

**Table 65: Auxiliary Energy Consumption Norms as per Regulation**

| S.No. | Particular   | System Type   | Percentage |
|-------|--|---|------------|
| 1.    | Surface hydroelectric power generating station     | With rotating exciters mounted on the generator shaft | 0.70%      |
| 2.    |  | With static excitation system                         | 1.00%      |
| 3.    | Underground hydroelectric power generating station | With rotating exciters mounted on the generator shaft | 0.90%      |
| 4.    |  | With static excitation system                         | 1.20%      |

4.8.4 The Petitioner submits that IKHEP is an underground hydroelectric power generating station with static excitation system and accordingly the Petitioner has requested to approve an auxiliary consumption of 1.20%.

### Commission's Analysis

- 4.8.5 The Commission has noted that the HPSEB while granting Techno-Economic Clearance of the project has approved the Design Energy (DE) of 245.80 MU.
- 4.8.6 The Commission, in accordance with the 'HPERC Hydro Tariff Regulations 2011, has considered the Auxiliary Energy Consumption as 1.20% for IKHEP Stage-I, given its underground hydroelectric power generating station with a static excitation system. Furthermore, based on the DE approved by the HPSEB, the Commission has finalized the Net Saleable Energy (MU) for IKHEP Stage-I. The details are tabulated below:

**Table 66: Annual Energy Generation approved by the Commission**

| Annual Energy Generation              |               |
|---------------------------------------|---------------|
| Design Energy / Gross Generation (MU) | 245.80        |
| Auxiliary Energy Consumption (%)      | 1.20%         |
| Net Generation (MU)                   | 242.85        |
| Free Energy to State (FEHS) (%)       | 13%           |
| Net Saleable Energy (MU)              | <b>211.28</b> |

- 4.8.7 As per the Regulation 23 of the 'HPERC Hydro Tariff Regulations, 2011, the NAPAF is to be determined as below:

*"(a) Normative Annual Plant Availability Factor (NAPAF) for hydro generating stations shall be determined by the Commission as per the following criteria:-*

*(iv) 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%*

*(ii) storage and pondage type plants with head variation between FRL and MDDL of more than 8%, where plant availability is not affected by silt: Plant-specific allowance to be provided in NAPAF for reduction in MW output capability as reservoir level falls over the months. As a general guideline the allowance on this account in terms of a multiplying factor may be worked out from the projection of annual average of net head, applying the formula:*

$$(Average\ head / Rated\ head) + 0.02$$

*Alternatively in case of a difficulty in making such projection, the multiplying factor may be determined as:*

$$(Head\ at\ MDDL / Rated\ head) \times 0.5 + 0.52$$

*(iii) pondage type plants where plant availability is significantly affected by silt: 85%*

*(iv) 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;"*

- 4.8.8 The Commission observes that the DPR for IKHEP Stage-I (1x65MW) mentions the following:

*"The IKHEP Stage-I HEP is a run of the river scheme on river Kashang with a gross head of ~821 m for generation of 65 MW of power in underground powerhouse."*

- 4.8.9 The Commission also observes that IKHEP Stage-I is a run of the river scheme. NAPAF of such stations as per Regulation 23 of the 'HPERC Hydro Tariff Regulations, 2011' is to be determined plant-wise, based on 10 days design energy data, moderated by past experience where available/relevant. Further, the Petitioner was asked to provide the details of actual PAF certified by load dispatch centre during last five years. The Petitioner has submitted that they have taken up the matter with the load dispatch centre for certification of PAF.
- 4.8.10 Therefore, due to lack of information regarding the PAF for past years, the Commission is approving NAPAF of 85% for FY 2023-24 in line with the NAPAF approved by CERC for similar hydro stations.

## **4.9 Capacity and Energy Charges**

### **Petitioner's Submissions**

- 4.9.1 The Petitioner has cited Regulation 26 of the 'HPERC Hydro Tariff Regulations, 2011' and its subsequent amendments for the computation of Capacity and Energy Charges.

### **Commission's Analysis**

- 4.9.2 The Commission has noted that a PPA has been signed between the Petitioner (HPPCL) and the HPSEBL on 29.03.2023 for 100% of Net-Saleable Energy at Ex-Bus. The PPA shall come into force from 01.04.2023 and shall remain operative till the useful life of the project. Therefore, the Petitioner is required to recover 100% of the fixed charges approved for the total plant from HPSEBL as well as energy charge corresponding to 100% of the net saleable energy supplied to HPSEBL as tabulated in Table No. 67 below.
- 4.9.3 The Commission clarifies that the recovery of cost is being allowed against all the three units in view of the unavailability of the unit-wise bifurcate cost and alternate operation of each of the units. Further, the Petitioner has also submitted that the other units are acting as stand by units and in case of higher water availability during monsoon season, these units are being used simultaneously for the purpose of power generation. Therefore, the Commission is of the view that the Petitioner should tie-up for the balance capacity with HPSEBL resulting in cost optimization. The Commission shall be constrained to recover any excess recovery allowed to the Petitioner on account of tariff determination for the combined units in case of sale of any share from the IKHEP to a beneficiary other than HPSEBL.
- 4.9.4 The Commission, in accordance with the 'HPERC Hydro Tariff Regulations, 2011' and the signed PPA between the Petitioner and the HPSEBL as mentioned in para 4.9.2 of this order, has calculated the Capacity and Energy charges for FY 2023-24. The Commission has approved the Annual Fixed Cost in para 4.7.2. The details for approve Capacity and Energy Charges for FY 2023-24 is tabulated below:

**Table 67: Approved Energy and Capacity Charges by the Commission**

| S. No. | Particulars                | -             | FY 2023-24 | Unit            |
|--------|----------------------------|---------------|------------|-----------------|
| a)     | Approved Annual Fixed Cost |               | 71.76      | (Rs. Cr.)       |
| b)     | Net Saleable Energy        |               | 211.28     | (MU)            |
| c)     | Energy Charge              | $(a*50\%/b)$  | 1.70       | (Rs. /kWh)      |
| d)     | Capacity Charge            | $(a*50\%/12)$ | 2.99       | (Rs. Cr./Month) |

- 4.9.1 Since the Petitioner is having diurnal storage available in the Plant and the cost of the same has also been allowed by the Commission, therefore, the Petitioner shall ensure that the plant is operated during the peak hours as per the requirement of the HPSEBL. Further, as the Commission has approved the cost against all the three units on a consolidated basis, any excess quantum generated by the plant should be sold to HPSEBL only.

-Sd/-

(SHASHI KANT JOSHI)

Member

-Sd/-

(YASHWANT SINGH CHOGAL)

Member, Law

-Sd/-

(DEVENDRA KUMAR SHARMA)

Chairman

Shimla

Dated: 05<sup>th</sup> June, 2024.