

**Approval of Capital Cost and determination
of tariff for 220/66kV Bhoktoo Pooling
Substation for the Period from COD to FY
2023-24
(FY17-FY24)
H.P. Power Transmission Corporation
Limited (HPPTCL)**



**Himachal Pradesh Electricity Regulatory
Commission
July 25, 2020**

**BEFORE THE HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION AT
SHIMLA
PETITION NO: 4/2020**

**CORAM
Sh. S.K.B.S. NEGI
Sh. BHANU PRATAP SINGH**

In the matter of:

Approval of MYT petition for approval of capital cost and determination of tariff for the period starting from COD (23.03.2017) to FY 2023-24 of 220/66kV Pooling Substation at Bhoktoo of Himachal Pradesh Power Transmission Corporation Ltd. (HPPTCL) under sections 62, 64 and 86 of the Electricity Act, 2003.

AND

IN THE MATTER OF:

Himachal Pradesh Power Transmission Corporation Ltd. (HPPTCL).....Petitioner

ORDER

The Himachal Pradesh Power Transmission Corporation Limited (hereinafter called the 'HPPTCL' or 'Petitioner') 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 the period starting from COD (23.03.2017) to FY 2023-24 of 220/66kV Pooling station at Bhoktoo under Sections 62, 64 and 86 of the Electricity Act, 2003 (hereinafter referred to as "the Act"), read with HPERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2011 and its amendments in 2013 and 2018.

The Commission having heard the applicant, interveners, consumers and consumer representatives through various representations and having had formal interactions with the officers of the HPPTCL and having considered the documents available on record, herewith accepts the application with modifications, conditions and directions specified in the following Tariff Order.

The Commission has determined the capital cost and Aggregate Revenue Requirement (ARR) for Bhoktoo Substation in accordance with the guidelines laid down in Section 61 of the Electricity Act, 2003, the National Electricity Policy, the National Tariff Policy and Regulations framed by the Commission. Details of prudence check and approach adopted by the Commission with regard to approval of capital cost and ARR for Bhoktoo sub-station are summarized in the detailed Order.

The Commission further directs the licensee to publish the tariff in two leading newspapers, one in Hindi and the other in English, having wide circulation in the State within 7 days of the issue of the Tariff Order.

Sd/-
(BHANU PRATAP SINGH)
Member

Sd/-
(S.K.B.S. NEGI)
Chairman

Shimla
Dated: 25th July, 2020

Table of Contents

1.	INTRODUCTION	7
1.1	Himachal Pradesh Electricity Regulatory Commission	7
1.2	Himachal Pradesh Power Transmission Corporation Ltd.	8
1.3	Multi Year Tariff Framework.....	9
1.4	Interaction with the Petitioner	9
1.5	Public Hearings	10
2.	STAKEHOLDER OBJECTIONS.....	11
2.1	Introduction	11
3.	APPROVAL OF CAPITAL COST	13
3.1	Introduction	13
3.2	HPPTCL Current Infrastructure.....	14
3.3	Summary of the Project	15
3.4	Energy flow and Nature of Asset	17
3.5	Capital Cost and Funding	21
3.6	Additional Capital Expenditure	28
3.7	Project Funding.....	31
4.	APPROVAL OF ARR AND TARIFF	36
4.1	Background.....	36
4.2	O&M Expenses.....	36
4.3	Employee Expense	38
4.4	A&G Expenses	39
4.5	R&M Expense	40
4.6	Depreciation.....	41
4.7	Interest on Loan	43
4.8	Interest on Working Capital.....	44
4.9	Return on Equity	46
4.10	Aggregate Revenue Requirement	47
4.11	Transmission Charges.....	48

List of Tables

Table 1: Communication with the Petitioner.....	9
Table 2: List of Newspapers for Public Hearing	10
Table 3: List of Newspapers for Public Notice by Commission	10
Table 4: Details of existing Transmission lines	14
Table 5: Detail of the Transmission Sub-Station.....	15
Table 6: Petitioner Submission: Project Cost as on COD (Rs. Lakh)	15
Table 7: Beneficiary details of Bhoktoo Substation.....	16
Table 8: Petitioner Submission- Comparison of Original Cost vis-à-vis Actual cost as on CoD (Rs. Lakh)	21
Table 9: Year on year details of Capital expenditure (Rs. Lakh).....	24
Table 10: Break-up of Supply and Service Contract (Rs. Lakh).....	25
Table 11: Amendment in Supply and Service Contract (Rs. Lakh).....	25
Table 12: Break-up of approved hard cost of Bhoktoo Substation (Rs. Lakh)	25
Table 13: Petitioner Submission: Interest during Construction (Rs. Lakh).....	27
Table 14: Approved IDC (Rs. Lakh)	28
Table 15: Approved capital Cost of Bhoktoo Substation as on COD (Rs. Lakh).....	28
Table 16: Details of estimated completion cost of the project by the Petitioner (Rs. Lakh)	29
Table 17: claimed Additional Capitalisation for FY19 and FY20 (Rs. Lakh).....	30
Table 18: Details of estimated completion cost of the project (Rs. Lakh)	30
Table 19: Approved Additional Capitalisation (Rs. Lakh).....	31
Table 20: Petitioner Submission: Debt-Equity Ratio of capital cost as on COD	31
Table 21: Petitioner submission- Abstract of Actual Cost as on 31.03.2019(Rs Lakh) ...	32
Table 22: Debt: Equity considered by the Petitioner for FY20 to FY24 (Rs Lakh).....	32
Table 23: Petitioner submission- Yearly Capital expenditure and funding (Rs Lakh)	32
Table 24: Petitioner submission- Equity funding	33
Table 25: Approved Funding details as on COD (FY18) (Rs Lakh)	34
Table 26: Approved Funding from FY19 to FY24 (Rs Lakh).....	34
Table 27: Escalation approved for 4 th Control Period	38
Table 28: Employee Expense claimed from FY17 to FY19 (Rs. Lakh).....	38
Table 29: Petitioner Submission- Employee Strength from FY18 to FY24	38
Table 30: Claimed Employee Expense for FY20 to FY24 (Rs. Lakh)	38
Table 31: Approved Employee Expense for the fourth Control Period (Rs. Lakh).....	39
Table 32: A&G Expense claimed for FY17 to FY19 (Rs. Lakh)	39
Table 33: Claimed A&G Expense for FY20 to FY24 (Rs. Lakh).....	39
Table 34: Approved A&G Expense for the 4 th Control Period (Rs. Lakh)	40
Table 35: K-factor considered from FY17 and FY18 (Rs. Lakh)	40
Table 36: Claimed R&M Expense from FY17 and FY19 (Rs. Lakh)	41
Table 37: Claimed R&M Expense from FY20 and FY24 (Rs. Lakh)	41
Table 38: K-factor considered from FY17 and FY18 (Rs. Lakh)	41
Table 39: Approved R&M Expense for the 4 th Control Period (Rs. Lakh)	41
Table 40: Depreciation claimed for FY17 to FY19 (Rs. Lakh)	42
Table 41: Depreciation claimed for the 4 th Control Period (Rs. Lakh).....	42
Table 42: Approved Depreciation for the 4 th Control Period (Rs. Lakh)	43
Table 43: Interest claimed during FY17 to FY19 (Rs. Lakh).....	43
Table 44: Interest on Loan claimed for 4 th Control Period (Rs. Lakh).....	44
Table 45: Approved Interest on Loan for the 4 th Control Period (Rs. Lakh).....	44
Table 46: Interest on Working Capital claimed for the Period from FY17 to FY19 (Rs. Lakh).....	45
Table 47: Interest on Working Capital claimed for the 4 th Control Period (Rs. Lakh).....	45
Table 48: Approved Interest on Working Capital for the fourth Control Period (Rs. Lakh)	46
Table 49: Return on Equity claimed for the Period from FY17 to FY19 (Rs. Lakh).....	46

Table 50: RoE claimed during the 4 th Control Period (Rs. Lakh)	47
Table 51: Approved ROE for the 4 th Control Period (Rs. Lakh)	47
Table 52: Summary of Aggregate Fixed Charges claimed for the Period from FY17 to FY19 (Rs. Lakh)	47
Table 53: ARR claimed for the 4 th Control Period (Rs. Lakh).....	48
Table 54: Approved ARR for the 4 th Control Period (Rs. Lakh)	48
Table 55: Additional Transmission Charges for STOA	49
Table 56: Evacuation capacity and actual capacity handled.....	50
Table 57: Approved Transmission Charges for Short-term Open Access Consumers for fourth Control Period	50

1. INTRODUCTION

1.1 Himachal Pradesh Electricity Regulatory Commission

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

Functions of the Commission

1.1.2 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 Transmission Corporation Ltd.

1.2.1 Himachal Pradesh Power Transmission Corporation Limited (hereinafter referred to as 'HPPTCL' or 'the Petitioner') is a deemed licensee under first, second and fifth provision of Section 14 of the Electricity Act, 2003 (hereinafter referred to as 'the Act') for transmission of electricity in the State of Himachal Pradesh.

1.2.2 The Government of Himachal Pradesh (hereinafter referred to as 'GoHP' or the 'State Government' formed HPPTCL through a notification vide its notification No. MPP-A-(1)-4/2006-Loose, dated 11th September 2008.

1.2.3 Through notification No. MPP-A-(1)-4/2006-Loose dated 3rd December, 2008 read with the GoHP's earlier notification dated 31st October, 2008, HPPTCL was entrusted with the following work / business with immediate effect:

- a) All new works of construction of Sub-Stations of 66 kV and above
- b) All new works of laying/ construction of transmission lines of 66 kV and above
- c) Formulation, updating, execution of Transmission Master Plan for the state for strengthening of Transmission network and evacuation of power including new works under schemes already submitted by the Himachal Pradesh State Electricity Board (HPSEB) under this plan to the Financial Institutions for funding and where loan agreements have not yet been signed
- d) All matters relating to planning and co-ordinations of the transmission related issues with CTU, CEA, Ministry of Power, State Government and HPSEBL
- e) Planning and co-ordination with the IPPs/ CPSUs/ State PSUs/ Other Departments or organizations or agencies of the Central Government and State Government, HPSEBL and HPPCL with regard to all transmission related issues

1.2.4 HPPTCL was declared the State Transmission Utility (STU) by the GoHP vide its order dated 10th June, 2010 and as a result thereof the Commission recognized HPPTCL as a deemed "Transmission Licensee" as per the

Commission's Order dated 31st July, 2010 in Petition No. 32 of 2010 filed by HPPTCL under Sections 14 and 15 of the Act, for grant of Transmission Licensee in the State of Himachal Pradesh. Prior to FY11, the transmission tariff was being determined as a part of the tariff orders applicable to HPSEBL system.

1.3 Multi Year Tariff Framework

- 1.3.1 The Commission follows the principles of Multi Year Tariff (MYT) for determination of tariffs, in line with the provision of Section 61 of the Act.
- 1.3.2 The MYT framework is also designed to provide predictability and reduce regulatory risk. This can be achieved by approval of a detailed capital investment plan for the Petitioner, considering the expected network expansion and load growth during the Control Period. The longer time span enables the Petitioner to propose its investment plan with details on the possible sources of financing and the corresponding capitalization schedule for each investment.
- 1.3.3 The Commission had specified the terms and conditions for the determination of tariff in the year 2004, based on the principles as laid down under Section 61 of the Electricity Act 2003.
- 1.3.4 Thereafter, the Commission had notified the HPERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2011. The MYT regulations notified in the year 2011 were amended as (First Amendment) Regulations, 2013 on 1st November, 2013 and (Second Amendment) Regulations, 2018 on 22nd November, 2018 (herein after referred to as "HPERC MYT Transmission Regulations 2011").
- 1.3.5 The Commission issued the first Multi-Year Tariff (MYT) Order for HPPTCL for the period FY 2011-12 to FY 2013-14 on 14th July 2011 and thereafter for the second Control Period (FY 2014-15 to FY 2018-19) on 10th June, 2014. The Commission has also issued the Tariff Order on True Up for the FY 2014-2015 to FY 2015-2016 and Mid Term Review for Third Control Period FY 2016-2017 to FY 2018-19. Thereafter in June 2019, the Commission issued MYT Order for the fourth Control Period (FY 2019-20 to FY 2023-24).

1.4 Interaction with the Petitioner

- 1.4.1 Since the submission of the Petition, there have been a series of interactions between the Petitioner 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.
- 1.4.2 Based on preliminary scrutiny of the petition, the Commission vide letter No. HPERC-F(1)-13/2019-2019-20 dated 4th November, 2019 directed the Petitioner to submit details regarding first set of deficiencies identified in the petition, which were submitted by the Petitioner vide MA No. 179/2019 dated 14th November, 2019.
- 1.4.3 Based on the detailed scrutiny of the petition, various clarifications/information were sought by the Commission from time to time. The following submissions made by the Petitioner in response there to, have been taken on record:

Table 1: Communication with the Petitioner

Sl.	Submission of the Petitioner	Date
1	M.A. No 179/2019	14.11.2019

Sl.	Submission of the Petitioner	Date
2	M.A. No. 6/2020	31.01.2020
3	M.A. No. 21/2020	02.03.2020
4	M.A. No. 112/2020	04.07.2020

1.5 Public Hearings

- 1.5.1 The interim order inter alia included direction to the Petitioner to publish the application in an abridged form and manner as per the "disclosure format" attached with the interim order for the information of all the stakeholders in the State. As per the direction, the Petitioner published the public notice in the following newspapers.

Table 2: List of Newspapers for Public Hearing

Sl.	Name of News Paper	Date of Publication
1.	Amar Ujala	13.02.2020
2.	The Tribune	14.02.2020

- 1.5.2 The Commission published a public notice inviting suggestions and objections from the public on the tariff petition filed by the Petitioner in accordance with Section 64(3) of the Act which was published in the newspapers as mentioned in the table:

Table 3: List of Newspapers for Public Notice by Commission

Sl.	Name of News Paper	Date of Publication
1.	Indian Express	16.02.2020
2.	Amar Ujala	16.02.2020

- 1.5.3 The stakeholders were requested to file their objections by 9th March, 2020. HPPTCL was required to submit replies to the suggestions/ objections to the Commission by 17th March, 2020 with a copy to the objectors on which the objectors were required to submit rejoinder by 25th March, 2020.
- 1.5.4 The Commission issued a public notice informing the public about the scheduled date of public hearing as 27th March, 2020. All the parties, who had filed their objections/ suggestions, were also informed about the date, time and venue for presenting their case in the public hearing.
- 1.5.5 However, in view of ongoing lockdown and restrictions related to COVID-19, the Commission felt that it would not be possible to conduct the public hearing in near future and therefore decided to provide some additional timeframe for submission of comments /suggestions on the tariff petition. Therefore, the Commission provided another opportunity to the stakeholders to submit their additional comments upto 12th May, 2020.
- 1.5.6 The issues and concerns voiced by various objectors have been carefully examined by the Commission. The major issues raised by the objectors in their written submission as well as those raised during the stakeholder consultation process, have been summarized in Chapter 2 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 has informed the public/stakeholders about the date for filing comments/ objections on the Petition for approval of Capital Cost and determination of tariff for 220/66kV Bhoktoo Pooling Substation for the Period from COD to FY 2023-24 and date of public hearing on the Petition as 27th March, 2020.
- 2.1.2 During the period, no comments were received by the Commission. Subsequently, lock-down and other restrictions were imposed in the state of Himachal Pradesh as well as in rest of the country, resulting in deferment of public hearing. In view of the prevailing situation, the Commission felt that it may not be possible to conduct the public hearing in near future and therefore decided to provide additional timeframe for submission of comments /suggestions on the tariff petition. The last date for submission of comments was extended upto 12th May, 2020.
- 2.1.3 In response, HPSEBL submitted their comments/ suggestions before the Commission. Issues raised by HPSEBL in their written submission, along with replies given by the Petitioner and views of the Commission are summarized in following paras:

Stakeholders' Submission

- 2.1.4 HPSEBL submitted that as per HPPTCL submissions, this asset is developed for the use of HPSEBL and this project being system strengthening project constructed to de-congest 22kV lines of HPSEBL which were overloaded and to improve quality of supply to remote areas, the entire transmission charges are to be borne by HPSEBL. The stakeholder has further mentioned that in future if any other generating station is given LTA, the transmission charges is proposed to be recovered on pro-rata basis of the maximum of the contracted demand and actual demand whichever is higher. HPSEBL also informed that presently Kashang HEP power is being evacuated by HPPTCL through this sub-station to CTU system for sale outside the State through Short Term Open Access, Therefore sharing of ARR between HPSEBL, HPPCL and other beneficiaries of this sub-station needs to be defined clearly by HPPTCL. HPSEBL submitted that adjustment of such billing on HPSEBL also needs to be clearly defined by HPPTCL.

Petitioner's Response

- 2.1.5 The Petitioner submitted that said transmission system has been developed for strengthening HPSEBL transmission system and total charges are required to be paid by HPSEBL only. The Petitioner further submitted that majority of power of Kashang HEP is being evacuated through Kashang-Wangtoo circuit and power through Bhoktoo Substation is being used to serve the local area only. The Petitioner also submitted that if the asset is utilised by any other entity, benefit of the same shall be passed to HPSEBL.

Commission's Observations

- 2.1.6 The Commission has examined the submission of the Petitioner in this regard and have approved the ARR for each year of FY 2017-18, FY 2018-19 and Control Period FY 2019-20 to FY 2023-24 as detailed in subsequent Chapters. Further, the tariff recoverable from LTOA/ MTOA would be in line with Clause 33 (1) of HPERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2011. Details with respect to transmission charges are covered in Chapter 4 of this Order.

Stakeholders' Submission

- 2.1.7 HPSEBL submitted that at present HPPTCL has been billing O&M charges of Bhoktoo S/Stn. for the usage of 3 no. Bays (1 No. 66 kV & 2 No. 22 kV) on HPSEBL @ Rs. 3,20,646/- per month & bills of the same are supposed to be passed by the CE(ES), HPSEBL, Hamirpur.

Petitioner's Response

- 2.1.8 The Petitioner submitted that submission of stakeholder is fact and has not provided any response to this query.

Commission's Observations

- 2.1.9 Based on the examination and detailed prudence check of the petition, the Commission has approved the ARR for each year of FY 2017-18, FY 2018-19 and Control Period FY 2019-20 to FY 2023-24 as detailed in subsequent Chapters. HPPTCL is directed to adjust any amount recovered in the past from HPSEBL in this regard while raising any future invoices.

3. APPROVAL OF CAPITAL COST

3.1 Introduction

3.1.1 HPPTCL has submitted a petition for determination of capital cost of 220/66 kV pooling substation at Bhoktoo and ARR for fourth Control Period (FY 2019-20 to FY 2023-24) in line with the provisions of the HPERC MYT Transmission Regulations 2011.

3.1.2 As per the HPERC MYT Transmission Regulations 2011,

14. Capital cost of the project

(1) The 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 15;

(c) additional capital expenditure determined under regulation 16:

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 the prudence check of capital cost may be carried out based on the benchmark norms to be specified by the Commission from time to time:

Provided further 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 where the implementation agreement and the transmission service agreement entered into between the transmission licensee and the long-term transmission customer provides for ceiling of actual expenditure, the capital expenditure admitted by the Commission shall take into consideration such ceiling for determination of tariff:

"Provided further that in case of the existing projects, the capital cost admitted by the Commission prior to the start of the control period and the

additional capital expenditure projected to be incurred for the respective years of the control period, as may be admitted by the Commission, shall form the basis for determination of tariff:"

- 3.1.3 The Commission has reviewed the proposed capital cost for Bhoktoo scheme and ARR proposed for each year by the Petitioner from the date of COD until the Control Period i.e. FY 2019-20 to FY 2023-24. Multiple Technical Validation Sessions (TVS) in the office of the Commission were held to discuss in detail the submissions of the Petitioner to validate the data submitted. Also, further clarifications regarding status of upcoming generators, beneficiaries, cost break-up, time and cost overruns, etc were sought from the Petitioner.
- 3.1.4 The original Petition for determination of capital cost and ARR for Bhoktoo substation was deficient in many respects. Information provided in the Petition as well as supporting data was inadequate. The discrepancy letters were written to the Petitioner to source appropriate data and documents which would enable the Commission in reviewing the capital cost and ARR for the Bhoktoo substation. However, the information provided by the Petitioner in response to the queries of the Commission remained incomplete and/or could not be validated with supporting documents. The Commission has undertaken detailed prudence check and adequate assumptions, wherever required, for approving the capital cost and ARR for the Bhoktoo substation. The scrutiny and prudence check undertaken by the Commission for approval of capital cost of Bhoktoo Substation is detailed in paras below.

3.2 HPPTCL Current Infrastructure

- 3.2.1 During the unbundling of State power sector, only 15 numbers of Transmission Lines have been transferred to HPPTCL which was held by erstwhile Himachal Pradesh State Electricity Board (HPSEB). Whereas the line bays, substations, C&R Panel, Metering arrangement and other transmission related infrastructure were retained within the distribution entity i.e. Himachal Pradesh State Electricity Board Limited (HPSEBL) which was formed post unbundling of HPSEBL.
- 3.2.2 The Petitioner has provided the details of existing intra-state transmission infrastructure vested with HPPTCL as per notification no. MPP-A (3)-1/2001-iv dated June 10, 2010 by the Government of Himachal Pradesh. In addition to the above, the transmission system of HPPTCL also has three inter-state transmission lines, the tariff of which is approved by Central Electricity Regulatory Commission (CERC). The details of the existing Intra-state Transmission system of the Petitioner is tabulated below.

Table 4: Details of existing Transmission lines

S. No.	Name of Existing lines	Date of Commercial Operation	Cost of Asset in Rs Cr
A	220 KV Lines		
1	220 kV D/C Bairasuil - Pong Line (LILO portion at Jassure)	09-1985	0.66
2	220 kV Dehar-Kangoo Line (S/C ckt. Line on D/C tower)	06-1999	0.69
3	220 kV D/C Nalagarh (PGCIL)-Nalagarh Line	07-2010	10.93
B	132 KV Lines		
4	132 kV S/C Giri-Kulhal Line	04-1978	1.71
5	132 kV D/C Giri-Abdullapur Line	08-1982	0.43
6	132 kV S/C Kangra Tap Line	02-1979	0.37

S. No.	Name of Existing lines	Date of Commercial Operation	Cost of Asset in Rs Cr
7	132 kV S/C Dehar-Kangoo Line	12-1998	0.42
8	132 kV D/C Shanan-Bassi Line	03-1970	2.19
C	66 KV Lines		
9	66 kV Shanan-Bijni Line	10-1969	0.11
10	66 kV Pinjore-Parwanoo Line	04-1956	0.21
11	66 kV Pong-Sansarpur Terrace Line	10-1990	0.55
12	66 kV Bhakra-Goalthai-Rakkar Line	12-1985	1.27

3.2.3 HPPTCL has further been undertaking various transmission schemes since its formation in 2008 for evacuation of upcoming generation and augmentation of transmission infrastructure in the state.

3.2.4 The Petitioner has now submitted petition for capital cost determination of 220/66kV Pooling Station at Bhoktoo. Construction of the substation was initiated by HPPTCL in 2013 and was being developed to be connected with 220kV Kashang Bhaba Line which is further proposed to be connected to 400/220kV Pooling station at Karcham, Himachal Pradesh. Relevant technical details and configuration of the substation as submitted by the Petitioner is tabulated below:

Table 5: Detail of the Transmission Sub-Station

Name of Sub-Station	Type of Substation	Voltage level (KV)	No. of Bays				COD
			765 KV	400 KV	220 KV	22 and 66 kV	
66/220 kV GIS Sub-station Bhoktoo	GIS	220kV	-	-	2	7	23 rd March 2017

3.3 Summary of the Project

Petitioner Submission

3.3.1 The Petitioner has submitted that the cost of Bhoktoo Substation as approved in the DPR was Rs. 6,229.59 lakh which included Interest During Construction (IDC) and departmental charges. The capital cost claimed by the Petitioner as on COD of the scheme is Rs. 3,707.69 Lakh which is inclusive of IDC and departmental charges. The component wise comparison of the capital cost as projected in the DPR vis-à-vis actual cost as on COD submitted by the Petitioner is tabulated below:

Table 6: Petitioner Submission: Project Cost as on COD(Rs. Lakh)

Sl.	Description	Project Cost as per DPR	Actual Cost as on CoD
1.	Preliminary works and cost of land	200	14
2.	Cost of supply, Erection & civil works cost (including LILo Transmission line cost)	4,853	3,027
3.	Price contingency@6.8%	85	NIL
4.	Cost of residential colony	179	NIL
5.	Contingency	159	NIL
6.	Pre-commissioning expenses	NIL	14
7.	Taxes	NIL	129
8.	Departmental charges	585	32

Sl.	Description	Project Cost as per DPR	Actual Cost as on CoD
9.	IDC	169	491
10.	Total	6,230	3,707

- 3.3.2 The Petitioner also added that some of the civil works were still in progress at the time of COD and it was deemed appropriate that the entire asset was capitalised in totality rather than in parts. Therefore, the asset was capitalized in the books of account in FY 2017-18. As per the submission of the Petitioner, the project achieved COD and was put to use on 23.03.2017. The Petitioner has also requested the Commission to allow the recovery of tariff from COD i.e. 23.03.2017 and not deny/delay tariff for the project due to the method of booking of capitalisation which is nothing more than an accounting procedure.
- 3.3.3 The Petitioner also submitted that as Himachal Pradesh is predominantly hilly state and the availability of land for sub-station is limited, GIS was proposed in place of conventional AIS sub-station, which reduced the cost of development of land and civil works which formed a major part of capital cost in hilly areas.
- 3.3.4 With regard to beneficiaries of the project, the Petitioner has submitted that the Bhoktoo Substation was constructed to evacuate power from 3 MW Shyang, 5 MW Tangling, 5 MW Pangi SHEPs. These projects are located in Rekong Peo area of Satluj river basin in Himachal Pradesh. Shyang and Tangling projects having an installed capacity of 8 MW had been commissioned and were facing constraints in evacuation of their power through the existing 22 kV network of HPSEBL. The total power to be evacuated through this substation shall be about 13 MW. The Petitioner has also submitted that Bhoktoo pooling station also connects tribal area of Kinnaur district at 66 kV level to ensure reliable and quality supply to the remote areas.
- 3.3.5 The Petitioner further submitted that Integrated Transmission System has been constructed in the area due to space constraints as a result of limited corridor availability because of hilly terrain and as such existing 220 kV Kashang-Bhaba Line has been LILOed enroute at Bhoktoo to create 220/66kV pooling station at Bhoktoo.
- 3.3.6 The Petitioner has also submitted that it has already entered into connection agreement with 3 MW Shyang, 5 MW Tangling. The status of different HEPs as submitted by the Petitioner is showcased below:

Table 7:Beneficiary details of Bhoktoo Substation

Name of Project	Capacity	Mode	Connectivity Status	Open Access Status	Status of PPA
Shyang	3.0 MW	Joint Mode	Granted	-	HPSEBL
Tangling	5.0 MW	Joint Mode	Granted	-	HPSEBL
Pangi*	5.0 MW	Independent	-	-	-

- 3.3.7 The Petitioner has submitted a copy of DPR in support of the said scheme with total approved cost of Rs 6,229.59 Lakh. The Petitioner submitted that the Board of Director's (BoD) of HPPTCL has approved the proposal of the instant asset in the 10th Meeting of the BoD of HPPTCL held on 15.02.2011 for 220/66kV Pooling Station at Bhoktoo vide agenda item No. 10.8 at an estimated cost of Rs. 6,229.59Lakh.

Commission's Analysis

- 3.3.8 The Commission observed that the 220/66 kV pooling-station at Bhoktoo was envisaged for evacuation of power from various generating stations in Satluj river basin along with ensuring reliable and quality supply to the remote areas in Kinnaur district by HPPTCL in the year 2011. Subsequently, the construction of the pooling station at Bhoktoo was awarded in March 2012 and was commissioned in March 2017 in a time frame of approximately five years as compared with the estimate of two years envisaged in the DPR. As per the claim of the Petitioner, the project got delayed due to cloud burst occurred near Bhoktoo in June, 2013 and other force majeure conditions.
- 3.3.9 The Commission in its discrepancy notes asked the Petitioner to submit the approvals of BOD and/or taken from any other competent authority(ies), details of awards/ contracts/ correspondences with construction company, commissioning certificate, etc.
- 3.3.10 In response, the Petitioner has submitted a copy of memorandum for consideration of BOD and minutes of meeting dated 15.02.2011. The Petitioner has also stated that as per the HPERC Tariff Regulations, COD of a transmission element is defined as the date declared by transmission licensee from which the transmission asset is in regular operation after successful charging and trial operation. The Petitioner has submitted a certificate of acceptance of successful commissioning of 220/66 kV pooling station at Bhoktoo on 23.03.2017 provided to Siemens.
- 3.3.11 The Commission observed that while the Petitioner has proposed COD of the Bhoktoo substation as 23rd March 2017, it has incurred capex of Rs. 640 Lakh in FY 2017-18 and capitalized the entire scheme of Rs.37.07 Cr in FY 2017-18 as per its annual accounts. Further, it is also observed that flow of energy from proposed substation is also from FY 2017-18 as per submissions of the Petitioner. The Commission sought reasons from the Petitioner on the mismatch in capitalization of the scheme as per the audited accounts and as claimed in the Tariff Petition.
- 3.3.12 The Petitioner responded that the project achieved COD and was put to use on 23.03.2017 and booking of capitalization is accounting decision and should not be considered as a reason to deny/delay tariff for the project. The Petitioner has also submitted that the energy flow during FY 2016-17 could not be commenced due to delay in achieving of COD of Kashang HEP, which achieved its COD in FY 2017-18 only. It is observed that while the Petitioner has been claiming the date of commissioning of Bhoktoo substation as 23.03.2017, the actual flow of energy as well as capitalization of the scheme has been undertaken in the FY 2017-18.
- 3.3.13 Considering the claim of the Petitioner regarding the COD of the substation, the actual period of operations in FY 2016-17 would be limited to few days. Therefore, the Commission finds it prudent to consider the commissioning of the Bhoktoo substation in line with the year of capitalization of the scheme in the books of accounts of the Petitioner as well as energisation of the substation.

3.4 Energy flow and Nature of Asset

Petitioner Submission

- 3.4.1 It is submitted that, the project has been constructed to strengthen the Transmission System as mentioned earlier and evacuation of power from Shyang (3 MW) and Tangling (5 MW) HEP which were being evacuated from the existing 22kV network of HPSEBL that were already overloaded and were

subjected to system constraints. The entire power from the two SHPs is being procured by HPSEBL and therefore the sole beneficiary of this transmission system is HPSEBL. The Petitioner has submitted the Schematic diagram and SLD of the subject system as annexure of the Petition.

Commission's Analysis

- 3.4.2 The Petitioner has claimed Bhoktoo Substation scheme for strengthening the existing infrastructure and has considered HPSEBL as its sole beneficiary. The Petitioner has also proposed to recover the transmission charges from HPSEBL considering the substation to be a part of the intra-state transmission system.
- 3.4.3 It is observed that the Petitioner had included the Bhoktoo substation under the MYT Petition for HPPTCL for 4th Control Period. However, in the MYT Petition, HPPTCL had claimed that Bhoktoo substation shall be provided the status of interstate transmission project after commissioning of the Wangtoo Substation as more generators are added and power flow from this substation would be primarily for sale outside the state.
- 3.4.4 The Commission did not consider the Bhoktoo substation as part of the STU MYT Order for fourth Control Period on the grounds that the Petitioner had claimed that the system shall form part of inter-state system in near future. The Commission's observation in the MYT Petition is mentioned as follow:
- "The Petitioner has submitted that presently the 22/66/220KV Bhoktoo substation is catering to intra-state power requirement, however it shall form part of inter-state transmission system on commissioning of Wangtoo substation in FY 2019-20. The Bhoktoo substation has been proposed to evacuate 13 MW of power project.*
- In one of the submissions, the Petitioner has mentioned referring to the line diagram that after completion of Wangtoo substation, which is being developed by LILOing both the circuits of Kashang Bhabha transmission line and 400 KV Karcham-Abdullapur transmission line of PGCIL, the proposed system will become part of Inter-State transmission System.*
- As the proposed work is intended for inter-state evacuation of power, the Commission has not considered the same towards intra-state transmission network."*
- 3.4.5 Considering the fact that Petitioner has filed a separate petition for determination of capital cost and ARR for Bhoktoo substation, the Commission sought explanation from the Petitioner for considering proposed scheme as part of intra-state transmission system as well as details with respect to HPPTCL approaching CERC for determination of tariff and inclusion of the Bhoktoo substation as part of PoC.
- 3.4.6 In response to the query, the Petitioner has submitted that CERC had approved the tariff for the three existing Inter-State line i.e. 220 kV S/C Jessore-Ranjitsagar, 220 kV D/C Majri- Khodri, 220 kV D/C Kunihar-Panchkula and included the same in PoC mechanism after verification and certification by Regional Power Committee as Inter-State.
- 3.4.7 The Petitioner further informed that it had filed a Petition No. 550/TT/2014 in the matter of approval of tariff for 220/33 kV Karian substation and transmission line from Karian to Chamera-II. The proposed line was incidental to inter-State transmission network and covered under the definition of inter-State transmission system as provided in Section 2(36) of the inter-State transmission lines. However, CERC in its Order dated 23.09.2015 had directed the Petitioner to approach State Commission for determination of ARR and thereafter to CERC for inclusion of line for PoC computation:

"7. The petition has been filed in response to the Commission's directions for determination of tariff of transmission lines owned or controlled by the STU which carry power inter-state power. This line is not an ISTS line as Karian as well as Chamera-II are in the State of Himachal Pradesh. However, Section 2(36) of the Act defines the ISTS as under:-

"2(36) inter-State transmission system includes-

(i) Any system for the conveyance of electricity by means of main transmission line from the territory of one State to another state;

(ii) The conveyance of electricity across the territory of any intervening State as well as conveyance within the State which is incidental to such inter-State transmission of electricity;

(iii) The transmission of electricity within the territory of a State on a system built, owned, operated, maintained or controlled by a Central Transmission Utility"

8. The petitioner has submitted that the instant line is incidental to inter-State transmission network and it is covered under the definition of inter-State transmission system as provided in Section 2(36) of the inter-State transmission lines. STU lines carrying inter-State power or lines incidental to ISTS can be considered for inclusion in the computation of PoC charges if it is certified by RPC as carrying inter-state power in terms of para 2.1.3 of the Annexure-I to the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 (2010 Sharing Regulations) which is extracted overleaf:-

(a)...

"xxx

xxx

(g) Overall charges to be allocated among nodes shall be computed by adopting the YTC of transmission assets of the ISTS licensees, deemed ISTS licensees and owners of the non-ISTS lines which have been certified by the respective Regional Power Committees (RPC) for carrying inter-State power. The Yearly Transmission Charge, computed for assets at each voltage level and conductor configuration in accordance with the provisions of these regulations shall be calculated for each ISTS transmission licensee based on indicative cost level provided by the Central Transmission Utility for different voltage levels and conductor configuration. The YTC for the RPC certified non-ISTS lines which carry inter-State power shall be approved by the Appropriate Commission."

9. These assets can be considered for inclusion in the PoC only if they are certified by NRPC that these lines are used for evacuation of inter-state power. The tariff of such lines is determined by respective State Commissions by way of ARR. The Commission has worked out a methodology for the purpose of calculation of PoC charges and apportionment of transmission lines and charges to the transmission system of different configurations of the STU and this methodology has adopted in case of all the natural inter-state transmission lines. Similar procedure will be adopted in the instant case. The Commission in its order dated 18.3.2015 in Petition No. 213/TT/2015 has observed as follows:-

"17. We have not carried out any due diligence of the tariff of these lines (for consideration of PoC calculations) as the jurisdiction to determine the tariff of the lines owned by STU rests with the State Regulatory Commission. We have considered the ARR of the STU as approved by the

State Regulatory Commission and have adopted the methodology as discussed in paras 15 and 16 of this order for the purpose of calculation of PoC charges and apportionment of transmission lines and charges to the transmission system of different configurations of the STU. This methodology shall be adopted uniformly for the lines owned by other STUs used for inter-State transmission of power duly certified by respective RPCs for the purpose of inclusion in the PoC mechanism."

10. We have considered the submissions of the petitioner. As the instant assets are likely to be commissioned only after December, 2015, the instant petition is disposed of with a liberty to the petitioner to file fresh petition for inclusion of line in PoC computation after the commercial operation of the lines and approval of the tariff of the instant asset by the State Commission. The petitioner is further directed to obtain the necessary certificate from the NRPC to the effect that the instant assets are being used for inter-state transmission of power. The petition filing fees deposited along with this petition will be adjusted towards the fees to be deposited by the petitioner in future petitions."

- 3.4.8 The Petitioner has submitted that as per CERC, when a transmission asset owned by STU originates and ends in the same State, the jurisdiction for determination of tariff is with the State Commission. The Petitioner further mentioned that post determination of the transmission charges by the State Commission, it will be required to obtain the requisite certificate from NRPC. And, in case this asset is certified as Inter-state by NRPC only then the petitioner can file an application in CERC for inclusion of the same in POC.
- 3.4.9 As discussed above, the Petitioner in the MYT Petition has submitted that after Wangtoo substation is fully commissioned, Bhoktoo Substation may become part of Inter-State network as the power flow of the lines may undergo change considering infusion of power from various generators and sale of power outside the state.
- 3.4.10 In view of the above, the Commission has sought details from the Petitioner regarding change in status of Bhoktoo Substation on commissioning of Wangtoo Substation. The Petitioner in reply submitted that after commissioning of Wangtoo Substation, the Petitioner will seek NRPC certificate in terms of para 2.1.3 of Annexure-I to Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 and then approach CERC for inclusion in the POC mechanism.
- 3.4.11 The Petitioner additionally submitted that until FY 2019-20, the entire power being evacuated by the substation was supplied to HPSEBL and there was no flow of power other than that being supplied to HPSEBL from the generators. The Petitioner has accordingly requested the Commission to determine the tariff for Bhoktoo substation and allow recovery of transmission charges from HPSEBL.
- 3.4.12 The Commission observes that the Petitioner had earlier approached CERC for determination of 220/33 kV Karian substation and transmission line from Karian to Chamera-II, but the Petition was dismissed due to unavailability of NRPC certificate and CERC had accordingly shifted the jurisdiction of ARR determination to State Commission. The Commission also observes that the primary reason for dismissal of Petition by CERC was non-submission of NRPC certificate and inability of the Petitioner to substantiate the proposed system as part of inter-state network.
- 3.4.13 In view of the above, the Commission also asked the Petitioner to submit the NRPC certificate for the Bhoktoo substation for which the Petitioner submitted

that it is in the process of obtaining NRPC certificate for Bhoktoo Substation and shall approach Central Commission or the State Commission depending upon the Certificate issued for recovery of transmission charges.

- 3.4.14 While the Petitioner has submitted that the proposed substation have been identified under intra-state schemes based on the existing power flow to HPSEBL, the Petitioner has been unable to provide essential details like NRPC certificate for establishing the same.
- 3.4.15 **Therefore, in absence of any technical or load flow study, the Commission is constraint to consider the submission of Petitioner regarding the flow of power being entirely attributable to HSPEBL. However, the Commission feels that with the commissioning of Wangtoo substation, the status of Bhoktoo substation can be clearly ascertained based on energy flow studies conducted by NRPC. Therefore, the Commission directs the Petitioner to approach NRPC for load flow certification at the earliest and take necessary steps based on the status determined by NRPC. Also, the Petitioner is directed to submit quarterly status update in this regard to the Commission.**
- 3.4.16 In view of the fact that the substation has been capitalized and is being utilized for energy flow to HPSEBL from FY 2017-18 onwards, as well as the inclusion of the Bhoktoo substation as part of inter-state network is contingent on commissioning of Wangtoo substation and flow of energy in future, the Commission recognizes the financial difficulties to the Petitioner to this respect. Also, considering the responsibility of determination of ARR for such incidental inter-state assets, the Commission has undertaken detailed prudence check of the capital cost of Bhoktoo substation and determination of ARR for the Control Period.

3.5 Capital Cost and Funding

Petitioner Submission

- 3.5.1 The Petitioner has submitted that the capital cost of the project was envisaged as Rs. 6,229.59 Lakh (including IDC and Departmental Charges) as per the scope of work defined in original DPR. However, the actual cost of the project as on COD is Rs. 3,707.69 Lakh including hard cost, IDC and Departmental charges. The Petitioner has additionally submitted that some of the civil works were pending at the time of COD and it was deemed appropriate that the entire asset was capitalised instead of being capitalized in parts. The Petitioner has provided a comparison of capital cost of the project as per original scope of work and actual capital cost as shown under:

Table 8:Petitioner Submission-Comparison of Original Cost vis-à-vis Actual cost as on CoD (Rs. Lakh)

Particulars	Cost as per DPR	Actual Cost incurred as on CoD
Hard Cost	5,476.04	3,184.72
IDC (Interest During Construction)	168.73	490.95
Departmental Charges	584.81	32.02
Total	6,229.58	3,707.69

- 3.5.2 The Petitioner submitted that the capital cost incurred upto CoD is duly certified by the Statutory Auditor and has enclosed copy of Audited accounts for FY 2017-18.

- 3.5.3 The Petitioner further submitted the project was scheduled to start by 01.04.2011 and scheduled to be completed by 31.03.2013 i.e. within 24 Months. However, the Project was delayed substantially due to the force majeure events that occurred near the project site.
- 3.5.4 The Petitioner further explained that a cloud burst occurred near Bhoktoo in June, 2013 due to which there was heavy land slide and some portion of the road was washed away leaving considerable land/mud deposition in and around of 220/66/22 kV Sub-station Bhoktoo. The Petitioner had invited a team from IIT Roorkee to the site for remedial measures for the stabilization of the sub-station area towards hill side. The IIT Roorkee Team submitted its report of the remedial measures for the slope stabilization of the substation area and accordingly the measures were submitted to the Design office for the change in design aspects.
- 3.5.5 The major observations of IIT Roorkee team was as follows:
- (i) The proposed sub-station located within glacial debris is under construction by creating two terraces at different levels. The excavation of lower terrace entailed a cut slope ranging up to a height of 7 m. This cut slope is presently supported partially up to a height of about 3 m. Since the foundation of the 66 kV sub-station is located very close to the cut slope (2 m at places), it is recommended:*
 - a) To complete the construction of RC retaining wall at the earliest.*
 - b) Moreover, the slope materials are mainly composed of cohesion less silt material having high vertical permeability and as such high pore-water pressures are anticipated during rains. It is therefore recommended to provide suitably designed inverted filter material at the back of the retaining wall.*
 - c) In addition, a top layer of about 0.60 m – 0.70 m of impervious material be provided over the inverted filter.*
 - d) Proper weep holes be provided in the wall at a spacing of 1.0 m x 1.0 m in a staggered pattern.*
 - (ii) The damaged retaining walls adjoining supporting the access road be provided with redesigned RC retaining wall. In addition, recommendations as indicated in (i b,c &d) above be adopted here also.*
 - (iii) The slope below the lower 220 kV terrace shows several breaks in the profile. The entire 125 m – 150 m high slope between the two PWD roads shall have to be studied in detail for local stability of individual terraces and global stability of the overall hill, for identifying suitable measures.*

For that purpose, detailed topographical survey of the entire area be carried out in addition to preparing 3-4 cross sections across the slope. These maps will be used for geological studies and stability analysis.
 - (iv) The near vertical landslide scar seen on the north eastern side of lower terrace is visibly unstable and requires detail study for suitable control measures. For that purpose, the area has to be covered by topographical mapping on a 1: 1000-2000 scale in addition to preparing 3-4 sections across the slope. These maps and sections can be used for geological studies and carrying out stability analysis.*
- 3.5.6 The Petitioner submitted that in accordance with the observations and recommendations of IIT Roorkee team, slope stabilization towards 220kV side hill was executed and RCC walls were constructed in place of PCC walls.
- 3.5.7 Further, there was mud/silt setting around the Control room Building and 66 kV Yard. The IIT Roorkee team further visited Bhoktoo sub-station and suggested additional remedial methods for stabilization of the sub-station

which included creation of a pattern of additional weep holes and pressure grouting of the bench in front of 66/220 kV Transformer which in turn caused delay.

3.5.8 Further, the site visit of 66/220 KV sub-station at Bhoktoo by the IIT Roorkee team along with the officers of HPPTCL was undertaken during July 2-4, 2015, the following observations were made by the team:

- 1) *The construction of R.C. counter fort retaining wall on the hill side of 66kv terrace was under progress*
- 2) *The cut slope between the 66kv and 220 KV terrace were partly filled.*
- 3) *Regarding the treatment of active landslide face the measures were suggested as below:*
 - i. *Close to the crown of the area, a series of 25 mm dia steel bars/ GI pipes be driven to a depth of 5.0 m*
 - ii. *The polymer wire mesh rolls at the side be spread down the slope surface going up to the bottom of the valley. The wire mesh be tied to the 5.0 m deep steel bars. In addition 1.0 long nails be driven in between the 5.0 m deep steel bars. All these bars be provided with 10-20 cm size*
 - iii. *On the slope further below 20m, only 1.0m deep nails with bearing plates be driven at a spacing of 1.0 m in either direction.*
 - iv. *During the construction stage, any liberated rock blocks/boulders should be properly checked and disposed. For that purpose, check dams are suggested to be constructed along the water course at three locations. The lowest check dam be constructed just adjoining the PWD road on the hill side.*
 - v. *Another Check dam was planned in the higher level just below the confluence of small streams.*
 - vi. *The third level check dam was planned across the individual stream courses at about 20m -25m below the crown.*
- 4) *The Pangi village slope below the 220 KV sub-station has a general inclination of 25⁰ - 30⁰ which becomes steeper locally beyond 30m to more than 45⁰. The top portion of the slope consists of filled-up material. In order to prevent further erosion of the slope and hence enhance the stability of the slope.*

3.5.9 Apart from the above, the Petitioner submitted that the time-over run occurred due to the following reasons also:

1. **Additional work due to increase in height of 220kV Bus duct foundation:** As per site condition for protection of 220kV GIS Building foundation raft, the height of 220kV bus duct foundation has to be raised upto the raft level. This additional activity caused delay of 3 months.
2. **Due to change in design of protection wall:** Design of protection wall adjacent to approach road and the wall in front of 220kV GIS hall was changed from plum wall to cantilever wall. Due to this change in design, the completion of substation delayed by 1.5 Months.
3. **Additional work of 22kV Yard:** The Complete work of 22kV switchyard was not in the original scope. Due to this additional work the project got delayed by 3 Months.
4. **Stoppage of supply of construction material:** The quarry in the nearby area has been closed by the Government as a result no supply of

construction material was received and alternate arrangements had to be made.

5. **Approach Road and Inclement weather conditions:** The approach road to site and in particular the patch from Tapri to Bhoktoo are not suitable for carrying out heavy equipment's due to which the availability and delivery of construction material were affected badly. The physical condition of road has caused major delay. Further, the work was suspended on account of snowfall from December 2016 to February 2017.

- 3.5.10 The Petitioner has submitted that because of the above-mentioned activities, the Project got delayed for almost 4 years.

Commission's Analysis

- 3.5.11 The Commission observed that the cost of 220/66 kV pooling station at Bhoktoo estimated as per DPR was 6,229 Lakh including supply, civil and erection works and other charges like IDC and establishment/departmental charges.

- 3.5.12 The Commission has conducted detailed scrutiny of each cost component of the project and has reviewed the work orders provided in detail. The Commission has asked the Petitioner to submit the yearly break-up of its capital expenditure till COD. In response, the Petitioner has submitted annual accounts from FY 2013-14 to FY 2018-19 and auditor certificate in its subsequent response.

- 3.5.13 The detail of yearly capital expenditure provided by the Petitioner is detailed below:

Table 9: Year on year details of Capital expenditure(Rs. Lakh)

Particulars	FY13	FY14	FY15	FY16	FY17	FY18
As per Audited Accounts	11	108	1,543	992	414	640
As per Auditor Certificate	1	105	1,543	987	405	668

- 3.5.14 The Commission observed mismatch in the year-wise capital expenditure provided by the Petitioner as per Audited accounts and Auditor's certificate. The Petitioner has not been able to justify the above mismatch.

- 3.5.15 Approach undertaken and prudence check carried by the Commission for approval of capital cost for Bhoktoo sub-station is detailed as follow:

A) Project Award and Variation in Quantity

- 3.5.16 In response to the information sought, the Petitioner has submitted a copy of contract agreement with M/s Siemens for construction of 220/66 kV pooling substation Bhoktoo. On scrutiny of work orders, the Commission observed a difference in the overall project cost with the turnkey cost of Rs 3,919Lakh awarded to M/s Siemens.

- 3.5.17 The Petitioner clarified that contract agreement with M/s Siemens was for Rs 3,919Lakh (i.e. Rs 661 Lakh towards Services and Rs. 3,258 Lakhtowards Supply) out of which cost towards HPPTCL portion for erection and commissioning of 66/220 kV 31.5 MVA GIS substation is Rs. 2,644 Lakh and the remaining Rs. 1,275 Lakh is cost towards HPSEBL portion for erection and commissioning of two 66/22 kV transformers of 12.5 MVA, 2 Nos. 22 kV bay, 1 No. 66 kV bay and related Civil works.

- 3.5.18 A break-up of total turnkey cost of contractor for construction of 66/220 kV substation is summarised in the table below:

Table 10: Break-up of Supply and Service Contract (Rs. Lakh)

Particulars	Proposed
Contract cost for HPPTCL part	2,644
Contract cost for HPSEBL part	1,275
Total revised award amount	3,919

3.5.19 In response to additional queries of the Commission with regard to difference in cost break-up, the Petitioner further submitted that the original cost of HPPTCL portion of Rs 2,644 Lakh was amended to Rs 2,791 Lakh due to impact of variations in quantities and Service Tax. In support to its claim, the Petitioner provided a copy of amended work order.

3.5.20 As per the amended Work Order, the original contract value was enhanced due to variation in CST and service tax. Also, cost increase due to deviation in quantities after extra provision of installation of EOT crane in 66 kV GIS building was further included. The break-up of enhanced contract value is summarized below:

Table 11:Amendment in Supply and Service Contract (Rs. Lakh)

Particulars	Proposed
Supply Contract	
<i>Awarded amount</i>	2,112.68
<i>Addition due to CST</i>	42.25
Revised awarded amount	2,154.93
Service Contract	
<i>Awarded amount</i>	531.38
<i>Addition due to CST</i>	12.17
<i>Increase due to variation in quantity</i>	92.78
Revised awarded amount	636.33
Total revised award amount	2,791.27

3.5.21 Based on the submission of the Petitioner and detailed examination of the contract agreement and their amendments, the Commission is of the view that award cost was within the estimated cost considered in the DPR. Further, the variation of approx. Rs. 147 Lakh was on account of variation in taxes and revision of quantities by the Petitioner.

3.5.22 Apart from the contract awarded to M/s Siemens, other cost elements amounting to Rs. 907 Lakh were incurred by Petitioner which included cost towards civil works, preliminary works, land, taxes and duties, site supervision charges, IDC charges and departmental charges. The Petitioner submitted that these cost elements were not part of the contract awarded to M/s Siemens for supply and civil works.

3.5.23 A summary of final hard cost of Bhoktoo Substation as on COD including works carried by contractor and HPPTCL itself is summarised below:

Table 12: Break-up of approved hard cost of Bhoktoo Substation (Rs. Lakh)

Particulars	Proposed
Supply of material and civil work carried out by the Contractor	2,791.2
Additional works carried out by HPPTCL	
Civil works	196.0

Particulars	Proposed
Land, taxes duties, site supervision charges and others	197.0
Total Hard Cost*	3,184

**does not include IDC and departmental charges*

B) Cost and Time over-run

- 3.5.24 The Commission noted that as per DPR submitted, the project was scheduled to start by 01.02.2011 and completed by 31.03.2013 in a timeframe of approximately 2 years. However, based on the year-on-year expenditure provided by the Petitioner, it is observed that no expenditure has been incurred during April 2011 to March 2013 till originally schedule COD as per the DPR.
- 3.5.25 The Commission sought further details from the Petitioner with respect to the delay of project by over four years. In response, the Petitioner submitted that work for construction of 220/66/22kV Bhoktoo substation was awarded to M/s Siemens on 29.03.2012 and as per contract agreement work for construction was to commence on 26.07.2012. After award of work, site was demarcated by the local authority in the month of October 2012. Subsequently, engineering and approval of drawings were undertaken. The Petitioner had not drawn any loan till February 2013. Further, due to Cloud burst near Bhoktoo in June, 2013 there was heavy landslide and some portion of land was washed away. The Petitioner has submitted that due to various force majeure events, there was a delay of around 4 years i.e. the project could only start by 26.07.2012 and completed on 23.03.2017.
- 3.5.26 Based on the reasoning provided by the Petitioner for substantial delay in achieving COD of the project as envisaged in the DPR, it is observed that while part of the delay may be on account of the force majeure events majority of the delay in execution of the project has been due to controllable factors and could have been avoided by the Petitioner. Even considering force majeure conditions which occurred during June 2013, the overall time taken for completion of the project was still higher than the time frame envisaged in the contract order. It is observed that the Petitioner has been unable to provide adequate/ sufficient reasoning along with proper timelines which justify that the time overruns was on account of reasons beyond his control.
- 3.5.27 In the subsequent queries and deficiencies, the Petitioner was asked to submit the details of cost escalation due to time over-run. In response, the Petitioner submitted that there has been no cost escalation and the capital cost as on COD is Rs. 3,707 Lakh which is less as compared with the approved DPR cost of Rs. 6,229 Lakh. The Petitioner also submitted that the project awarded to M/s Siemens was on firm basis and thus no additional cost has been paid to the contractor on account of price variation due to time overrun. However, the Petitioner submitted that the overall cost of the project had increased on account of cloud burst and other force majeure events as already discussed in the previous section of this Order.
- 3.5.28 Details of assets and its value damaged due to cloud burst and land slide in June 2013 at construction site was sought along with details of its inclusion in the overall project cost. In its response, the Petitioner submitted that no assets were damaged during the cloud burst. The details of additional works executed which has led to increased cost, as provided by the petitioner, includes works carried out for increasing height of 220kV Bus duct foundation, change in design of protection wall, additional work of 22kV Yard, etc. The details of these works have already been discussed in the Petitioner submission section.

- 3.5.29 Also, the Petitioner was enquired regarding details of penalty/ LD imposed on the contractor with respect to deviation in timelines to which the Petitioner responded that no penalty / LD has been imposed on the contractor as the time over run has occurred due to factors not attributable to the contractor.
- 3.5.30 Based on the submissions of the Petitioner and review of contracts in the preceding section, the Commission is of the view that change in hard cost of Bhoktoo substation was within the DPR approved cost. Also, based on the prudence check undertaken with respect to the capital cost and various documents and clarifications made available, no additional cost was attributable towards cost overrun in the overall hard cost of Bhoktoo substation.
- 3.5.31 Accordingly, the Commission has considered an amount of Rs.3,184Lakh towards Bhoktoo substation as hard cost for tariff determination.

C) Interest during Construction

- 3.5.32 An amount of Rs 491 Lakh has been claimed by the Petitioner towards IDC as part of overall capital cost. Of the overall project cost claimed by the Petitioner, an amount of Rs. 2580.36 Lacs has been shown as loan from ADB forming 69.59% of the total project cost.
- 3.5.33 In response to the Commission's query regarding the working of IDC amount, the Petitioner has submitted the following details:

Table 13: Petitioner Submission: Interest during Construction (Rs. Lakh)

Particulars	Amount Drawn	TDS	Gross Total	Interest Rates	Interest
	Rs Lakh	Rs Lakh.	Rs Lakh.	%	Rs Lakh.
FY13	264.4	-	264.4	10%	107.6
FY14	86.4	1.1	87.6	10%	27.2
FY15	1,187.9	0.9	1,188.8	10%	277.1
FY16	486.5	2.5	489.0	10%	67.2
FY17	209.2	4.0	213.2	10%	11.9
Sub-total	2,234.4	8.5	2,243.0		491.0

- 3.5.34 Further, the Commission observed that an additional IDC amount of Rs 239 Lakh over and above the IDC amount claim of Rs. 491 lakh in the total project cost was also reflected in one of the submissions. The Commission sought clarifications with respect to the amount of IDC considered by the Petitioner in the total project cost. In response, the Petitioner clarified that it has wrongly credited an amount of Rs. 239 Lakh under IDC and the same was subsequently reversed back and the amount captured as on COD under head of IDC stands at Rs. 491Lakh which has been considered as part of capital cost and claimed in the Petition. The Petitioner further clarified that the claim of additional IDC of Rs. 239 Lakh holds no relevance as same was reversed back.
- 3.5.35 Based on the submissions of the Petitioner, it is observed that the IDC amount is computed for five years i.e. the construction period for Bhoktoo substation. As per the DPR, in spite of the high estimated cost, the IDC amount was envisaged at Rs. 169Lakh considering the project execution duration of approx. two years. Significant delays in project execution have resulted in high amount of IDC claimed as part of the project cost. The Commission feels that even if the force majeure events, which occurred in FY 2012-13, are taken into account the project has taken over four years to achieve COD as against the timelines of 2 years envisaged in the DPR and

work orders. Therefore, the delay in project execution is unwarranted and is attributable to the Petitioner. The Commission is of the view that the higher IDC amount due to such delay in project execution cannot be passed on to the beneficiaries and has therefore worked out the IDC amount considering the timelines mentioned under the DPR.

- 3.5.36 As discussed in section for 'project funding', the Commission has considered the loan portion of the approved project cost and has computed the revised IDC. For the purpose, the schedule for debt disbursement has been considered as 40% during first year and 60% in second year as per the funding requirement in the approved DPR. The computation of approved IDC at the interest rate of 10% is summarized below:

Table 14: Approved IDC (Rs. Lakh)

Particulars	Unit	Schedule-1	Schedule-2	Total
Debt disbursement	%	40%	60%	100%
Opening Debt	Lakh	-	1,090.1	
Addition during the year	Lakh	1,090.1	1,635.1	
Closing Debt	Lakh	1,090.1	2,725.1	2,725.1
Average Debt	Lakh	545.0	1,907.6	
Interest rate	%	10%	10%	
Total IDC	Lacs	54.5	190.8	245.3

- 3.5.37 In line with above computation, the Commission approves an IDC amount of Rs. 241.5 lakh for inclusion in the capital cost.

- 3.5.38 In line with the project cost and IDC amount approved in preceding sections, the approved project cost as on COD vis-à-vis the project cost claimed by the Petitioner is summarized in the following table:

Table 15: Approved capital Cost of Bhoktoo Substation as on COD(Rs. Lakh)

Particulars	Proposed	Approved
Preliminary works	14.0	14.0
Civil work	801.5	801.5
Materials Supplied	2,226.1	2,226.1
Pre-commissioning expenses	14.0	14.0
Taxes	129.0	129.0
Departmental charges	32.0	32.0
IDC	491.0	245.3
Total	3,707.6	3,461.9

3.6 Additional Capital Expenditure

Petitioner Submission

- 3.6.1 The Petitioner has submitted that as per the HPERC Tariff Regulations, 2011 and its amendments thereof provide as follows;

- 3.6.2 16 (2) (C) Additional Capitalization

"In case of transmission system any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement of switchyard equipment due to increase of fault level, emergency restoration system, insulators cleaning infrastructure, replacement of damaged equipment not

covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system”

3.6.3 The Petitioner has submitted that it has proposed the additional Capital expenditure on account of change in design of revetment structures of sub-station as well as sub-station drainage after flash flood in FY 2018-19. As per Petitioner’s submission, following damages were observed by IIT Roorkee team during their site visit on May 25-27, 2018.

- 1) *In the Transformer area, ground sinking has been observed on the terrace between 66kV building and GIS building on the northern end.*
- 2) *The ground sinking has resulted in sharp dislocation of rail tracks in that area (Plate-1a, b, c). Further, the ground sinking is observed over a fairly large area.*
- 3) *The fine open crack seen at the junction of terrace and GIS building bear testimony of the sinking process*
- 4) *The transformer is placed in an area with open ground surrounding it.*
- 5) *The fill material behind the mirror retaining walls are not well compacted and appears to be in loose state.*
- 6) *A manhole is also located in the middle of the area.*
- 7) *It was observed that a pipe of approximately 10cm-15cm size carries water from upper level and is located just above the already treated ground on the southern end of the area.*

3.6.4 The Petitioner has submitted that in order to cater the above mention observation by the IIT Roorkee team, it has incurred the additional expenditure of Rs. 99.11 lakh after the cut-off date (31st March 2018).

3.6.5 The Petitioner further submitted that in order to implement changes suggested by experts of IIT Roorkee for providing sub-surface stabilization and allied works, an estimate of additional capital expenditure of Rs 243.26 Lakh during FY 2019-20 has been proposed.

3.6.6 The Petitioner has additionally proposed capital expenditure of Rs. 200 Lakh during FY 2020-21 towards execution of said works as the estimate of Rs. 243.26 Lakh was on the lower side and has proposed to the same to be incurred in FY 2020-21.

3.6.7 The estimated completed cost of Bhoktoo substation as proposed by the Petitioner is shown in table below:

Table 16: Details of estimated completion cost of the project by the Petitioner (Rs. Lakh)

Name of the Asset	Cost as on COD	Additional Capital Expenditure during FY 2019-20 to FY 2023-24						Total Cost of the project
		FY19	FY20	FY21	FY22	FY23	FY24	
66/220kV, 31.5 MVA GIS Substation at Bhoktoo	3,707	1,738	243	200.00	0.00	0.00	0.00	5,888

3.6.8 The Petitioner has submitted that the estimated completed cost is well within the Investment Approval of Rs. 6,229.51 Lakh approved by the BoD of HPPTCL.

Commission's Analysis

3.6.9 The Petitioner has proposed additional expenditure of Rs 1,738 Lakh in FY 2018-19, Rs 243 Lakh in FY 2019-20 and 200 Lakh in FY 2020-21 post the COD of the substation. On being queried, the Petitioner has submitted break up of works covered under the additional capitalization in FY 2018-19 and FY 2019-20 as represented below:

Table 17: claimed Additional Capitalisation for FY19 and FY20 (Rs. Lakh)

Particulars	FY 2018-19	FY 2019-20
Material (towards transformer and bay)	1,305	
Civil works	130	181
Tax	68	62
Departmental Cost	134	
Miscellaneous works	99	
Total	1,738	243

3.6.10 The Petitioner has also submitted that out of the total proposed additional capital expenditure of Rs. 1,737.76Lakh incurred in FY 2018-19, Rs. 99.11 Lakh corresponds to HPPTCL's additional capital expenditure towards implementation of IIT Roorkee suggestions and Rs. 1,638.6Lakh is HPSEBL's contribution for civil works and remaining works for 2 No. 22 kV bay and 1 No. 66 kV Bay connectivity at 66/200 kV GIS Sub-station at Bhoktoo.

3.6.11 The Commission observes that HPPTCL has incurred an additional amount of Rs. 99.11 Lakh due to change in design of several part of substation and construction of drainage system. The break-up of proposed additional capital expenditure for FY 2018-19 submitted by the Petitioner is tabulated below:

Table 18: Details of estimated completion cost of the project (Rs. Lakh)

Description	Amount (RsLakh)
Oil testing of MVA Power Transformer	0.81
Additional civil works (M/s Siemens)	97.47
Supply, installation and commissioning of GPRS telemetry system	0.82
Additional Expenditure	99.11

3.6.12 The requirement of capital expenditure of Rs. 99.11Lakh was towards rectification of sub-station drainage caused due to flash flood in FY 2018-19 as per the recommendation given in IIT Roorkee report. As per the additional submissions made by HPPTCL, it is understood that there was no damage to the assets during the flash floods and the required expenditure was primarily with regard to civil works in the surrounding area for slope stabilization and protection work. Accordingly, the Commission feels it appropriate to approve the additional amount of Rs. 99.11 lakh incurred in FY 2018-19 towards additional expenditure.

3.6.13 Further, the remaining amount of Rs. 1,638.65Lakh out of total proposed additional capitalisation of Rs. 1,737.76Lakh for FY 2018-19 was contributed by HPSEBL. The Commission after reviewing the submissions of the Petitioner in detail has considered the entire amount of Rs. 1,737.76Lakh as additional capitalisation in line with the proposal of the Petitioner.

3.6.14 It is observed that the Petitioner has also proposed additional capital expenditure of Rs. 443 Lakh during fourth Control Period. The proposed works are explained to be in line with the recommendations given in the report of IIT Roorkee and were to be carried out during FYs 2019-20 and 2020-21. In response to the Commission's query regarding status of the

proposed works, the Petitioner informed that approval for the proposed additional expenditure of Rs. 243 Lakh has been taken from the competent authority in accordance to the delegation of power of HPPTCL. However, details of works and their approval with respect to the proposed amount of Rs. 200Lakh has not been undertaken yet. The Petitioner also submitted that break-up of the additional expenditure for FY 2020-21 is not available at this stage as same has been projected considering the requirement of restoration works and award of the same is pending .On being queried, the Petitioner submitted that out of Rs 243 Lakh, award was placed for Rs. 221 Lakh (including GST) for sub-station stabilization works at Bhoktoo substation. The Petitioner also added that deviation was observed from the amount of works awarded and the revised amount of works after deviation works out to Rs. 264Lakh.

- 3.6.15 Based on the submissions of the Petitioner, the Commission is of the view that additional capital expenditure proposed for FY 2018-19 and FY 2019-20 pertains to force majeure situation aroused due to flash flood in FY 2018 near Bhoktoo Substation. The Petitioner's claim is also supported by recommendations of IIT Roorkee and necessary approvals towards the additional capitalisation.
- 3.6.16 Accordingly, the Commission feels it appropriate to allow the amount of Rs. 221 lakh actually incurred during FY 2019-20. Any further capital expenditure against Bhoktoo substation shall be taken up as per prudence check and adequate justification provided by the Petitioner at the end of Control Period.
- 3.6.17 Based on the discussions above, the Commission has approved the additional capitalisation for FY 2018-19 and FY 2019-20 in line with clause 16 of HPERC Transmission MYT Regulations 2011.
- 3.6.18 The additional capitalisation as approved by the Commission is tabulated as follows:

Table 19: Approved Additional Capitalisation (Rs. Lakh)

Particulars	FY19	FY20	FY21	FY22	FY23	FY24
Additional Capitalization	1,737.76	221.0	-	-	-	-

3.7 Project Funding

Petitioner Submission

- 3.7.1 The Petitioner has submitted that it had secured loan from ADB amounting to Rs. 2580.36 Lakh and equity from GoHP amounting to Rs. 1071.87 lakh as on COD. The Petitioner has also mentioned that the total project cost as on COD includes consumer contribution of Rs 55.46 lakh from M/s Sai Engineering Foundation for Bay Connectivity at 22 kV GIS Sub-station at Bhoktoo. The Petitioner also clarified that except for the R&M expenses, it has claimed tariff in the Petition after deducting the consumer contribution.
- 3.7.2 The Petitioner has considered actual debt equity ratio of 69.59:28.91 for computing components of ARR as on COD. The Debt: Equity ratio considered is as under:

Table 20: Petitioner Submission: Debt-Equity Ratio of capital cost as on COD

Particulars	Debt: Equity as per Actuals (Rs in Lakh)	Debt: Equity ratio as per Actuals	Normative Debt: Equity ratio (Rs. in Lakh)	Normative Debt: Equity considered
Debt	2580.36	69.59%	2580.36	69.59%

Particulars	Debt: Equity as per Actuals (Rs in Lakh)	Debt: Equity ratio as per Actuals	Normative Debt: Equity ratio (Rs. in Lakh)	Normative Debt: Equity considered
Equity	1071.87	28.91%	1071.87	28.91%
Consumer Contribution	55.46	1.50%	55.46	1.50%
Total Project Cost	3707.69	100.00%	3707.69	100.00%

3.7.3 The Petitioner further submitted that with regards to additional capitalisation after excluding the amount contributed by HPSEBL, it has considered Debt:Equity ratio of 70:30 for tariff purpose. The capital cost as on CoD of the asset including additional capitalization and deposit work along with debt equity ratio is shown as under:

Table 21:Petitioner submission-Abstract of Actual Costas on 31.03.2019(Rs Lakh)

Particulars	Capital Cost as on CoD	Additional Capitalization during FY17 to FY19	Total Capital cost as on 31.03.2019
Debt	2580.36	69.38	2649.74
Equity	1071.87	29.73	1101.60
Consumer Contribution	55.46	1638.65	1694.11
Total project Cost	3707.69	1737.76	5445.45

3.7.4 Further, with respect to additional capital expenditure proposed during FY 2019-20 and FY 2020-21, the Petitioner has considered the normative debt equity ratio of 70:30. The break-up of funding from debt, equity and grant considered by the Petitioner is summarized in table below:

Table 22:Debt: Equity considered by the Petitioner for FY20 to FY24 (Rs Lakh)

Particulars	Total Capital cost as on 31.03.2019	Additional Capitalization during FY20 to FY24	Total Capital cost as on 31.03.2023
Debt	2649.74	310.29	2960.03
Equity	1101.60	132.98	1234.58
Consumer Contribution	1694.11	0.00	1694.11
Total project Cost	5445.45	443.27	5888.72

Commission's Analysis

3.7.5 The Commission has examined the various information and documents submitted by the Petitioner with regard to the funding of Bhoktoo Substation. It is observed that the project was to be funded in debt: equity ratio of 80:20 as per the DPR while the proposed equity proportion was higher. Details provided by the Petitioner with respect to funding was not adequate and accordingly the Petitioner was asked to submit year-wise equity infusion, schedule of disbursement of loan, loan agreement, disbursement letters, documentary evidence of equity funding, etc.

3.7.6 The year-on-year amount of capital expenditure and funding availed through various sources as submitted by the Petitioner is summarised in the table below:

Table 23:Petitioner submission-Yearly Capital expenditure and funding (Rs Lakh)

Particulars	FY13	FY14	FY15	FY16	FY17	FY18	Total
Total Project Cost as per Accounts	11	108	1,543	992	414	640	3,708

Particulars	FY13	FY14	FY15	FY16	FY17	FY18	Total
Total funding availed during year	1	105	1,543	987	405	668	3,708
Debt	-	105	1,466	697	218	95	2,580
Equity	1	-	77	290	131	574	1,073
Consumer Contribution				-	56	-	56

- 3.7.7 On being enquired further, the Petitioner clarified that prudent practice for drawing funds to match the projected capital expenditure is being followed. However, due to many unforeseen conditions and considering the actual progress, it is not possible for the Petitioner to exactly match the funding requirements. As an alternative, the Petitioner utilizes its internal resources for funding the capital expenditure as a stop gap to avoid delay in execution of the project due to scarcity of funds.
- 3.7.8 The Commission has reviewed the submission of the Petitioner and observed a difference in the actual loan amount disbursed as per ADB disbursement letter (Rs 2,732 Lakh) and loan amount claimed in the total capital cost (Rs 2,580 Lakh). In this regard, the Petitioner clarified that the additional loan amount of Rs. 152 Lakh has been drawn to fund the various restoration work carried out in subsequent years (FY20 to FY21) (apart from the additional capital expenditure of Rs. 99 Lakh in FY 2018-19 which has been funded entirely through equity).
- 3.7.9 With respect to equity funding, the Petitioner submitted that the equity infused by GoHP is in the form of equity to HPPTCL as a whole. Accordingly, the total equity infused by GoHP for FY 2013-14 to FY 2017-18 for all schemes and allocation of actual equity to Bhoktoo substation is as follows:

Table 24:Petitioner submission-Equity funding

Financial Year	Date	Letter Reference No.	Amount (Rs.Lakh)	Equity allocation to Bhoktoo (Rs.Lakh)
2012-13	Nil	Nil	96	96
		Total (A)	96	96
2013-14	15.01.2014	MPP-C(7)2/2008	800	0
		Total (B)	800	0
2014-15	01.08.2014	MPP-C(7)2/2008	803	77
	13.03.2015	MPP-C-(7)2/2008	1793	
		Total(C)	2596	
2015-16	14.10.2015	MPP-C(7)2/2008	1103	290
	14.03.2016	MPP-C(7)2/2008	1272	
	25.03.2015	MPP-C(16)3/2012	904	
		Total(D)	3279	
2016-17	06.09.2016	MPP-C-(7)2/2008	1289	131
	25.03.2017	MPP-C-(7)2/2008	662	
	Total Equity Received During the Financial Year 2016-17 is Rs. 1951 Lakh out of which Rs. 951 Lakh Pending (Share not Issued Less)		962	
		Total (E)	2913	
2017-18				574
		Total (F)		

Financial Year	Date	Letter Reference No.	Amount (Rs.Lakh)	Equity allocation to Bhoktoo (Rs.Lakh)
Grand Total (A+B+C+D+E+F)				1072

- 3.7.10 The Commission observes that the scheme was conceptualised to be funded in debt:equity ratio of 80:20 as per the DPR and BOD approval. Accordingly, approval for 80% debt from ADB and 20% equity from GoHP have been sourced by HPPTCL. Higher utilization of equity remains unexplained and HPPTCL has not been able to produce any specific documents which provide that specific amount of equity has been released from GoHP against the Bhoktoo scheme. Since HPPTCL has been undertaking several other schemes which were at different levels of execution, the availability of equity for other schemes (which would have been released on aggregate basis from GoHP) could be utilized by the Petitioner as against the disbursement of loan. The Petitioner had only provided details of equity allocation made internally from the total equity available from the GoHP without providing details of total scheme –wise equity sought and approved from the GoHP.
- 3.7.11 Therefore, the Commission feels that the Petitioner may have temporarily utilized funds available from GoHP as equity towards various schemes to reflect higher equity share in the project and underutilized the loan portion which was available under ADB scheme. Therefore, the Commission feels it appropriate to retain the funding pattern in the ratio of 80:20 debt equity for Bhoktoo substation as envisaged in the DPR and Board approvals. Moreover, it has been observed that the Petitioner has been approaching the agencies for additional loan post commissioning of the schemes.
- 3.7.12 Accordingly, the Commission has considered a debt equity mix 80:20 for funding the capital expenditure after meeting the available capital contribution in line with the DPR. Funding considered by the Commission as on COD of Bhoktoo Substation is summarised in the table below:

Table 25:Approved Funding details as on COD (FY18) (Rs Lakh)

Particulars	Capital Cost as on COD	% of Funding
Debt	2725.1	78.72%
Equity	681.3	19.68%
Consumer Contribution	55.5	1.60%
Total project Cost	3,461.9	100%

- 3.7.13 Subsequently, for additional expenditure considered by the Commission of Rs. 99 Lakh in FY 2018-19 and Rs. 221 lacs in FY 2019-20, the Commission has considered debt:equity ratio of 80:20 in line with principal discussed above.
- 3.7.14 Based on the above consideration of funding and capitalisation by the Commission, the year on year approved schedule of GFA and its funding through various sources is detailed in the table below:

Table 26:Approved Funding from FY19 to FY24 (Rs Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Opening GFA	3,461.9	3,461.9	5,197.9	5,418.9	5,418.9	5,418.9	5,418.9
Addition	-	1,737.8	221.0	-	-	-	-
Closing	3,461.9	5,197.9	5,418.9	5,418.9	5,418.9	5,418.9	5,418.9
Funding:							
Grant/ Consumer	55.5	1638.6	0.0	0.0	0.0	0.0	0.0

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
<i>contribution</i>							
<i>Debt</i>	2725.1	79.3	176.8	0.0	0.0	0.0	0.0
<i>Equity</i>	681.3	19.8	44.2	0.0	0.0	0.0	0.0

4. APPROVAL OF ARR AND TARIFF

4.1 Background

4.1.1 The Petitioner has proposed projections for FY 2016-17 to FY 2018-19 and for the entire 4th Control Period as per the HPERC MYT transmission Regulations 2011. As per the submission of the Petitioner, ARR for each year of the Control Period has been bifurcated into following elements:

- O&M Expenses;
 - (i) Employee cost;
 - (ii) Administrative and General Expenses (A&G);
 - (iii) Repairs and Maintenance expenses (R&M);
- Depreciation;
- Interest and Financing Charges;
- Interest on Working Capital;
- Return on Equity

4.1.2 The Commission has examined the Petition and subsequent submissions made by the Petitioner in response to the deficiency letters for the purpose of approving the elements of ARR for the period FY 2016-17 to FY 2018-19 and Control Period FY 2019-20 to FY 2023-24. The Commission has considered the provisions of HPERC MYT Transmission Regulations 2011, Audited Annual Accounts and approved capital expenditure and funding plan for 66/200 kV GIS Sub-station at Bhoktoo for the purpose of ARR projections for each year.

4.1.3 In this chapter, the Commission has detailed the methodology for computing each component of the ARR for 66/200 kV GIS Sub-station at Bhoktoo of HPPTCL including O&M expenses, interest and finance charges, depreciation, return on equity, working capital requirement, etc. for approving the total ARR for each year of FY 2017-18 to FY 2018-19 and Control Period (FY 2019-20 to FY 2023-24). The methodology followed and approved values for each parameter of the ARR is detailed in subsequent sections:

4.2 O&M Expenses

Petitioner Submission

4.2.1 The Petitioner submitted that as per HPERC Tariff Regulations, 2011 and its amendments, Operation and Maintenance Expense is computed considering the following methodology:

"(3) The O&M expenses for the nth year of the control period shall be approved based on the formula given below:-

O&M_n = R&M_n + EMP_n + A&G_n : Where -

'EMP_n' = [(EMP_{n-1}) × (1+G_n) × (CPIinflation)] + Provision (Emp);

'A&G_n' = [(A&G_{n-1}) × (WPIinflation)] + Provision(A&G);

'R&M_n' = K × (GFA_{n-1}) × (WPIinflation) ;

'K' - is a constant (could be expressed in %). Value of K for each year of the control period shall be determined by the Commission in the MYT Tariff

order based on licensee's filing, benchmarking of repair and maintenance expenses, approved repair and maintenance expenses vis-à-vis GFA approved by the Commission in past and any other factor considered appropriate by the Commission;

'CPIinflation' – is the average increase in the Consumer Price Index (CPI) for immediately preceding three years before the base year;

'WPIinflation' – is the average increase in the Wholesale Price Index (WPI) for immediately preceding three years before the base year;

'EMPn' – employee's cost of the transmission licensee for the nth year (employee cost for the base year would be adjusted for provisions for expenses beyond the control of the licensee and one-time expected expenses, such as recovery/ adjustment of terminal benefits, implication of pay revisions, arrears and interim relief.);

'Provision (Emp)'- Provision corresponding to clauses (iii), (iv) and (v) of sub regulation (1-a) of regulation 13, duly projected for relevant year for expenses beyond control of the Transmission Licensee and expected one-time expenses as specified above;

'A&Gn' – administrative and general costs of the transmission licensee for the nth year;

'Provision(A&G)'-Cost for initiatives or other one-time expenses as proposed by the Transmission licensee and approved by the Commission after prudence check;”

'R&Mn' – Repair and Maintenance costs of the transmission licensee for the nth year;

'GFAn-1' – Gross Fixed Asset of the transmission licensee for the n-1th year;

'Gn' - is a growth factor for the nth year. Value of Gn shall be determined by the Commission in the MYT tariff order for meeting the additional manpower requirement based on licensee's filings, benchmarking, approved cost by the Commission in past and any other factor that the Commission feels appropriate;

- 4.2.2 The Petitioner also submitted that as the asset is new, historical O&M expenses are not available. The Petitioner has prayed to approve the O&M expenses on an actual basis.

Commission's Analysis

- 4.2.3 For purpose of approving the O&M expenses, the claim of the Petitioner has been analysed based on the actual O&M expenses of FY 2016-17 to FY 2018-19, and other factors considered appropriate by the Commission.
- 4.2.4 Also, for escalating the O&M expenses, the Commission has considered the escalation rates as per the HPERC MYT Transmission Regulations 2011. The Commission has calculated the Consumer Price Index (CPI inflation) and Wholesale Price Index (WPI inflation) based on the average increase for the preceding three years. The summary of the escalations considered is provided in table below:

Table 27: Escalation approved for 4thControl Period

Particulars	CPI Inflation	WPI Inflation
2016-2017	4.12%	1.73%
2017-2018	3.08%	2.92%
2018-2019	5.45%	4.28%
Three Years average	4.22%	2.98%

4.2.5 The methodology and assumptions considered for projection of each component of the O&M expenses i.e. employee cost, R&M expense and A&G expense is further discussed below:

4.3 Employee Expense

Petitioner Submission

4.3.1 The Petitioner has submitted actual employee expense from FY 2016-17 to FY 2018-19 based on audited figures. The actual employee expenses as proposed by the Petitioner is tabulated below:

Table 28: Employee Expense claimed from FY17 to FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
Total Actual Employee Cost	7.47	12.71	34.40

4.3.2 The Petitioner has also submitted employee growth factor (Gn) for FY 2019-20 to FY 2023-24 based on the HPERC MYT Transmission Regulations 2011 as tabulated below:

Table 29: Petitioner Submission- Employee Strength from FY18 to FY24

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Employee Strength	12	12	12	12	12	12	12
Gn		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

4.3.3 The Petitioner has mentioned that it has already projected the addition in number of employees for HPPTCL as a whole at the time of filing of MYT Petition for the fourth control period. The Petitioner further mentioned that the above employees cannot be extrapolated at the time of filing of petition for individual assets and the same shall be claimed on actual basis at the time of truing up of HPPTCL as a whole.

4.3.4 The employee expense for the fourth Control Period has been computed considering the average increase in CPI of preceding 3 years before Base Year as 4.22%.

4.3.5 Accordingly, employee expense proposed by the Petitioner for FY 2019-20 to FY 2023-24 is tabulated below:

Table 30: Claimed Employee Expense for FY20 to FY24 (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
Employee Expense	35.85	37.37	38.94	40.58	42.29

Commission's Analysis

4.3.6 The Commission has approved the employee cost for fourth Control Period by considering the actual employee expenses of FY 2017-18 to FY 2018-19 as base employee expenses in line with the audited expenses provided by the

Petitioner. The average actual employee expenses has been escalated with the CPI inflation for computing cost of existing employees for each year of the fourth Control Period. The Commission has not considered any growth in number of employees while approving the employee expenses in line with the submission of the Petitioner.

- 4.3.7 The employee expenses approved by the Commission from FY 2017-18 to FY 2023-24 as summarised below:

Table 31: Approved Employee Expense for the fourth Control Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Growth Rate- CPI			4.2%	4.2%	4.2%	4.2%	4.2%
Employee Growth	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Employee cost	9.5	9.8	10.1	10.6	11.1	11.7	12.3

4.4 A&G Expenses

Petitioner Submission

- 4.4.1 The Petitioner has submitted that in absence of historical data, it has claimed the actual A&G expense for the asset under consideration for FY 2016-17 to FY 2018-19 as per books of accounts which is inclusive of the outsource services on the contract basis to different agencies. The A&G expenses proposed by the Petitioner is as follows:

Table 32: A&G Expense claimed for FY17 to FY19(Rs. Lakh)

Particulars	FY17	FY18	FY19
Total A&G Expense	0.55	3.95	1.10

- 4.4.2 The Petitioner has further submitted that it has plan to comprehensively insure all the transmission infrastructure from all damages caused due to act of God, fire, theft etc. and has insured all the assets. The cost towards insurance has been considered at the rate of 0.30% of the asset value insured and the same have been considered as part of provisions.
- 4.4.3 The Petitioner also submitted that it intends to train manpower and therefore considered the training cost of 7 man days per employee per year at the nominal rate of Rs. 4000/person/day of the number of employees. Further, the Petitioner has included Tariff filing fees of Rs. 15 Lakh and Consultancy charges of Rs. 3 Lakh in the A&G Expenses for FY 2019-20.
- 4.4.4 The Petitioner has also considered WPI as 2.98% i.e. average increase in WPI for immediately preceding three years before the base year for computing the A&G expense for the fourth Control Period.
- 4.4.5 Based on the above considerations, A&G expenses proposed by the Petitioner for FY 2019-20 to FY 2023-24 is as shown below:

Table 33: Claimed A&G Expense for FY20 to FY24 (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
A&G Expense	39.68	22.20	22.23	22.27	22.30

Commission's Analysis

- 4.4.6 The Petitioner had proposed the A&G expenses for fourth Control Period by considering the escalation of expenses with WPI rate for immediately preceding three years before the base year.

- 4.4.7 The Commission has examined the submission of the Petitioner on A&G expenses in light with the approval of proposed capital expenditure schemes and employee addition. For the purpose of projection of A&G expense, the Commission has considered the formula provided in the HPERC MYT Transmission Regulations 2011 as given below:

$$A\&G_n = [(A\&G_{n-1}) \times (WPI \text{ inflation})] + Provision (A\&G)$$

- 4.4.8 The Commission has approved the A&G cost for fourth Control Period by considering the actual A&G expenses of FY 2017-18 to FY 2018-19 based on audited figures provided by the Petitioner.
- 4.4.9 For the purpose of projecting the A&G expense for the period FY20-FY24, the average of actual A&G expenses for FY 2017-18 and FY 2018-19 has been escalated with the WPI inflation for computing A&G cost for each year of the fourth Control Period.
- 4.4.10 It is observed that the Petitioner has also claimed provisions towards insurance and training expenses. The Petitioner has not provided any details of insurance taken with respect to the Bhoktoo substation. **The Commission directs the Petitioner to undertake insurance cover for the substation at the earliest and cost with respect to the same shall be allowed at the time of truing-up.** Further, cost with respect to training, etc. have already been approved as part of the MYT Order of HPPTCL and therefore does not warrant separate approval as part of each transmission scheme. In view of the above, the Commission has not allowed any additional provisions specific to Bhoktoo substation.
- 4.4.11 The petition filing fee for approval of capital cost for the scheme has been considered as per the proposal of the Petitioner. The A&G expenses approved by the Commission from FY 2017-18 to FY 2023-24 is detailed below:

Table 34: Approved A&G Expense for the 4th Control Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Growth Rate- WPI			2.98%	2.98%	2.98%	2.98%	2.98%
A&G cost	3.9	1.1	2.6	2.6	2.6	2.7	2.7
Petition filing fees			15.0				
Total A&G	3.9	1.1	17.6	2.6	2.6	2.7	2.7

4.5 R&M Expense

Petitioner Submission

- 4.5.1 The Petitioner has claimed the R&M Expense as per the methodology provided in the HPERC Tariff Regulations, 2011 and its amendments. The Petitioner has considered the k-factor as computed for the respective year for HPPTCL as a whole.

Table 35: K-factor considered from FY17 and FY18 (Rs. Lakh)

Particulars	FY17	FY18	Average
K factor as considered in MYT Petition	1.69%	1.79%	1.74%

- 4.5.2 The R&M Expense claimed by the Petitioner based on the above k factor is detailed below:

Table 36: Claimed R&M Expense from FY17 and FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
R&M Expense	62.66	66.37	94.75

4.5.3 The R&M expense as proposed by the Petitioner for fourth Control Period is summarised in the below.

Table 37: Claimed R&M Expense from FY20 and FY24 (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
GFA	5,688.72	5,888.72	5,888.72	5,888.72	5,888.72
K Factor	1.74%	1.74%	1.74%	1.74%	1.74%
R&M Expense	97.57	101.93	105.51	108.66	111.89

Commission's Analysis

4.5.4 The Commission has examined the submission of the Petitioner on R&M expenses in line with HPERC MYT Transmission Regulations 2011. The Commission has the K Factor using actual R&M expenses provided by the Petitioner based on audited accounts and approved GFA for FY 2017-18 and FY 2018-19. The K factor computed is summarised in the table below:

Table 38: K-factor considered from FY17 and FY18 (Rs. Lakh)

Particulars	FY18	FY19
Approved GFA	3,461.9	5,197.9
Actual R&M expenses as per Audited Accounts	27.4	42.0
K factor as considered in MYT Petition	0.79%	0.81%

4.5.5 The Commission observes that K factor for FY 2017-18 and FY 2018-19 is significantly lower as compared with the claim of the Petitioner. For the purpose of computation of R&M Expenses of Bhoktoo Substation for fourth Control Period, the Commission has considered K factor of 1% along with WPI growth rate and shall be reviewed by the Commission at the end of the Control Period.

4.5.6 Based on the above, the total approved R&M expenses for FY 2017-18, FY 2018-19 and the fourth Control Period is detailed below:

Table 39: Approved R&M Expense for the 4th Control Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
GFA	3,461.9	5,197.9	5,418.9	5,418.9	5,418.9	5,418.9	5,418.9
Growth rate- WPI			2.98%	2.98%	2.98%	2.98%	2.98%
K factor			1%	1%	1%	1%	1%
R&M Expense	27.4	42.0	55.8	57.4	59.1	60.9	62.7

4.6 Depreciation

Petitioner Submission

4.6.1 The Petitioner has submitted that the gross fixed asset of substation was Rs 5,346.34 Lakh as on CoD. The Petitioner has also submitted that it has not claimed depreciation on the Consumer contribution. The Petitioner has considered additional capital works carried out in FY 2018-19 for computation of depreciation. The table below provides the proposed depreciation cost from FY 2016-17 to FY 2018-19:

Table 40: Depreciation claimed for FY17 to FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
Opening GFA	3,652.23	3,652.23	3,652.23
GFA Addition during the year	0.00	0.00	99.11
Average GFA	3,652.23	3,652.23	3,701.79
Freehold Land	13.83	13.83	13.83
Rate of depreciation	5.28	5.28	5.28
Balance useful life at the beginning of the period (Years)	35	34	33
Depreciation (for the period)	3.87	176.56	179.17

4.6.2 The Petitioner further claimed that closing gross block for FY 2018-19 has been considered as opening gross block for FY 2019-20 for computation of depreciation. The year wise total depreciation claimed by the Petitioner for the fourth Control Period is detailed below:

Table 41: Depreciation claimed for the 4th Control Period (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
Opening GFA (Less Grant)	3,751.34	3,994.61	4,194.61	4,194.61	4,194.61
GFA Addition during the year	243.27	200.00	0.00	0.00	0.00
Less: Grant	0.00	0.00	0.00	0.00	0.00
Closing GFA	3,994.61	4,194.61	4,194.61	4,194.61	4,194.61
Depreciation	188.21	199.92	205.20	205.20	205.20

Commission's Analysis

4.6.3 The Commission has approved the depreciation in line with provisions of the Regulation 23 of the MYT Transmission Regulations 2011:

(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.*

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

(3) *Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-I to these regulations for the assets of the transmission system:*

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.

(4) *For transmission project 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.*

- (5) 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.
- (6) 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."

4.6.4 The Commission has examined the depreciation proposed by the Petitioner in detail. The Commission has arrived on GFA for each year based on the approved capitalization for each year in the previous Chapter.

4.6.5 The Commission has considered a weighted average depreciation rate of 4.84% arrived at by considering the break-up of type of assets and depreciation rates approved in the MYT Regulations 2011 corresponding to each asset category. The depreciation expenses approved from FY 2017-18 to FY 2023-24 is summarized in table below:

Table 42: Approved Depreciation for the 4thControl Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Opening GFA excluding land	3,461.9	3,461.9	5,197.9	5,418.9	5,418.9	5,418.9	5,418.9
Addition	-	1,737.8	221.0	-	-	-	-
Closing GFA	3,461.9	5,197.9	5,418.9	5,418.9	5,418.9	5,418.9	5,418.9
Depreciation @4.84%	167.4	209.6	256.9	262.3	262.3	262.3	262.3
Less:							
Depreciation on account of Grants/ consumer contribution	2.7	42.3	81.9	81.9	81.9	81.9	81.9
Net Depreciation	164.7	167.3	175.0	180.4	180.4	180.4	180.4

4.7 Interest on Loan

Petitioner Submission

4.7.1 The Petitioner has considered the actual loan amounting to Rs. 2,580.36 Lakh for calculation of ARR. The Petitioner has submitted that total loan considered is 69.59% of the total project cost i.e. Rs. 2580.36 Lakh. The Petitioner has considered the interest rate of 10.00% as per the ADB Loan Agreement. The computation of interest on loan for FY 2016-17 to FY 2018-19 is shown as under.

Table 43: Interest claimed during FY17 to FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
Opening Balance	2580.36	2580.36	2580.36
Addition	0.00	0.00	69.38
Repayment	0.00	0.00	0.00
Closing Balance	2580.36	2580.36	2649.74
Rate of Interest	10.00%	10.00%	10.00%
Interest on Loan	5.66*	258.04	261.50

*Interest on loan for FY17 is on pro-rata basis i.e. from 23.03.2017

4.7.2 The Petitioner has further submitted that for the purpose of computation of Interest on long term loans for fourth Control Period, actual closing loan of FY

2018-19 corresponding to the asset under consideration has been considered as the opening loan for FY 2019-20.

- 4.7.3 The year wise interest on loan claimed by the Petitioner for the fourth Control period is as shown below:

Table 44: Interest on Loan claimed for 4th Control Period(Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
Opening Loan	2649.74	2691.01	2701.99	2572.97	2443.95
Loan Addition during the Year	170.29	140.00	0.00	0.00	0.00
Less: Repayment of Loans during the year	129.02	129.02	129.02	129.02	129.02
Closing Loan	2691.01	2701.99	2572.97	2443.95	2314.93
Interest on loan	267.04	269.65	263.75	250.85	237.94
Weighted average Rate of Interest on Loans	10.00%	10.00%	10.00%	10.00%	10.00%

Commission's Analysis

- 4.7.4 The Commission has considered the loan amount in line with the funding approved for Bhoktoo substation in the previous Chapter. Further, addition of loan has been considered in the respective year in line with the approved funding plan for additional capitalization in the subsequent years. Normative repayment equivalent to the depreciation worked out for the respective year has been considered in line with the provisions of MYT Regulations, 2011 for computing the opening and closing loan balances for each year.

- 4.7.5 The Commission has considered the interest rate of 10% for each year of the Control Period based on the actual ADB loan agreement for the Bhoktoo substation. Accordingly, interest on loan amount approved for each year is summarised in the table below:

Table 45: Approved Interest on Loan for the 4th Control Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Opening Balance	2,725.1	2,560.5	2,472.4	2,474.2	2,293.8	2,113.4	1,933.1
Addition	-	79.3	176.8	-	-	-	-
Repayment	164.7	167.3	175.0	180.4	180.4	180.4	180.4
Closing Balance	2,560.5	2,472.4	2,474.2	2,293.8	2,113.4	1,933.1	1,752.7
Rate of Interest	10%	10%	10%	10%	10%	10%	10%
Interest	264.3	251.6	247.3	238.4	220.4	202.3	184.3

4.8 Interest on Working Capital

Petitioner Submission

- 4.8.1 The Petitioner has computed interest on working capital as per Regulation 21 and 22 of the Transmission Tariff Regulations, 2011 and its amendment thereof. The relevant clause of the regulation is pronounced below:

"21. Working Capital- The Commission shall calculate the working capital requirement for the transmission licensee containing the following components: -

- O&M expenses for 1 month;
- receivables for two months on the projected annual transmission charges; and

(c) maintenance spares @ 40% of repair and maintenance expenses for one month.

"22. Interest Charges on Working Capital- Rate of interest on working capital to be computed as provided hereinafter in these regulations shall be on normative basis and shall be equal to the 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. The interest on working capital shall be payable on normative basis notwithstanding that the licensee has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures."

4.8.2 The Petitioner has calculated the interest on working capital considering prevalent average base rate of SBI for six months plus 350 basis points which comes out to be 11.98%. The interest on working capital claimed by the Petitioner is summarised in the table below:

Table 46: Interest on Working Capital claimed for the Period from FY17 to FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
O&M expenses for 1 month	5.89	6.92	10.85
Maintenance spares @40% of R&M expenses for 1 month	2.09	2.21	3.16
Receivable for 2 months	14.75	131.42	137.80
Total Working capital	22.73	140.55	151.81
Rate of Interest	11.98%	11.98%	11.98%
Interest on Working Capital	2.72*	16.84	18.19

*Interest on Working Capital for FY17 is on pro-rata basis i.e. from 23.03.2017

4.8.3 For the fourth Control Period, the Petitioner has calculated the Rate of interest on working capital as equal to 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 licensee has not taken working capital loan from any outside agency or has exceeded the working capital loan based on the normative figures.

4.8.4 The Petitioner has calculated the interest on working capital considering prevalent SBI MCLR as on 1.04.2019 plus 300 basis points works out to 11.55%. In accordance with the above regulations the interest on working capital claimed is as shown below:

Table 47: Interest on Working Capital claimed for the 4thControl Period (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
Annual O&M Expenses	173.10	161.49	166.69	171.50	176.49
O&M Expenses for 1 month	14.43	13.46	13.89	14.29	14.71
Maintenance Spares (at 15% monthly O&M Expenses)	2.16	2.02	2.08	2.14	2.21
Receivables for 2 months on projected Annual Transmission Charges	149.40	152.31	154.21	152.85	151.51
Total Working Capital	165.99	167.79	170.18	169.28	168.42
Interest Rate (SBI MCLR+300 BP)	11.55%	11.55%	11.55%	11.55%	11.55%
Interest on Working Capital	19.17	19.38	19.66	19.55	19.45

Commission's Analysis

- 4.8.5 Based on the approved O&M expenses and expected receivables, the Commission approves the working capital requirements and interest on working Capital for the Control Period in accordance with regulations 21 & 22 of the HPERC MYT Transmission Regulations 2011 and subsequent revision in 2018.
- 4.8.6 According to the revised provision for computation of interest on working capital, the Commission has considered the rate of interest on working capital at the rate of 10.75 % based on SBI MCLR as on 1st April 2020 (i.e. 7.75%) plus 300 basis points for the fourth Control Period. The computation for approved working capital requirement and interest on working capital is shown in the table below:

Table 48: Approved Interest on Working Capital for the fourth Control Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
O&M expenses for 1 month	3.4	4.4	7.0	5.9	6.1	6.3	6.5
Maintenance spares	0.9	1.4	1.0	0.9	0.9	0.9	1.0
Receivable for 2 months	100.2	100.9	107.4	104.8	102.1	99.4	96.7
Total Working capital	104.5	106.7	115.4	111.6	109.1	106.6	104.2
Interest rate	12.43%	12.43%	11.55%	10.75%	10.75%	10.75%	10.75%
Interest on Working Capital	13.0	13.3	13.3	12.0	11.7	11.5	11.2

4.9 Return on Equity

Petitioner Submission

- 4.9.1 The Petitioner has submitted that an equity amounting to Rs. 1071.87Lakh (28.91% of project cost) has been utilised as on CoD of the project. The Petitioner has also considered prevalent Corporate Tax Rate of 34.61% for FY 2016-17 to FY 2017-18 and has grossed up allowable RoE of 15.50% to derive at the pre-tax RoE of 23.70%. As per changes in Corporate Tax from FY 2018-19, the Corporate Tax has been considered as 29.12% for grossing up allowable RoE of 15.50% to derive at pre-tax RoE of 21.87% for FY 2018-2019.
- 4.9.2 RoE proposed by the Petitioner for FY 2016-17 to FY 2018-19 is detailed below:

Table 49: Return on Equity claimed for the Period from FY17 to FY19 (Rs. Lakh)

Particular	FY17	FY18	FY19
Equity as on COD/ Admitted Equity	1071.87	1071.87	1071.87
Additions during the Year	0.00	0.00	29.73
Closing Equity	1071.87	1071.87	1101.6
Return on Equity*	5.57	254.08	237.65

Note: Return on Equity for FY2016-17 is on pro-rata basis i.e. from 23.03.2017

- 4.9.3 The Petitioner has considered prevalent Corporate Tax Rate of 29.12% and gross up allowable RoE of 15.50% to derive at the pre-tax RoE of 21.87% for the next control period. The RoE proposed by the Petitioner for fourth Control Period is summarised in the table below:

Table 50: RoE claimed during the 4thControl Period (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
Opening Equity	1101.60	1174.58	1234.58	1234.58	1234.58
Net Equity Addition during the year	72.98	60.00	0.00	0.00	0.00
Closing Equity	1174.58	1234.58	1234.58	1234.58	1234.58
RoE (%)	21.87%	21.87%	21.87%	21.87%	21.87%
Return on Equity	248.88	263.42	269.98	269.98	269.98

Commission's Analysis

- 4.9.4 Equity corresponding to the capital expenditure has been approved by the Commission in the previous Chapter under the section 'Project funding'. The Commission has considered the approved equity against the scheme for approving the return on equity.
- 4.9.5 The Petitioner has claimed rate of return @23.70% considering the base rate as 15.50% grossed up for corporate tax rate for the purpose of claiming RoE. It is observed that the Petitioner has submitted tax liability of zero during the period of FY 2017-18 and FY 2018-19.
- 4.9.6 Based on the above submissions, the Commission has considered rate of return @15.50% for approval of RoE for the fourth Control Period. Any tax liability arising on the Petitioner during the fourth Control Period shall be trued-up at the end of Control Period based on effective tax rate/ liability.
- 4.9.7 Based on the above, the return on equity approved by the Commission is summarised in the table below:

Table 51: Approved ROE for the 4thControl Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Equity (Opening Balance)	681.3	681.3	701.1	745.3	745.3	745.3	745.3
Net additions during the year	0.0	19.8	44.2	0.0	0.0	0.0	0.0
Equity (Closing Balance)	681.3	701.1	745.3	745.3	745.3	745.3	745.3
Rate of Return	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Return on Equity	105.6	107.1	112.1	115.5	115.5	115.5	115.5

4.10 Aggregate Revenue Requirement**Petitioner Submission**

- 4.10.1 The table given below summarizes the proposed Aggregate Fixed Charges for the third Control Period from FY 2016-17 to 2018-19 as per the HPERC (Terms and Condition for Determination of Transmission Tariff) Regulations, 2011 and subsequent amendments thereof.

Table 52: Summary of Aggregate Fixed Charges claimed for the Period from FY17 to FY19 (Rs. Lakh)

Particulars	FY17	FY18	FY19
Depreciation	3.87	176.56	179.17
Interest on Loan	5.66	258.04	261.50
Return on Equity	5.57	254.08	237.65
Interest on Working Capital	2.72	16.84	18.19

Particulars	FY17	FY18	FY19
O&M Expenses	70.69	83.03	130.26
Aggregate Fixed Charges	88.50	788.53	826.77

4.10.2 The component wise ARR for fourth Control Period claimed by the Petitioner is tabulated below:

Table 53: ARR claimed for the 4thControl Period (Rs. Lakh)

Particulars	FY20	FY21	FY22	FY23	FY24
O&M Expenses	173.10	161.49	166.69	171.50	176.49
Employee Expenses	35.85	37.37	38.94	40.58	42.29
R&M Expenses	97.57	101.93	105.51	108.66	111.89
A&G Expenses	39.68	22.20	22.23	22.27	22.30
Interest on Loan	267.04	269.65	263.75	250.85	237.94
Depreciation	188.21	199.92	205.20	205.20	205.20
Interest on Working Capital	19.17	19.38	19.66	19.55	19.45
Return on Equity	248.88	263.42	269.98	269.98	269.98
Aggregate Revenue Requirement	896.40	913.85	925.26	917.08	909.06

Commission's Analysis

4.10.3 Based on the discussions in sections above, the summary of the Aggregate Revenue Requirement (ARR) approved by the Commission for each year is summarised in the table below:

Table 54: Approved ARR for the 4thControl Period (Rs. Lakh)

Particulars	FY18	FY19	FY20	FY21	FY22	FY23	FY24
O&M Expenses	40.8	52.9	83.4	70.6	72.9	75.2	77.7
Employee	9.5	9.8	10.1	10.6	11.1	11.7	12.3
A&G	3.9	1.1	17.6	2.6	2.6	2.7	2.7
R&M	27.4	42.0	55.8	57.4	59.1	60.9	62.7
Depreciation	164.7	167.3	175.0	180.4	180.4	180.4	180.4
Interest & Finance Charges	277.3	264.9	260.7	250.4	232.1	213.8	195.5
Interest on Working Capital	13.0	13.3	13.3	12.0	11.7	11.5	11.2
Total	495.8	498.3	532.5	513.4	497.1	480.9	464.8
Reasonable Return	105.6	107.1	112.1	115.5	115.5	115.5	115.5
Annual Revenue Requirement	601.4	605.5	644.6	628.9	612.6	596.4	580.3

4.11 Transmission Charges

Petitioner Submission

Methodology for Cost Recovery from Long Term Beneficiaries

4.11.1 The Petitioner has submitted that as the project is for system strengthening project constructed to de-congest 22 kV lines of HPSEBL which were overloaded and to improve quality of supply to remote areas and the entire transmission charges is to be borne by HPSEBL. However, in future if any other generating station is given LTA the transmission charges is proposed to be recovered as per the following mechanism.

Monthly Transmission Charges per MW = [Annual transmission charges/ Sum of ((Maximum (CDB1, ADB1) and Maximum (CDB2, ADB2))....)]/12
Where,

CD- Contract Demand,

AD- Actual Demand,

B1- Beneficiary One,

B2- Beneficiary two

- 4.11.2 The Petitioner submitted that the monthly transmission charges to be recovered from the beneficiary shall be on the basis of maximum of contracted demand and actual demand whichever is higher.

Methodology for Cost Recovery from Short Term Open Access Consumer

- 4.11.3 The short-term Open Access charges to be paid by consumers availing short term open access by connecting to the Bhoktoo System has been considered after considering the year wise Annual Transmission Charges of Bhoktoo System divided by Energy handled by the Bhoktoo transmission system. For computation of additional STOA the actual energy handled by the Bhoktoo system in FY 2018-19 has been considered as 69.61 MU which has been escalated at the rate of 3% for subsequent years of the Control Period. Accordingly, the Additional STOA charges is as shown below:

Table 55: Additional Transmission Charges for STOA

Particulars	FY20	FY21	FY22	FY23	FY24
ARR (Rs. Lakh)	896	914	925	917	909
Energy Handled (MU)	71.70	73.85	76.07	78.35	80.70
Additional Transmission Charges for Short term consumers (Paise/kWh)	125.02	123.74	121.64	117.05	112.65

Commission's Analysis

- 4.11.4 The Commission observed that the Petitioner has not proposed any long term open access charges for the fourth Control Period in the petition for Bhoktoo substation.
- 4.11.5 In the deficiency note, the Petitioner was asked to propose long-term open access charges based on the proposed ARR. In response, the Petitioner submitted that since the sole beneficiary of the project is HPSEBL, the entire transmission charges has to be recovered from HPSEBL. The Petitioner additionally submitted that in case any new IPP/Generator approached for LTA the same shall share the transmission charges as per formula specified under regulation.
- 4.11.6 The Petitioner further submitted that the sub-station in the past in FY 2018-19 has been utilised to almost its available capacity and hence scope for further addition of IPPs is limited unless in case of relinquishment of capacity. The Petitioner added that presently as the contracted capacity of prospective beneficiaries are not known, the charges cannot be projected on per MW basis.
- 4.11.7 In response to one of the queries of the Commission, the Petitioner submitted details of capacity handled at the Bhoktoo substation in the past which is summarized in the following table:

Table 56: Evacuation capacity and actual capacity handled

Cost Heads	FY18	FY19	FY20 (Till Dec)
Evacuation Capacity of Substation (MW)	31.50	31.50	31.50
Actual Handled Capacity (MW)	23.70	30.00	21.00

4.11.8 It is observed that the capacity utilization is varying across years at the substation. Also, while the Petitioner is claiming that HPSEBL is the sole beneficiary of the Bhoktoo substation, it has not entered into any long-term transmission agreement with HPSEBL till date.

4.11.9 Therefore, in absence of any existing transmission service agreement with any beneficiary, the Commission is constrained to approve any long-term, medium-term transmission charges based on the contracted capacity.

4.11.10 **The Petitioner is directed to identify and enter into long-term /medium-term agreement with the beneficiaries of the Bhoktoo substation and recover the approved ARR as per the Clause 33 of MYT Regulations, 2011:**

"33. Allocation of Transmission Service Charge and Losses

(1) The Annual Transmission Service Charge (ATSC) shall be shared between the long and medium term customers of the transmission system on monthly basis based on the allotted transmission capacity or contracted capacity, as the case may be."

4.11.11 The short-term transmission charges have been approved by the Commission vide MYT Order of HPPTCL for fourth Control Period dated 29.06.2019 as summarized in the following table:

Table 57: Approved Transmission Charges for Short-term Open Access Consumers for fourth Control Period

Particulars	FY20	FY21	FY22	FY23	FY24
Transmission Charges for Short term consumers (Paisa /kWh)	2.11	3.02	4.88	6.88	6.77

4.11.12 The Commission is of the view that approval of element-wise Short-Term Open Access (STOA) transmission charges is not appropriate. Therefore, the Petitioner may consider filing separate petition for revision of STOA transmission charges based on the revision of overall ARR and revision in capacity and energy flow through the intra-state transmission system on yearly basis.