CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 257/GT/2020

Coram:
Shri I.S. Jha, Member
Shri Arun Goyal, Member
Shri Pravas Kumar Singh, Member

Date of Order: 22nd June 2023

IN THE MATTER OF

Petition for truing-up of tariff for the period 2014-19 and for determination of tariff for the period 2019-24 in respect of Rangit Power Station (60 MW).

AND

IN THE MATTER OF

NHPC Limited
NHPC Office Complex, Sector-33,
Faridabad (Haryana)- 121003 **…Petitioner**

Vs

1. West Bengal State Electricity Distribution Company Limited,
   Vidhyut Bhawan (8th Floor)
   Block-DJ, Sector-II, Salt Lake,
   Kolkata- 700091 (West Bengal)

2. Damodar Valley Corporation,
   DVC Towers, VIP Road,
   Kolkata -700054 (West Bengal).

3. Jharkhand Bijli Vitran Nigam Limited,
   H.E.C Dhruwa, Ranchi,
   Jharkhand-834002.

4. North Bihar Power Distribution Company Limited,
   Vidyut Bhawan, Bailey Road,
   Patna – 800001(Bihar)

5. South Bihar Power Distribution Company Limited,
   Vidyut Bhawan, Bailey Road,
   Patna – 800001(Bihar)

6. Department of Power,
Govt. of Sikkim, Kazi Road,
Gangtok Road – 737101 (Sikkim) **…Respondents**

Parties Present:

Shri Rajiv Shankar Dvivedi, Advocate, NHPC
Shri S.P. Rathour, NHPC
Shri Piyush Kumar, NHPC
Shri Rajesh Joshi, NHPC
Shri R.B. Sharma, Advocate, BRPL
Ms. Megha Bajpeyi, BRPL
Shri Navin Prakash, Advocate, SBPDCL & NBPDCL

ORDER

This Petition has been filed by the Petitioner, NHPC Limited for truing-up of tariff of Rangit power station (60 MW) (in short 'the generating station') for the period 2014-19, in terms of Regulation 8(1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (in short "the 2014 Tariff Regulations") and for determination of tariff of the generating station for the period 2019-24, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (in short "the 2019 Tariff Regulations").

2. The generating station is located in the State of Sikkim which comprises of three units of 20 MW capacity each and was declared under commercial operation on 15.2.2000. The annual fixed charges of the generating station were approved by Commission's order dated 6.1.2016 in Petition No.232/GT/2014, based on the capital cost of Rs. 49475.59 lakh as on 31.3.2014. Accordingly, the capital cost and the annual fixed charges of the generating station allowed for the period 2014-19, vide order dated 6.1.2016 is as under:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	49475.59	49495.70	49495.70	49498.92	49746.02
Admitted additional capitalization	20.11	0.00	3.22	247.10	290.81
Closing Capital Cost	49495.70	49495.70	49498.92	49746.02	50036.83

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	3920.12	3920.75	3920.85	3928.69	3945.53
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	891.89	892.35	892.43	898.86	914.00
Interest on Working Capital	363.58	380.40	398.32	417.75	438.86
O&M Expenses	4576.46	4880.52	5204.78	5550.58	5919.36
Total	**9752.05**	**10074.03**	**10416.38**	**10795.88**	**11217.75**

Present Petition

3. Regulation 8 (1) of the 2014 Tariff Regulations provides as under:

> *"8. Truing up*
> *(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up:*
>
> *Provided that the generating company or the transmission licensee, as the case may be, shall make an application for interim truing up of capital expenditure including additional capital expenditure in FY 2016-17."*

4. Accordingly, in terms of the above regulations, the Petitioner has claimed the capital cost and annual fixed charges vide affidavit dated 9.7.2021 (revised) for the period 2014-19, as under:

Capital Cost claimed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	49475.59	49556.18	49636.77	49697.89	49733.04
Add: Additional during the year	95.25	89.61	77.87	36.96	74.05
Less: De-capitalisation during the year	14.66	9.02	16.75	1.81	4.07
Add: Discharges during the year	-	-	-	-	-
Closing capital cost	49556.18	49636.77	49697.89	49733.04	49803.02
Average capital cost	49515.89	49596.48	49667.33	49715.47	49768.03

Annual Fixed Charges claimed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	893.27	897.32	900.96	903.92	906.79
Interest on Loan	-	-	-	-	-
Return on Equity	3962.03	3976.73	3949.77	3979.37	3998.36
Interest on Working Capital	364.58	381.80	399.18	419.03	439.91
O&M Expenses	4576.46	4880.52	5204.78	5550.58	5919.36
Total	**9796.34**	**10136.37**	**10454.69**	**10852.90**	**11264.41**

5. On behalf of the Respondents NBPDCL and SBPDCL, BSHPCL have filed reply vide affidavit dated 7.2.2022. In response, the Petitioner has filed rejoinder to the said reply on 7.3.2022. The Petitioner has also submitted additional information vide affidavit dated 9.7.2021, after serving copy on the Respondents. The Petition was heard through video conferencing on 25.1.2022, and the Commission after directing the Petitioner to file certain additional information, reserved its order in the matter. In response, the Petitioner has filed the additional information vide affidavit dated 21.2.2022, with copy to the Respondents. Based on the submissions of the parties and documents available on record, we proceed to examine the claims of the Petitioner, in this Petition, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

6. Regulation 9(3) of the 2014 Tariff Regulations provides as under:

> *"9. Capital Cost:*
> *(3) The Capital cost of an existing project shall include the following:*
> *(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*
> *(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and*
> *(c) expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15."*

7. The Commission vide its order dated 6.1.2016 in Petition No. 232/GT/2014 had approved the opening capital cost of Rs. 49475.59 lakh, as on 31.3.2014. The

Petitioner, in this petition has also claimed opening capital cost of Rs. 49475.59 lakh as on 1.4.2014. Accordingly, the capital cost of Rs. 49475.59 lakh, has been considered as the opening capital cost, as on 1.4.2014, for the purpose of truing-up of tariff for the period 2014-19.

Additional Capital Expenditure

8. Regulation 14 of the 2014 Tariff Regulations provides as under:

> *14. Additional Capitalisation and De-capitalisation:*
> *(1) The capital expenditure in respect of the new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(i) Undischarged liabilities recognized to be payable at a future date;*
> *(ii) Works deferred for execution;*
> *(iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;*
> *(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law; and*
> *(v) Change in law or compliance of any existing law:*
>
> *Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff.*
>
> *(2) The capital expenditure incurred or projected to be incurred in respect of the new project on the following counts within the original scope of work after the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
> *(ii) Change in law or compliance of any existing law;*
> *(iii) Deferred works relating to ash pond or ash handling system in the original scope of work; and*
> *(iv) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.*
>
> *(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:*
> *(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
> *(ii) Change in law or compliance of any existing law;*
> *(iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;*

(iv) Deferred works relating to ash pond or ash handling system in the original scope of work;
(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;
(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;
(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;
(viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;
(ix) 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 due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and
(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialisation of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:
Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal / lignite based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.

(4) In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place, duly taking into consideration the year in which it was capitalised."

9. We now examine the actual additional capital expenditure claimed by the Petitioner for the period 2014-19 as under:

2014-15

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. Items already approved by the Commission					
1	Purchase of Bus	11.08	The Petitioner has submitted that the purchase of the bus was already approved by the Commission vide its order dated 6.1.2016 in Petition 232/GT/2014 under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The Petitioner has further submitted that the actual amount of Procurement is Rs.11.09 lakh against the amount of Rs.10.5 lakh approved by the Commission due to enhancement of taxes and levies by the Government.	It is observed that the additional capitalisation of Rs. 10.50 lakh was allowed vide order date 6.1.2016 in Petition 232/GT/ 2014, towards purchase of buses. Accordingly, the additional capital expenditure claimed by the Petitioner is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. Though the old asset was decapitalized in 2015-16, the Petitioner has claimed the same under Assumed Deletions in 2014-15.	11.08
2.	Purchase of Digital Plasma cutting Machine, Portable ARC machine spares	6.55	The Petitioner has submitted that the Digital Plasma cutting Machine, Portable ARC machine spares was already approved by the Commission vide its order dated 6.1.2016 in Petition 232/GT/2014 under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The Petitioner has further submitted that the actual amount of Procurement is Rs.6.55 lakh against the amount of Rs.10 lakh approved by the Commission.	It is noticed that the additional capital expenditure of Rs. 10 lakhs was allowed vide order dated 6.1.2016 for this item. Accordingly, the additional capital expenditure claimed by the Petitioner is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	6.55
	Sub-total (A)	**17.63**			**17.63**
B. New Items as site specific conditions.					
1	Site Store at Diesel	23.43	The Petitioner has submitted that A Diesel Power House	Based on the justification furnished by	23.43

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	Powerhouse at Rangit Power Station		and 11 KV / 415 V sub-station was constructed at Rangit Nagar for electricity supply to Dam, Admin Building & Residential complex during Commissioning. Initially there was no store at Diesel power House and 11 KV / 415 V substation, as such the spares related to Diesel Power house, substation and oil and lubricants for Diesel power house stored at central store and which is 15 KM far away. Hence a store is constructed locally for keeping spares and diesel for meeting the emergency condition and it also reduce the transportation expenditure. The substation will provide continuous supply to Dam for gate operation during monsoon season the discharge more than 100 to 300 times of required discharge of all the machines and Radial gates, silt flashing tunnel gates, and silt flashing gallery gate are always required to be in working condition so this store will reduce time making available spares & Diesel. Asset was put to use in 2014-15.	the Petitioner and considering the fact that the asset is required for the successful and efficient operation of plant, the same is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	
2	Installation of LT Distribution Panel with cabling from main control panel to overhead line in Dam	3.70	The Petitioner has submitted that power supply required to dam is being drawn from 11 KV / 415 V sub-station. The power is distributing at dam through **LT** distribution panel. In case of any emergency, there is no redundant LT distribution system exist in previous power supply scheme. Hence, a LT panel is purchased for creating redundancy supply to the Dam.		3.70
3	Supply, erection &	1.68	The Petitioner has submitted that there was no LT	Based on the justification furnished by	1.68

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	commissioning of LT distribution panel & its accessories at surge shaft		Distribution panel at Surge Shaft area for providing supply to pumps for filling up penstock and for illumination of surge shaft area. Earlier temporary arrangement by directly tapping from Switch yard of powerhouse to gantry crane and lighting. Therefore, total system gets shutdown when there was tripping in Powerhouse /Switchyard on fault. So, LT panel was required to isolate the faulty system. Panel was purchased and installed in Jan2015.	the Petitioner and considering the fact that the asset is required for the successful and efficient operation of plant, the same is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	
4	Calibration instrument of thermometers (oil bath), fluke model	6.85	The Petitioner in justification to its claim has submitted New Asset: Resistance Temperature Detectors (RTDs) & Dial Type Thermometers (DTTs) are installed in each Turbine Guide bearing (TGB), Lower Guide Bearings (LGB), Combined Bearings (UGB) and cooling circuit for monitoring the temperature of bearings and Oil. To ensure the proper functioning of these RTDS/DTTS their calibration is required at least once in a year. Earlier this was done through external agencies, however, at times calibration were missed due to non-response of agencies, remoteness of project. So this instrument was purchased, thereafter all RTDs &DTTs are calibrated in house and ensuring the proper functioning and time and money have been saved due to this.	Considering the fact that the claimed additional capital expenditure are in the nature of tools and tackles, the claim is **not allowed** in terms of the proviso to Regulation 14(3) of the 2014 Tariff Regulations.	0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
5	Motorised synchronising lifting system, capacity 10 ton, make: power team	5.77	The Petitioner to substantiate its claim has submitted Due to silt, under water parts like runner, shaft seal, labyrinth etc. gets damaged during operation of plant. Earlier, the damaged labyrinths were replaced at works shop of Original Equipment Manufacturer (OEM) or are repaired at workshops of other firms in business. In such case, entire runner was required to be sent for repair at this location which incurs heavy financial implication including transportation. With purchase of this specialised equipment in 2014-15 damaged labyrinths are being replaced at Power Station thereby saving time and money. Also, duration of annual maintenance is reduced.	Based on the justification furnished by the Petitioner and considering the fact that these assets are required for the successful and efficient operation of plant, the claims are **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	5.77
6	Non-clog sewage submersible pump, 1450 rpm, 21hp, 16 kw, 415 v, 3-ph, with electrical control panel	2.50	The Petitioner has submitted that The leakage through Spillway Radial Gates of all three bays of Dam and through Silt Flushing Gallery increases every year due to continuous erosion, wear and tear in sill beam of Stop log, sill beam of Radial gate, sill beam of SFG, bottom portion of SRG and SFG etc. Therefore, additional submersible pumps were purchased & capitalized in 2014-15 for dewatering in addition to the existing pumps.		2.50
7	Canteen and dam at dam complex	5.91	The Petitioner has submitted that earlier during construction of Project, there was a temporary shed of CGI Sheeted used for the purpose of canteen for providing refreshment & Fooding of employees, round the clock, posted at Dam. Due to	As the claims of the Petitioner are not directly related to the efficient operation of the plant, the same are **not allowed.**	0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			earthquake & stone falling it was damaged. During the rainy season, it was not suitable for cooking and dinning and also hygienic condition was not maintained due to very old and shabby structure. So, a permanent canteen room has been constructed during Mar2014 for facilitating the employees posted at Dam round the clock.		
8	Public toilet at project hospital	4.59	The Petitioner has submitted that earlier there was no toilet at Project hospital complex for outdoor patients. Hospital was constructed in 1995. A temporary arrangement of common toilet for outdoor patients / public use had been provided, which was being used till 15 years. Therefore, for facilitating the outdoor patients and maintaining of hygienic condition in surrounding area of hospital public toilets has been constructed in the hospital complex.		0.00
9	Water Supply Line and Water Tank at Central Store At Sagbari	4.78	The Petitioner has submitted that the natural water of nallah had been tapped near Meyong village for source of water supply to central store & IRBN security staff colony. The source of water supply has dried up in summer. Also, it was observed later on that flow of nallah during summer had been completely dried-up due to change direction of water flow of natural spring. Therefore, it was necessary to lay additional supply line from another water source to cater the water supply problem in Central store & IRBN Colony. The work has been completed and being used from Mar'2015.		0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
10	Travelling telescope for X and Y axis for inverted plumb line, eds-51-tt	3.20	The Petitioner in justification to the claim has submitted that Telescopes are required for measuring the movement of Dam along X and Y axis. The alignment of old Telescopes purchased during Commissioning were not working properly due to wear & tear and their diaphragm is damaged due to moisture. These were beyond repairable. Two nos. telescopes were purchased.	Based on the justification furnished by the Petitioner and considering the fact that the asset is required for the successful and efficient operation of plant, the same is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old asset / work is considered under 'Assumed Deletion'.	3.20
11	Automatic weather station	3.92	The Petitioner to substantiate its claim has submitted that old weather station was purchased in 1995 and have completed their useful life and not functioning as sensors were damaged due to moisture & wear & tear. Therefore, new Automatic weather station was purchased as per the recommendation of Dam Safety inspection team. The Petitioner has also submitted the copy of the Report of DAM safety team.	Based on the justification furnished by the Petitioner and considering the fact that the asset is required for the successful and efficient operation of plant, the same is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old asset / work is considered under 'De-capitalization'.	3.92
12	Bpl 8108 view 6 channel ecg machine	0.71	The Petitioner has submitted that Old machine was purchased in 1993 and has completed its useful life. A ECG machine was purchase for health care facilities of staff residing at Rangit Power Station	As the claims of the Petitioner are not directly related to the efficient operation of the plant, the same are **not allowed.**	0.00
13	5 nos air circuit breaker, 800 amps, 3 phase, 415v, abb make,	8.95	The Petitioner has submitted old circuit breakers were installed during Commissioning of Project in year 2000. Due to ageing, wear and tear the operating mechanism of these breakers is not functioning properly. These breakers are installed in 415-volt switchgear. These are beyond economic repair	Based on the justification furnished by the Petitioner and considering the fact that the asset is required for the successful and efficient operation of plant, the claims are **allowed** under Regulation 14(3)(viii) of the 2014 Tariff	8.95

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			and as such new circuit breaker were purchased and installed during 2014-15 in place of old breakers.	Regulations. The original value of old asset / work have been considered under 'Assumed Deletion'.	
14	Air circuit breaker, 1250 amps, 3 phase, 415v, abb make	1.63	The Petitioner has submitted that Old breakers in Station Service Board were installed during Commissioning i,e. 2000. Breaker in SSB panel of Powerhouse. Due to ageing, wear and tear the operating mechanism of these breakers not functioning. The breaker has completed number of operation and operating mechanism of DG breakers is damaged and is beyond economic repair. OEM is not providing support due to obsolete technology. Hence, same was replaced with new one		1.63
	Sub-Total (B)	**77.62**			**54.78**
	Total (A+B)	**95.25**			**72.41**

10. Based on the above, the total additional capital expenditure of Rs. 72.41 lakh (17.63 lakh + 54.78 lakh) is allowed in 2014-15.

<u>2015-16</u>

11. The details of the additional capital expenditure claimed under the provisions of Regulation 14 of the 2014 Tariff Regulations are examined below:

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	A. Addition against approved additional capitalization shifted from other years				
1	Purchase of Mini Truck	8.58	The Petitioner has submitted that the Commission has already allowed an amount of Rs.10 lakh against this asset under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	The expenditure claimed for this asset was allowed vide order date 6.1.2016 in Petition No. 232/GT/2014. Accordingly, the claim of the Petitioner is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old asset/work is	8.58

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
				considered under 'De-capitalization'.	
	Sub-Total (A)	**8.58**			**8.58**
B. Items Claimed as per the Site Requirement					
2	Mody make control panel for submersible pump model g902t, 35hp	0.61	The Petitioner submitted that during maintenance work on MIV upstream side penstock needs to depressurise by closing of surge shaft Gate and emptying of penstock. Before lifting of surge shaft gate, penstock requires charging. For charging a pump along with panel has been purchased & installed in 2015-16. The filling time without this Pump is 18 to 19 Hrs (approx.) and with this pump the filling time reduced to 5 to 6 Hrs. In each instant a time saving of 12 Hrs is done, as such shutdown time / outage is reduced.	Since these works are required for the successful and efficient operation of plant, the claims are **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	0.61
3	Mody make submersible dewatering pump model g902t,26/11 kw/35 hp without control panel	3.41			3.41
4	Fully auto. Capacitance and tan delta monitoring kit with compensating reactors, megger, model 4110	42.89	The Petitioner has submitted that at Rangit Power Station, 39 nos 120 KV Lightening Arrestors (LA), 8 nos 132 KV 3 Ph SF6 circuit breakers, 2 nos 66 KV breakers, 4 nos 25 MVA 3 phase 132/11 KV Generating transformer, 3 nos ,10 MVA, 20 MVA & 3 MVA power transformers and 3 nos Generators installed. To ensure the healthiness of these high voltage equipment Tan delta measurement is one of the test tool. The values of Tan Delta of this equipment to be kept in record from in servicing of equipment for tracking condition of insulation. Earlier these tests are conducted by CPRI and other agencies periodically. This test is not only a preventive test. It is also used as break down maintenance test as per	Considering the fact that the expenditure claimed is in the nature of tools and tackles, the additional capital expenditure claimed is **not allowed** under first proviso to Regulation 14(3) of the 2014 Tariff Regulations.	0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			OEM manuals. Due to heavy rains the failure of Outdoor switch yard equipment like LAs, CT, PT is more at Rangit PS. After purchase of these instruments during June'2015, inhouse testing is carried out by maintenance team and thus preventing the complete failure of high voltage equipment. Earlier Such tests on EHV equipment were carried by M/S CPRI Bangalore at Rangit power station. The Minimum time required to reach site with equipments 3 days to test failure equipment. M/s CPRI used to charge about Rs 20-25 Lakhs for these works per visit in past years.		
5	Extension of 1.00KM Water Supply Line at Baniya Khola	4.14	The Petitioner has submitted that the source of existing water supply to power station area including Dam area, Hospital, ECD, School, and colony has dried in summer. Earlier, the natural surface water of nallah had been tapped at Baniya Khola. Later on during summer it was found that the Nallah dried up completely due to change in flow direction of natural spring due to earth quake. Therefore, extension of the existing water supply line is done for connection of alternate source of water supply to cater the water scarcity problem in Station areas. A new source has been identified one Km near existing source. The is equipment Put to use in April2015.	The additional capital expenditure claimed for the asset is **not allowed,** as the same is in the nature of O&M expenses.	0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
6	3 nos. Laser sensor make/ model: abb/lm80	25.01	The Petitioner has submitted that old sensors in Radial Gate were installed at the time of commissioning in year 2000. Sensor is used to measure position/opening of Gates. Old sensor was damaged due to ageing & wear & tear and are not functioning properly. The same was replaced with new and advanced one. The new sensor has made level measurement made easy at Dam, are Maintenance free, non-contact continuous level transmitter, No calibration required, Measures solids and opaque liquids at any angle and other features etc.	Since the asset is required for efficient operation of the plant, the claim of the Petitioner is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old asset / work is considered under 'Assumed Deletion'.	25.01
7	Boys Toilet at DAV School of Rangit PS	4.97	The Petitioner has submitted that One toilet has been constructed in DAV school premises for students. DAV School is maintained by Power Station. Initially a toilet for both boys and girls has been provided in school building for senior section. At later stage as no of students increased existing toilets were insufficient for students. So, to facilitate one more additional toilet has been constructed. The new asset was put to use in Sep2015.	The submission of the Petitioner has been considered. It has been observed that the claim of the Petitioner is not directly related to efficient operation of the plant hence the same is **not allowed.**	0.00
	Sub-Total (B)	**81.03**			**29.02**
	Total (A+B)	**89.61**			**37.60**

12. Based on the above, the total additional capital expenditure of Rs. 37.60 lakh (8.58 lakh + 29.02 lakh) is allowed in 2015-16.

2016-17

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A.	**Addition against approved additional capitalization shifted to 2016-17**				
1	Purchase of Fire Tender	31.90	The Petitioner has submitted that Commission has Rs. 17.10 (20.00-2.90) IN 2018-19 vide its order dated 06.01.2015 in petition no. 232/GT/2014. Old fire tender SK-04-D-0543 has completed its useful life. As per Safety Policy of NHPC one dedicated Fire Tender has to be deployed in Power Station premises. The item has been purchased in 2016-17 i.e., before the approved time, as the old fire tender was not in sound condition, more over fire tenders for all NHPC power stations were purchased centrally from corporate office. The actual cost is as per discovered after tendering.	The additional capital expenditure claimed for these assets/works were allowed, in 2018-19, vide order dated 6.1.2016 in Petition No. 232/GT/2014. Accordingly, the additional capital expenditure claimed by the Petitioner, is **allowed**. The original value of old asset / work is considered under 'Assumed Deletion'.	31.90
A	**Sub-total**	**31.90**			**31.90**
	B. New items to be considered as per site requirements				
1	Construction of toilet at dam entry check post of Dam Complex	2.90	The Petitioner has submitted that the check post at entry point of Dam complex is located approximately 1 KM away from Dam and the security personnel on duty at check post have come back to Dam to use the facilities of toilets. Therefore, a tolet have been constructed in July'2016 at entry check post and is being used. Also, Sikkim state is Nirmal Rajya.	The additional capital expenditure claimed for the asset is **not allowed,** since the same is in the nature of O&M expenses.	0.00
2	Purchase of Automatic Water Level & Discharge measurement	4.05	The Petitioner has submitted that Dam safety team in its Post monsoon inspection 2015 suggested to install Automatic Water Level (AWL) and current meter near Tashiding bridge on Rangit River. This will help to regulate the reservoir for optimum generation, especially during monsoon. The old arrangement i.e. pressure type	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	4.05

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			water level indicator(manual) has been fixed at Toe of the river. During the flood it was totally damaged due to stroking of debris.		
3	630KVA Transformer,11/0.415KV, Two Winding, DYN11, MIEL MAKE	6.23	The Petitioner has submitted that two nos. 630 KVA 11/0.415 KV Transformer installed for drawn of Auxiliary supply from grid via 132/66 kV 1 no transformer and 66/11 KV transformers at Rangit Power Station. The Transformer are in operation since commissioning (year 2000). In 2016-17, one transformer during a fault failed, it was in service for 17 years. Work order for repair was placed on M/s Kanohar Electrical Ltd (OEM), Meerut, however it was not responded and was later on cancelled. As repair was not possible at site and to maintain reliability a new transformer was purchased.	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old asset / work is considered under 'Assumed Deletion'.	6.23
4	400KVA Transformer,11/0.415KV, Two Winding, DYN11, MIEL MAKE	4.48	The Petitioner has submitted that Three nos. 400 KVA 11/0.415 KV transformer (Unit Auxiliary Transformers) installed for drawing auxiliary supply from units at Rangit Power Station. The Transformer are in operation since commissioning i.e. 2000. During 2016-17 one UAT got damaged. For repair of the transformer work order was placed to M/s Kanohar, Meerut (OEM) not responded and order was cancelled. Since it was a specialised job the repair of same was not possible at site. For considering the reliability, restoration of system/plant New 400 KVA Transformer was purchased		4.48
5	8 Nos. Outdoor Surveillance Camera D-LINK DCS-7513	8.70	The Petitioner has submitted that the cameras were required to strengthen security of vital installations viz. Powerhouse, Central Stores, POL Stores		8.70

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			and Admin Building etc. These cameras are required for monitoring various activities in and around the vital installations, so as to prevent any untoward incidents that will hamper the functioning of the Power Station. Moreover, there were no cameras were installed prior to these cameras.		
6	47 Nos CCTV Cameras (1 PTZ, 34 Dome and 12 Bullet Type), 16 Channel DVR along with associated accessories for DAV Public School, Rangit Nagar	3.16	The Petitioner has submitted that as per CBSE Circular on protection of children from sexual offences (POCSO) Act. 2012, provision for CCTV cameras is required in school premises at all strategic places along with the warning. Further the decision to install CCTV Cameras was approved in principle by LMC of DAV Public School, Rangit Nagar at LMC meeting	As the claims of the Petitioner are not directly related to the efficient operation of the plant, the same are **not allowed.** .	0.00
	Sub-Total (B)	**29.52**			**23.46**
	C. Additions for capital spares when put to Use (Purchased Current year)				
1.	LOWER STATIONARY LABYRINTH AS PER DRG FOR 20 MW MACHINE AT RANGIT	**1.00**	On replacement Basis: Old lower stationary labyrinth was damaged due to use of more than 16 years and were beyond economical repair. Therefore, new item was purchased and replaced the old stationary labyrinth. The Assets has been purchased during 2016-17 and the same was put to use during 2016-17. Based on Indexation method, gross value of old assets is considered as Rs.34553/- and WDV as Rs.10725/-. The same has been considered in Form-9B(i) FY2016-17 at Sl. No. 3.	Since capitalization of capital spares are not allowed after the cut-off date of the generating station, the claims of the Petitioner, are **not allowed.** The same are allowed as additional O&M expenses on consumption basis. ***(as dealt in paras 43-47 of this order)***	**0.00**
2	Temperature Detector Rtd, Three Wire Type, Temp RANGE: 0 TO 200 DEGREE Centigrade, Capillary 7.5 MTR	**0.08**	On replacement Basis: Old items was damaged due to use of more than 16 years and were beyond economical repair. Therefore, new item was purchased and replaced the old item. The item has been		**0.00**

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			purchased during 2016-17 and the same was put to use during 2016-17. Based on Indexation method, gross value of old assets is considered as Rs.2921/- and WDV as Rs.907/-.The same has been considered in Form-9B(i) FY2016-17 at Sl. No. 3.		
	Total C	**1.08**			**0.00**
D. Additions of capital spares when put to use (Purchased during earlier years)					
1	2 Nos. SPLIT DOWEL, DRG NO. 02030110601, PART NO 24	**0.13**	The new Assets were purchased during 2015-16 kept as spare and now the same was put to use during 2016-17. The power station is under operation for 20 years and spares of running system gets damaged due to wear and tear are beyond repair as such new spare parts are purchased and used. The dovels are used as locking arrangement of moving parts. In order to operate the systems safely 2 nos damaged dowels have been replaced thereby reducing the breakdown of the machine on account of damaged dowels. Based on Indexation method, gross value of old assets is considered as Rs.4608/- and WDV as Rs.1430	Since capitalization of capital spares are not allowed after the cut-off date of the generating station, the claims of the Petitioner, are **not allowed.** The same are allowed as additional O&M expenses on consumption basis	0.00
2	4 Nos. Thyristor, CN9064670048 Type Of Housing: Flat PACK ITAV:800VUDRM : 1350V C66048-A2423-A11	2.05	The new Assets were purchased during 2015-16 which was kept under exclusion and now the same was put to use during 2016-17 for replacing faulty component from mother plant and which was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.73604/- and WDV as Rs.22848/		0.00
3	2 Nos. CPU MDL FOR CH- 1, 69203DB1AA UN0660AV1 ,	9.96	The new Assets were purchased during 2015-16 which was kept under exclusion and now the same		0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	DVR HIER 452555R2,0349K DVR EPROMS IN AA49 ,: ED7470400133		was put to use during 2016-17 for replacing faulty component of mother plant that was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.358402/- and WDV as Rs.111254/-		
4	DC TO DC Converter, DDC 01156/6	0.19	The Assets has been purchased during 2013-14 and the same was put to use during 2016-17 for replacing faulty component from mother plant and was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.6604/- and WDV as Rs.2050/		0.00
	Generator Differential Protection Relay, CAG34	0.21	The Assets has been purchased during 2013-14 and the same was put to use during 2016-17 for replacing faulty component from mother palnt and was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.7119/- and WDV as Rs.2210/-		0.00
	2 Nos. Current Transformer, 600/300/5-5A TYPE (R) C.T, 11 KV	0.42	The Assets has been purchased during 2013-14 and the same was put to use during 2016-17 for replacing faulty component from mother plant and was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.14354/- and WDV as Rs.4458/		0.00
	3 Nos. Potential Transformer, Ratio-11KV/ROOT3:110V/ROOT3:110V/RRT3, CLASS: 3P/0.5, Burden - 150/150VA	0.68	The Assets has been purchased during 2013-14 and the same was put to use during 2016-17 for replacing faulty component from mother plant and was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.23658/- and WDV as Rs.7344/-		0.00
	3 Nos. AUX RELAY- LED FLAG INDI &MNL	0.14	The new Assets were purchased during 2015-16 which was kept under		0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	TSTR Coil Voltage: 220 V DC Contacts:4 C/O RE300-TYPE02 :CN9076871299		exclusion and now the same was put to use during 2016-17 for replacing faulty component from mother plant and was beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.23658/- and WDV as Rs.7344/-		
	25 Nos. TOP Liner Plate, Composition of Material: 18%CR, 8%NI (AS PER SAMPLE/DRAWING)	1,59	The new Assets were purchased during 2013-14 and 2015-16 which was kept under exclusion and now the same was put to use during 2016-17 during annual maintenance to replace the eroded component of mother plant which are beyond repairable. Based on Indexation method, gross value of old assets is considered as Rs.64834/- and WDV as Rs.20125/-		0.00
	Total D	**15.37**			**0.00**
	Total (A+B+C+D)	**77.87**			**55.36**

13. Based on the above, the total additional capital expenditure of Rs. 55.36 lakh (31.90 lakh + 23.46 lakh) is allowed in 2016-17.

2017-18

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
	A. New items to be considered as per site requirements				
1	Arrangement for dismantling & assembling of thrust collor & runner disc. Drg. No. 0-254-51-16-506	29.26	The Petitioner has submitted that during running condition of the machine axial load of machine is transferred to structure through thrust bearing. The thrust collar runner Disc of shaft directly touch with thrust bearing. Runner disc of shaft is replaceable and surface of the disc need to be maintained with high finish surface. So, this specialised equipment is needed for	Since the asset is required for efficient operation of the plant, the claims of the Petitioner, are **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	29.26

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			replacement and maintenance of runner disc. The specialised equipment is not a common device and original equipment manufacture of Turbine and Generator i.e BHEL has designed and fabricated for specifically for Rangit Power Station. It has reduced the duration of maintenance of generating unit and subsequent generation benefit to the beneficiaries.		
2	40 nos. Cp plus 2.4 mp bullet cctv camera and accessories	3.59	As advised by IRBN (security agency), deployed in Power Station to maintain security aspects, CCTV cameras have been installed for strengthening of security systems in Power Station.		3.59
	Sub-total (A)	**32.85**			**32.85**
B. Additions of capital spares when put to use (Purchased during earlier years)					
1	2 nos. Split dowel, drg no. 02030110601, part no 24	0.68	The new assets were purchased during 2015-16 and 2016-17 which was kept under exclusion and now the same was put to use during 2017-18. Based on Indexation method, gross value of old assets is considered as Rs.25935/- and WDV as Rs.7676/-	Since capitalization of capital spares are not allowed after the cut-off date of the generating station, the claims of the Petitioner, are **not allowed.** The same are allowed as additional O&M expenses on consumption basis. ***(as in paras 43-47 of this order)***	0.00
2	Upper stationary labyrinth as per drg	3.27	The spares of underwater parts get damaged due to wear and tear and running of machines in silt content water during monsoon and is required to be replaced during annual maintenance keeping in view of its physical condition. The new Assets were purchased during 2012-13 which was kept under exclusion and now the same was put to use during 2017-18. Based on Indexation method, gross value of old assets is considered as Rs.148730/- and WDV as Rs.44015/		0.00
3	Lever stopper (in halves), drg no. 02030110601, part no 34	0.16	The lever stopper are used as safety arrangement for controlling the maximum opening of Guide Vanes. In order to operate the system safely damaged lever stopper		0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			(which are beyond repairable) have been replaced thereby reducing the breakdown of the machines to zero for this reason. The new Assets were purchased during 2015-16 which was kept under exclusion and now the same was put to use during 2017-18. Based on Indexation method, gross value of old assets is considered as Rs.6460/- and WDV as Rs.1912/		
	Sub-Total (B)	**4.11**			**0.00**
	Total (A+B)	**36.96**			**32.85**

14. Based on the above, the total additional capital expenditure of Rs.32.85 lakh (32.85 lakh + 0.00 lakh) is allowed in 2017-18.

2018-19

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. New items to be considered as per site requirements					
1	Construction of permanent store and rest room at power house	34.13	The Petitioner submitted that, Rangit is old power station and centralised store is located at 3 km far away from the power house. No local store available at Power house for keeping essential spares (which are required in emergency condition / trip condition). Residential complex is also 15 km for away from power house. In monsoon season, the approach road, connecting power house from residential complex to Central store gets frequently blocked due to landslides. During the blockage of roads, operation and maintenance staff movement from power house to residential complex becomes very difficult. During such condition's	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	34.13

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			employees have to perform their duties from Power House. As such a Rest Room at Power House and store is constructed for employees and for keeping the essential spares. Keeping the essential items in Power house reduces the transport time, also arrangement of spares from Central store decreases. This shall help in reducing outage time of Units. The equipment was put to use during April 2018		
2	400 KVA transformer,11/0 433kv, two winding, - make: melcon; model: dyn11, onan cooling	5.58	Three nos. 400 KVA 11/0.415 KV transformer installed for drawing auxiliary supply from units at Rangit Power Station. The Transformer are in operation since commissioning i.e. 2000. In 2016-17 one transformer during a fault failed, it was in service for 17 years. The make of transformer is M/s Kanohar, Meerut for repair of the transformer work oder was placed to M/s Kanhor and OEM. They do not response (order copy enclosed) and order was cancelled on 21.03.2017. Since it is specialised job the repair of same was not possible at site. For considering the reliability, restoration of system/plant	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The original value of old assets / works is considered under 'Assumed Deletion'.	5.58
3	Air compressor rated working press:7.5 kg / cm2, capacity:100 to 120 cfm, make:elgi; model:eg18-7.5	5.38	Old LP compressor are in operation since Commissioning i.e. 2000. LP Compressor are needed to provide the pressurised air to braking system. The LP compressor often gets break down due to ageing & wear and tear, repair of old asset is not economical. It is integral part of breaking & Jacking system which is		5.38

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			directly associated to power generation. Hence, the old LP compressors is replaced with new /reliable compressor. The new asset was put to use during 2018-19 in Annual maintenance		
4	Electrical Incinerator Capacity,5 KG/Hour, Cecon Pollutech System, CTL-5F	7.61	**New Asset:** Earlier hospital of Power Station had diesel incinerator for burning of medical waste. The pollution control board of sikkim, government has raised the objection on diesel incinerator and directed for Electrical incinerator for reducing pollution. Therefore, new item was purchased and installed in 2018-19.	The additional capital expenditure claimed for the asset is **not allowed,** as the same is in the nature of O&M expenses.	0.00
5	GPS Make Sertel, Model No T-GPS-300	3.14	**New Asset**: Old GPS system was installed in 2005-06 and was out of order since 2015-16. As the existing GPS system is obsolete it cannot be get repaired due to non-availability of spare and even the firm has not shown any response for its repair. GPS time synchronization unit is very essential old one was not supporting new communication protocols to time synchronisation of all the protection Relays. As per IEGC all the relays should be time synchronised for analysing fault analysis. The new asset was purchased and put to use in 2018-19.	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	3.14
6	Construction of Security Entrance Gate (2 nos.)	21.56	**New Assets**: Height of existing security gates have been increased and security post has been constructed in Power station as advised by IRBN (deployed in Power Station to maintain security aspects). During the security meet with IRBN, safety of Rangit Power Station has been discussed and decided	As these works are required for the safety and security of plant, the claim is **allowed** under Regulation 14(3)((iii) of the 2014 Tariff Regulations.	21.56

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			to construct 02 numbers security entrance gate in addition to the existing santry post.		
7	Distribution Transformer 250 KVA, 11/0.415 KV, 50 HZ, 3-PHASE, Outdoor Type Dyn-11 ReF-IS 2026/1977	4.04	**New Asset:** One no. 11/0.415 KV, 50 HZ, 3-PHASE,250 KVA, Outdoor Type Dyn-11 Distribution Transformer has been installed for illumination purpose in Power house area.	Since the asset is required for the efficient operation of the plant, the claim of the Petitioner, is **allowed** under Regulation 14(3)(viii) of the 2014 Tariff Regulations.	4.04
A	**Sub-total**	**73.83**			**73.83**
B. Additions of capital spares when put to use (Purchased during earlier years)					
1	Split Dowel Drg No 02030110601, PART NO 24	0.06	**On replacement Basis:** The dovels are used as locking arrangement of moving parts. In order to operate the systems safely 2 nos damaged dowels have been replaced thereby reducing the breakdown of the machines to zero for this reason. The new Assets were purchased during 2015-16 and 2016-17 which was kept under exclusion and now the same was put to use during 2017-18. Based on Indexation method, gross value of old assets is considered as Rs.25935/- and WDV as Rs.7676/-. The same has been considered in Form-9B(i) FY 2018-19 at Sl. No. 1.	Since capital spares are not allowed after cut-off date of the generating station, the claims of the Petitioner are **not allowed.** The same are allowed as additional O&M expenses on consumption basis. (*as in paras 43-47 of this order)*	0.00
2	Lever Stopper (In Halves) DRG NO 02030110601, PART NO 34.	0.16	**On replacement Basis:** The lever stopper is used as safety arrangement for controlling the maximum opening of Guide Vanes. In order to operate the system safely damaged lever stopper (which are beyond repairable) have been replaced thereby reducing the breakdown of the machines to zero for this reason.The new Assets were		0.00

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
			purchased during 2014-15 which was kept under exclusion and now the same was put to use during 2017-18. Based on Indexation method, gross value of old assets is considered as Rs.6460/- and WDV as Rs.1912/-. The same has been considered in Form-9B(i) FY2017-18 at Sl. No. 1.		
	Sub-Total B	**0.22**			**0.00**
	Total (A+B)	**74.05**			**73.83**

15. Based on the above, the total additional capital expenditure of Rs. 73.83 lakh (73.83 lakh + 0.00 lakh) is allowed in 2018-19.

<u>Discharge of liabilities</u>

16. The Petitioner has not claimed any discharge of liabilities during the period 2014-19. Accordingly, the same is considered as 'Nil'.

<u>Exclusions (additions/deletions incurred, capitalized in books of accounts but not to be claimed for tariff purpose) as per reconciliation with books of account</u>

17. The year-wise net expenditure, on exclusion as claimed by the Petitioner, as per (Form 9C) reconciliation, with books of accounts are as follows:

(Rs. in lakh)

Sl No.		2014-15	2015-16	2016-17	2017-18	2018-19
A	Exclusions in additions	145.55	349.86	171.81	91.67	126.16
B	Exclusions in Deletions	(-)76.58	(-)146.20	(-)56.42	(-)60.62	(-)74.53

Exclusions in Additions (capitalized in books but not to be considered for tariff purpose)

18. The Petitioner has submitted that the expenditure as stated in the table above, is incurred on procurement/ replacement of minor assets and capital spares which are not allowed for the purpose of tariff, after the cut-off date of the generating station, in

terms of the 2014 Tariff Regulations. Accordingly, the Petitioner has put these additions under exclusion category. As such, the exclusion of such positive entries is allowed and has no impact on tariff. Hence, the same is in order and allowed.

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
145.55	349.86	171.81	91.67	126.16

Exclusions in deletions (de-capitalized in books but not to be considered for tariff purpose)

19. The Petitioner has de-capitalized amounts in books of accounts pertaining to minor assets such as computers, office equipment, furniture, tools and tackles, capital spares, pumps, fixed assets of minor value i.e. less than Rs. 5000 etc., as these are not in use on account on becoming unserviceable/obsolete. The Petitioner has claimed exclusion of above assets as under:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
(-)76.58	(-)146.20	(-)56.42	(-)60.62	(-)74.53

20. We have examined the matter. It is observed that the provisions of the 2014 Tariff Regulations provide that the expenditure on minor items/assets, tools and tackles etc procured after the cut-off date shall not be considered for additional capitalization for determination of tariff. The minor assets are not considered as capital assets and are not permitted to be capitalised after the cut-off date. In our view, since the cost of new assets would not be considered on account of implication of the Regulations, the value of old assets should be permitted to continue to form part of the gross block. In other words, if the cost of the new assets is not considered on account of implication of the regulations, the cost of minor assets originally included in the capital cost of the projects and replaced by new assets should not be reduced from the gross block. The generating station should not be debarred from servicing the capital originally

deployed on account of procurement of minor assets, if the services of these assets are being rendered by similar assets which do not form part of the gross block. In view of above, the exclusions of minor assets are allowed.

21. As regards the exclusion of negative entries corresponding to de-capitalization of capital spares, it is observed that the expenditure on capital spares are not allowed to be capitalized after the cut-off date in terms of the 2014 Tariff Regulations, while the recovery of expenditure on capital spares is allowed through O&M expenses on consumption. Accordingly, the claim of the petitioner for exclusion of negative entries arising out of de-capitalization of capital spares is allowed. Further, the Petitioner has claimed exclusion of various pumps during the period 2014-19. In this regard, it is observed that capitalization of various pumps has been allowed by the Commission even after cut-off date based on prudence check. As such, exclusion of these pumps for an amount Rs. 3.91 lakh, Rs. 0.06 lakh and Rs. 7.79 lakh during 2014-15, 2017-18 and 2018-19, respectively is not allowed.

22. Accordingly, the exclusions in deletions claimed, allowed and disallowed are as under:

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Exclusions in deletions Claimed	(-)76.58	(-)146.20	(-)56.42	(-)60.62	(-)74.53
Exclusions in deletions Allowed	(-)72.67	(-)146.20	(-)56.42	(-)60.56	(-)66.74
Exclusions in deletions Disallowed	(-)3.91	(-)0.00	(-)0.00	(-)0.06	(-)7.79

De-capitalization

23. As regards de-capitalization, Regulation 14(4) of the 2014 Tariff Regulations, provides as under:

"In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity

respectively in the year such de-capitalisation takes place, duly taking into consideration the year in which it was capitalised."

24. The Petitioner has claimed de-capitalization against assets such as purchase of ECG Machine, Mini Truck, Transformer automatic weather station, air compressors etc. The de-capitalization claimed are as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Decapitalization	(-)1.97	(-)0.39	(-)13.40	(-)1.81	(-)0.09
Assumed deletions	(-)12.69	(-)8.63	(-)3.35	(-)0.00	(-)3.98
Total	(-)14.66	(-)9.02	(-)16.75	(-)1.81	(-)4.07

25. The Petitioner has claimed the above decapitalizations against the replacement of new assets/works and for assets/works which are not in use. The de-capitalization as per books, claimed by the Petitioner, has been dealt with in the relevant paragraphs relating to the claims for additional capital expenditure, which have been considered and allowed for the respective years of the period 2014-19, in terms of the provisions of Regulation 14(3) of the 2014 Tariff Regulations. Accordingly, the decapitalization claimed by the Petitioner, has been allowed as the old assets deleted from books of accounts do not render any useful service in the operation of the generating station except one asset (ECG Machine for Rs.0.04 lakh) for which capitalization of new asset/work was not allowed. Based on above, de-capitalization (excluding Assumed Deletions) is allowed as under:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
(-)1.93	(-)0.39	(-)13.40	(-)1.81	(-)0.09

Assumed Deletion

26. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is to be allowed for the purpose of tariff, provided that the capitalization of the said asset is followed by the de-capitalization of

the original value of the old asset. However, in certain cases, where decapitalization is affected in books during the following years, to the year of capitalization of new asset, the de-capitalization of the old asset for the purpose of tariff is shifted to the very same year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as “Assumed deletion”. Further, in absence of the gross value of the asset being de-capitalized, the same is calculated by de-escalating the gross value of new asset @ 5% per annum till the year of capitalization of the old asset.

27. It is observed that the Petitioner, while claiming certain additional capital expenditure in 2014-19, has not provided the gross value of old asset for some of the items which are being replaced. Further, it is noticed that for some items the Petitioner has indicated gross value of old assets in the actual year of decapitalization and the same is claimed under Assumed Deletions during the year in which new additional capitalization is claimed against replacement. The same has been verified and found to be in order. We have considered the assumed deletions amount for these assets as claimed by the Petitioner. For assets which are being decapitalized in same year of capitalization of new asset on replacement & claimed under assumed deletions and for assets/ works for which decapitalization of old item is not available, only those are being further dealt. Accordingly, based on above methodology, the decapitalization value of old asset has been worked out as under:

(Rs. in lakh)

Sl. No.		**Assumed Deletions for old asset claimed**	**Assumed Deletions for old asset allowed**
	2014-15		
1	Bus	6.83	6.83
2	Travelling Telescope for X AND Y axis for inverted Plumb line, EDS-51-TT	1.45	1.54

Sl. No.		Assumed Deletions for old asset claimed	Assumed Deletions for old asset allowed
3	5 Nos Air circuit breaker, 800 AMPS, 3 Phase, 415V, ABB make	3.73	4.31
4	Air circuit breaker, 1250 AMPS, 3 Phase, 415V, ABB make	0.68	0.78
	Sub-Total	**12.69**	**13.46**
	2015-16		
1	Laser sensor make/ model: ABB/LM80	8.63	11.46
	Sub-Total	**8.63**	**11.46**
	2016-17		
1	Fire Tender	2.90	13.92
2	630KVA Transformer,11/0.415KV, two Winding, DYN11, MIEL make	0.45	2.72
	Sub-total	**3.35**	**16.64**
	2017-18		
		0.00	**0.00**
	2018-19		
1	400KVA Transformer,11/0.433KV, two Winding	2.06	2.21
2	Air Compressor rated working press:7.5 KG / CM2, CAPACITY:100 TO 120 CFM	1.92	2.13
	Sub-total	**3.98**	**4.34**
	Total Assumed Deletions	**28.65**	**45.90**

28. Based on the above, the net additional capital expenditure allowed for the period 2014-19, is as under:

(Rs. in lakh)

		2014-15	2015-16	2016-17	2017-18	2018-19
A	Additions allowed	72.41	37.60	55.36	32.85	73.83
B	Decapitalization allowed	(-)1.93	(-)0.39	(-)13.40	(-)1.81	(-)0.09
C	Assumed Deletions considered	(-)13.46	(-)11.46	(-)16.64	0.00	(-)4.34
D	Exclusions in deletions not allowed	(-)3.91	(-)0.00	(-)0.00	(-)0.06	(-)7.79
E	Discharge of Liabilities	0.00	0.00	0.00	0.00	0.00
F	Reversal of liabilities	0.00	0.00	0.00	0.00	0.00
G	Net Additional Capitalization allowed (G=A+B+C+D+E-F)	53.11	25.75	25.32	30.98	61.61

Capital cost allowed

29. Accordingly, the capital cost allowed for the period 2014-19, is as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost (a)	49475.59	49528.70	49554.46	49579.78	49610.76
Net additional capital expenditure allowed during the year/ period (b)	53.11	25.75	25.32	30.98	61.61
Closing Capital Cost (a)+(b)	**49528.70**	**49554.46**	**49579.78**	**49610.76**	**49672.37**

Debt Equity Ratio

30. Regulation 19 of the 2014 Tariff Regulations provides as under:

"19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

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

ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

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

(2) The generating company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt;equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff,

and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation."

31. The gross normative loan and equity amounting to Rs.30700.48 lakh and Rs. 18775.11 lakh, respectively, as on 31.3.2014, as allowed in order dated 6.1.2016 in Petition No.232/GT/2014, has been considered as the normative loan (fully repaid) and equity, as on 1.4.2014. The debt: equity ratio, was considered as 70:30, in terms of Regulation 19 of the 2014 Tariff Regulations, for the purpose of additional capitalization. The de-capitalization of assets, has been deducted from the corresponding loan as well as equity, taking into consideration the debt equity ratio, applied in the year in which it was capitalized. Accordingly, the details of debt-equity ratio in respect of the generating station as on 1.4.2014 and as on 31.3.2019 are as under:

(Rs. in lakh)

	Capital cost as on 1.4.2014		**Additional Capital Expenditure**		**Decapitalization**		**Capital cost as on 31.3.2019**	
	Amount	**(%)**	**Amount**	**(%)**	**Amount**	**%**	**Amount**	**(%)**
Debt (A)	30700.48	62.05	190.44	70.00	46.67	62.00	30844.25	62.10
Equity (B)	18775.11	37.95	81.62	30.00	28.60	38.00	18828.12	37.90
Total	**49475.59**		**272.05**		**75.28**		**49672.37**	

Return on Equity

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

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

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

Provided that:

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

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

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

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

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

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

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

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

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

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

Where "t" is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess

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

grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long-term transmission customers/DICs as the case may be on year to year basis."

34. The base rate of Return on Equity (ROE) has been grossed up, based on the MAT rate for the period 2014-19. Hence, in terms of the above regulations, ROE has been computed as under:

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Equity (A)	18775.11	18789.50	18796.28	18801.47	18810.62
Addition of Equity due to additional capital expenditure (B)	14.39	6.78	5.19	9.14	17.51
Normative Equity- Closing (C) =(A) + (B)	18789.50	18796.28	18801.47	18810.62	18828.12
Average Equity (D)=(A+C)/2	18782.30	18792.89	18798.88	18806.04	18819.37
Base Rate (%) (E)	16.500%	16.500%	16.500%	16.500%	16.500%
Effective Tax Rate (%) (F)	20.961%	21.342%	21.342%	21.342%	21.549%
Effective ROE Rate (%) (G)	20.876%	20.977%	20.977%	20.977%	21.032%
Return on Equity (H)= (G)*(D)	**3920.99**	**3942.18**	**3943.44**	**3944.94**	**3958.09**

<u>Interest on Loan</u>

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

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

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

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

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

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest

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

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

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

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

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute: Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan."

36. The actual loan of the project has already been repaid. The normative loan on account of admitted additional capital expenditure during the respective year of the entire period have also been considered as paid fully, as the admitted depreciation is more than the amount of normative loan in these years. As such, the Interest on loan during the period 2014-19 is 'Nil'.

Depreciation

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

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

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

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple

elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset: Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

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

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

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

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

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

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

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

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

38. The COD of the generating station is 15.2.2000. Since, the generating station has completed 12 years of operation, the remaining depreciable value has been spread over the balance useful life of the project. Accordingly, depreciation has been computed as under:

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Gross block (A)	49475.59	49528.70	49554.46	49579.78	49610.76
Net Additional capital expenditure during 2014-19 (B)	53.11	25.75	25.32	30.98	61.61

	2014-15	2015-16	2016-17	2017-18	2018-19
Closing gross block (C=A+B)	49528.70	49554.46	49579.78	49610.76	49672.37
Average gross block (D)=(A+C)/2	49502.15	49541.58	49567.12	49595.27	49641.56
Value of Free Hold Land	294.80	294.80	294.80	294.80	294.80
Depreciable Value (E= (D-Freehold Land) *90%))	44286.61	44322.10	44345.09	44370.42	44412.09
Remaining Depreciable Value at the beginning of the year (F=E-Cumulative depreciation at 'L' at the end of previous year*)	18630.20	17783.28	16917.84	16063.62	15207.57
Balance useful Life (H)	20.87	19.87	18.87	17.87	16.87
Depreciation (I=F/H)	**892.58**	**894.88**	**896.44**	**898.80**	**901.34**
Cumulative Depreciation at the end of the year (J=I+ Cum Dep at 'L' at the end of previous year)	26548.99	27433.70	28323.69	29205.61	30105.86
Less: Depreciation adjustment on account of de-capitalization (K)	10.17	6.45	16.89	1.08	7.30
Cumulative Depreciation at the end of the year (L)	**26538.82**	**27427.25**	**28306.80**	**29204.52**	**30098.56**

** Cumulative Depreciation as on 31.3.2014 is Rs.25656.41 lakh.*

<u>Operation & Maintenance Expenses</u>

39. Regulation 29(3)(a) of the 2014 Tariff Regulations, provides as under:

> *." "29. Operation and Maintenance Expenses: (a) Following operations and maintenance expense norms shall be applicable for hydro generating stations which have been operational for three or more years as on 01.04.2014:*

(Rs. in lakh)

Sl. No.	*Name of Station*	*2014-15*	*2015-16*	*2016-17*	*2017-18*	*2018-19*
A. NHPC						
7	*Rangit*	*4576.46*	*4880.52*	*5204.78*	*5550.58*	*5919.36*

40. In terms of the above Regulations, the generating station is in operation for three years or more, as on 1.4.2014 and the above-mentioned expenses were allowed by order dated 6.1.2016. The Petitioner has claimed O&M expenses for the period 2014-19, in terms of Regulation 29(3)(a) of the 2014 Tariff Regulations and as allowed vide order dated 6.1.2016. Accordingly, the claim for O&M expenses is allowed as per the above regulations.

Capital Spares

41. The last proviso to Regulation 29(2) of the 2014 Tariff Regulations provides as under:

> *"Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalization or consumption of stores and spares and renovation and modernization".*

42. In terms of the above-quoted proviso, capital spares consumed are admissible separately, at the time of truing up of tariff, based on the details furnished by the Petitioner. The capital spares claimed by the Petitioner are as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Capital spares (not part of capital cost)	14.33	-	34.46	16.10	8.12
Capital spares (part of capital cost)	-	-	-	-	-

43. We have considered the submissions of the Petitioner. Based on the submissions we have examined the list of spares furnished by the Petitioner. It is pertinent to mention that the term 'capital spares' has not been defined in the 2014 Tariff Regulations. The term capital spares, in our view, is a piece of equipment, or a spare part, of significant cost that is maintained in inventory for use in the event that a similar piece of critical equipment fails or must be rebuilt. Keeping in view the principle of materiality and to ensure standardized practices in respect of earmarking and treatment of capital spares, the value of capital spares exceeding Rs.1.00 lakh, on prudence check of the details furnished by the Petitioner in Form-17 of the Petition, has been considered for the purpose of tariff. Based on this, the details of capital spares consumption allowed for the period 2014-19, before adjusting the salvage value of old spare is summarized as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Total capital spares consumed claimed	14.33	0.00	34.46	16.10	8.12
Total value of capital spares considered above 1 lakh	**0.00**	**0.00**	**20.97**	**2.99**	**3.27**

44. Further, we are of the view that spares do have salvage value. Accordingly, in line with the practice of considering salvage value, presumed to be recovered by the Petitioner on sale of other capital assets, on becoming unserviceable, the salvage value of 10% has been deducted from the cost of capital spares considered above for the period 2014-19. Therefore, on prudence check of the information furnished by the Petitioner in Form-17 and on applying the said ceiling limit along with deduction of the salvage value @10%, the net capital spares allowed in terms of Regulation 29(2) of 2014 Tariff Regulations is as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2017-18
Net total value of capital spares considered	0.00	0.00	20.97	2.99	3.27
Less: Salvage value @ 10%	0.00	0.00	2.10	0.30	0.33
Net capital spares allowed	**0.00**	**0.00**	**18.87**	**2.69**	**2.94**

45. The Petitioner has submitted that it has filed Petition No. 232/MP/2019 for the generating station, seeking recovery of impact of wage revision of its employees, deputed employees of KV staff/ DAV and Central Industrial Security Force (CISF) in respect of this generating station for the period from 1.1.2016 to 31.3.2019. It is noticed that the Commission vide its common order dated 10.11.2022 had disposed of the said petition. Hence, the prayer of the Petitioner, on this count, has not been considered in this order.

Goods & Services Tax

46. The Petitioner, has also claimed reimbursement of additional tax paid due to implementation of GST, in respect of generating station, as additional O&M expenses and for this purpose, it has requested for relaxation of the provisions of Regulation 29(3) in exercise of the powers vested under Regulation 54 and Regulation 55 of the 2014 Tariff Regulations. Further, it submitted that the implementation of GST is a "Change in law" event and the impact of the same should be passed-through in tariff. As such, the tax paid in O&M expenditure of plants (service portion) is claimed over and above the O&M expenses of the respective power stations. The Petitioner has submitted that it had filed Petition No. 133/MP/2019, which was disposed of by the Commission vide its order dated 22.8.2019, granting liberty to the Petitioner to raise the claim for reimbursement of additional tax on O&M expenses due to implementation of GST Act, 2017 along with the truing up petition for the period 2014-19. The additional impact of GST in 2017-18 (1.7.2017 to 31.3.2018) and 2018-19 as submitted by the Petitioner, duly certified by statutory auditors, are as under:

(Rs. in lakh)

Additional Impact of GST on O&M Expenses			
2017-18	**2018-19 (1.4.2018 to 31.12.2018)**	**2018-19 (1.1.2019 to 31.3.2019)**	**Total**
27.96	35.50	15.24	**78.70**

47. The matter has been considered. It is observed that the Commission while specifying the O&M expense norms for the period 2014-19 had considered taxes to form part of the O&M expense calculations and, accordingly, had factored the same in the said norms. This is evident from paragraph 49.6 of the SOR

(Statement of Objects and Reasons) to the 2014 Tariff Regulations, which is extracted hereunder:

> *"49.6 With regards to suggestion received on other taxes to be allowed, the Commission while approving the norms of O&M expenses has considered the taxes as part of O&M expenses while working out the norms and therefore the same has already been factored in..."*

48. Further, the escalation rates considered in the O&M expense norms under the 2014 Tariff Regulations is only after accounting for the variations during the past five years of the period 2014-19, which in our view, takes care of any variation in taxes also. It is pertinent to mention that in case of reduction of taxes or duties; no reimbursement is ordered. In this background, we find no reason to allow the prayer for grant of additional O&M expenses towards payment of GST.

Interest on Working Capital

49. Sub-section (c) of Clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

> *"28. Interest on Working Capital: (1) The working capital shall cover*
>
> *(c) Hydro generating station including pumped storage Hydro Electric generating Station and transmission system including communication system:*
> *(i) Receivables equivalent to two months of fixed cost;*
> *(ii) Maintenance spares @ 15% of operation and maintenance expense specified in regulation 29; and*
> *(iii) Operation and maintenance expenses for one month."*

Receivables for Working Capital

50. The Receivable component of working capital has been worked out based on two months of fixed cost as under:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1625.61	1683.09	1743.92	1802.55	1870.13

Maintenance Spares for Working Capital

51. Maintenance spares @15% of O&M expenses are worked out and allowed as under:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
686.47	732.08	783.55	832.99	888.35

O&M Expenses for Working Capital

52. O&M expenses for 1 month for the purpose of working capital are as under:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
381.37	406.71	435.30	462.77	493.53

Rate of Interest on Working Capital

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

> *"Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later."*

54. Accordingly, interest on working capital is worked out and allowed as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Working capital for Maintenance Spares (15% of operation and maintenance expense)	686.47	732.08	783.55	832.99	888.35
Working capital for Receivables (two months of fixed cost)	1625.61	1683.09	1743.92	1802.55	1870.13
Working capital for O&M Expenses (one month of O&M Expenses)	381.37	406.71	435.30	462.77	493.53
Total working capital	**2693.45**	**2821.88**	**2962.77**	**3098.31**	**3252.00**
Rate of Working Capital (%)	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working Capital	**363.62**	**380.95**	**399.97**	**418.27**	**439.02**

Annual Fixed Charges for the period 2014-19

55. Based on the above, the annual fixed charges approved for the generating station for the period 2014-19, is summarized as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	892.58	894.88	896.44	898.80	901.34
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	3920.99	3942.18	3943.44	3944.94	3958.09
O&M Expenses	363.62	380.95	399.97	418.27	439.02
Interest on Working Capital	4576.46	4880.52	5223.65	5553.27	5922.30
Total	**9753.65**	**10098.54**	**10463.51**	**10815.29**	**11220.75**

Note: (1) All figures are on annualized basis. (2) All figures under each head have been rounded. The figure in total column in each year is also rounded. As such the sum of individual items may not be equal to the arithmetic total of the column.

Normative Annual Plant Availability Factor (NAPAF)

56. Clause (4) of Regulation 37 of the 2014 Tariff Regulations provides for 90% Normative Annual Plant Availability Factor (NAPAF) for the present hydro generating station and the same is allowed.

Design Energy

57. The Commission in its order dated 6.1.2016 in Petition No.232/GT/2014 had approved the annual Design Energy (DE) of 338.61 million units for the period 2014-19 in respect of this generating station. The same has been considered and the details as per month-wise are mentioned as under:

Month	Design Energy (MUs)
Apr	22.83
May	30.29
Jun	41.04
July	42.41
Aug	42.41
Sept	41.04
Oct	40.10
Nov	24.44
Dec	15.04
Jan	13.46

Feb	11.88
Mar	13.67
Total	**338.61**

Summary

58. The annual fixed charges allowed vide order dated 6.1.2016 in Petition No. 232/GT/2014 and the annual fixed charges allowed in this order (after truing-up) for the period 2014-19, for the generating station are summarized as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Annual fixed charges allowed vide order dated 6.1.2016 in Petition No. 232/GT/2014	9752.05	10074.03	10416.38	10795.88	11217.75
Annual fixed charges allowed in this order	**9753.65**	**10098.54**	**10463.51**	**10815.29**	**11220.75**

59. The difference between the annual fixed charges recovered by the Petitioner in terms of order dated 6.1.2016 in Petition No. 232/GT/2014 and the annual fixed charges determined by this order, shall be adjusted in terms of the provisions of Regulation 8(13) of the 2014 Tariff Regulations.

DETERMINATION OF TARIFF FOR THE PERIOD 2019-24

60. The Petitioner has also filed the present Petition for determination of tariff of the generating station for the period 2019-24, in terms of the provisions of the 2019 Tariff Regulations. The annual fixed charges claimed by the Petitioner for the 2019-24 tariff period are as under:

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	706.06	739.47	769.57	793.17	824.48
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	3,792.35	3,830.84	3,857.11	3,880.63	3,907.87
Interest on WC	340.69	354.75	369.19	384.14	399.94
O&M Expenses	5,986.04	6,271.40	6,570.35	6,883.56	7,211.69
Total	**10825.15**	**11196.46**	**11566.22**	**11941.5**	**12343.98**

Capital Cost

61. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. However, capital cost for an existing project is governed as per clause (3) of Regulation 19 of the 2019 Tariff Regulations, which provides as under:

> *"The Capital cost of an existing project shall include the following:*
>
> *(a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;*
>
> *(b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
>
> *(c) Capital expenditure on account of renovation and modernization as admitted by this Commission in accordance with these regulations;*
>
> *(d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
>
> *(e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and*
>
> *(f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries…."*

62. The Petitioner vide Form-1i of the petition, has claimed capital cost as follows:

(Rs. in lakh)

		2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Opening Capital Cost	49803.02	50493.91	51198.28	51432.19	52042.40
B	Addition during the year / Period	742.00	941.00	301.00	725.00	448.00
C	De-capitalisation during the year/period	58.72	236.63	67.09	114.79	45.87
D	Discharges during the year	7.61	0.00	0.00	0.00	0.00
E	Closing Capital Cost (A+B-C+D)	**50493.91**	**51198.28**	**51432.19**	**52042.40**	**52444.53**

63. The Commission, in this order, for the period 2014-19, had allowed the closing capital cost of Rs. 49672.37 lakh, as on 31.3.2019. Accordingly, in terms of Regulation 19 of the 2019 Tariff Regulations, the capital cost of Rs. 49672.37 lakh,

as on 31.3.2019, has been considered as the opening capital cost as on 1.4.2019, for the purpose of determination of tariff for the period 2019-24.

Additional Capital Expenditure

64. Clause (2) of Regulation 9 of the 2019 Tariff Regulations provides that the application for determination of tariff shall be on admitted capital cost including additional capital expenditure already admitted and incurred up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the period 2019-24 along with the true up for the period 2014-19, in accordance with the 2014 Tariff Regulations.

65. Regulation 25(1) of the 2019 Tariff Regulations provides as under:

> *"25. Additional Capitalization within the original scope and after the cut-off date:*
>
> *(1) The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check:*
>
> *(a) Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*
> *(b) Change in law or compliance of any existing law;*
> *(c) Deferred works relating to ash pond or ash handling system in the original scope of work;*
> *(d) Liability for works executed prior to the cut-off date;*
> *(e) Force Majeure events;*
> *(f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and*
> *(g) Raising of ash dyke as a part of ash disposal system.*
>
> *(2) In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:*
>
> *(a) The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*
>
> *(b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*
>
> *(c) The replacement of such asset or equipment is necessary on account of obsolescence of technology; and*

(d) The replacement of such asset or equipment has otherwise been allowed by the Commission.

66. Regulation 26 of the 2019 Tariff Regulations provides as under:

26. Additional Capitalization beyond the original scope

(1) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts beyond the original scope, may be admitted by the Commission, subject to prudence check:

(a) Liabilities to meet award of arbitration or for compliance of order or directions of any statutory authority, or order or decree of any court of law;

(b) Change in law or compliance of any existing law;

(c) Force Majeure events;

(d) Need for higher security and safety of the plant as advised or directed by appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security;

(e) Deferred works relating to ash pond or ash handling system in additional to the original scope of work, on case to case basis:

Provided also that if any expenditure has been claimed under Renovation and

Modernization (R&M) or repairs and maintenance under O&M expenses, the same shall not be claimed under this Regulation;

(f) Usage of water from sewage treatment plant in thermal generating station.

(2) In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of de-capitalisation shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalized.

67. The Petitioner has claimed projected additional capital expenditure under various provisions of Regulation 25 and Regulation 26 of the 2019 Tariff Regulations, wherein, some of the admitted capital works have spilled over from the period 2014-19. Based on this, the details of additional capital expenditure claimed by the Petitioner vide affidavit dated 9.7.2021(revised) are examined as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
742.00	806.00	247.00	820.00	448.00

2019-20

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. Left over Items allowed in 2014-19					
1	Replacement of 2 nos G40 Governor with new one.	200.00	The Petitioner has submitted that Commission has allowed Rs.500 lakh (Rs 250 lakh in 2017-18 & Rs 250 Lakhs in 2018-19) vide its order dated 06.01.2015 in petition no. 232/GT/2014 for replacement of TWO G40 Governor. Gross value of Old Asset is 16.12 lakhs each. Power Station has procured Digital Governors for all three units for Rs 200.0 Lakhs and commissioned during 2019-20. Prices are as discovered in tendering process. Reason for Delay: Initial the case was initiated for purchase of two no's unit digital governor from BHEL(OEM) with a feature of RGMO and FGMO as per IEGC. On rate analysis it was found BHEL has offered abnormal higher prices for these items. Thereafter, it was decided to procure Digital Governor for all three Units through open tender. Finally, supply order placed for replacement of 3 no's G40 Governor with Digital governor instead of two numbers. Refer: SI No.1 of 2019-20 in	Since the additional capital expenditure for this asset was allowed vide its order dated 6.1.2016 in Petition 232/GT/2014, the claim of the Petitioner, is **allowed** under Regulation 25(2)(c) of 2019 Tariff Regulations. The de-capitalization of the old asset has been considered under Assumed Deletion.	200.00

			9Bi-2019-24. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
	Sub-total (A)	**200.00**			**200.00**
B. Replacement of Assets deployed under the original scope, but after the cut-off date (Regulation 25)					
1	Control and Monitoring System (SCADA)	400.00	**On replacement basis:** Rangit Power Station was commissioned in 2000 and the unit control system was implemented using hard wired relay logic control for sequential control of units. The above system has been built around microprocessor base hardware pro control P13/42. This hardware is manufactured at BHEL in collaboration with ABB Switzerland. M/s ABB stated their site as follows " The new S+ Operations - P13 Connect is a modern HMI solution designed to replace existing operator stations in Pro control P13/42 control systems. It runs on the latest Windows 64-bit technology and supports all variants from single compact systems to large distributed and redundant client/server configurations. Presently, SCADA system is not installed in Rangit Power Station. The units/ lines are being synchronised manually. The existing sequential control/ synchronizer are	Considering the fact that the expenditure claimed is on account of replacement of asset /work due to obsolescence of technology, the same is **allowed** under Regulation 25(2)(c) of the 2019 Tariff Regulations. The de-capitalization of old asset/work has been considered under assumed deletions.	400.00

			based on old and obsolete technology, for which spares are not available. Problems like frequent failure of cards and software related problems, are affecting Generation by the way of maloperation of Generating units. Also, required support is not available from OEM (BHEL). Recently FRAS and DSM for plant operation has been introduced for better Grid stability and reliabilityfor which precise control and monitoring of Operation parameters is required. To facilitate reliable operation and effective monitoring of power station, the existing Control and Monitoring is required to be replaced with latest SCADA system. All the Unit controller kept shall put to use by FY 2020-21 and commissioned. The work is proposed in 2019-20 (Rs 400 lakhs) & 2020-21 (Rs 300 lakhs) Assumed deletion is given at sl no 2 of 9B(i) 2020-21 for add cap of B1 2019-20 and B1 of 2020-21. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations		
2	Replacement of 220 V Battery Bank	32.00	**On replacement basis:** Two sets of 550 AH, 220 Volt DC Battery	Considering the fact that the expenditure claimed is on account of	32.00

			Bank was installed at Rangit Power Station during commissioning in year 2000. It is source of un-interrupted power supply to Control & Protection system, Digital Governor. Existing Battery Bank has completed its useful life of more than 20 years. Due to ageing some cells of battery dead and being old and obsolete its spares are also not available. Therefore, existing Battery Bank in 2019-20, Battery Charger and DCDB in 2020-21 is required to be replaced with new one. Assumed deletion is given *at sl no 3 of 9B(i) 2020-21 for add cap of B2 2019-20 and B2 of 2020-21*. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.	replacement of asset /work due to obsolescence of technology, the same is **allowed** under Regulation 25(2)(c) of the 2019 Tariff Regulations. The de-capitalization of old asset/work has been considered under assumed deletions.	
	Sub-Total (B)	**432.00**			**432.00**
C. Additional Capitalization beyond the original scope, but after the cut-off date (Regulation 26)					
1	Construction of new approach road to Dam site of Rangit Power Station	110.00	The major part of existing approach road to Dam is situated at the left bank of the upstream of Dam. The approach road near 300 m of upstream on left bank from Dam axis near Dam control room becomes very vulnerable to Traffic movement during monsoon. In that portion, differential settlement occurs along the road since commissioning due to	The expenditure is related to the security and safety of the generating station. The Petitioner has furnished documentary evidence in support of its claim. Accordingly, the same is **allowed** under Regulation 26(1)(d) of the 2019 Tariff Regulations.	110.00

			erosion in embankment during reservoir flushing. Various measures were taken in past to protect the road but sinking in left bank still continues. Also, during entire monsoon of 2016, 2017 & 2018; the dam site road was flooded and blocked at many locations due to landslides from the uphill of left bank. As such, due to the frequent blockade of road during the monsoon, the approach to Dam become difficult so performing round the clock duty, shifting of maintenance / construction materials for pre-planned maintenance or break down maintenance becomes very tough task. Considering the above reasons, to ensure uninterrupted movement to dam, an alternate approach road to Dam is proposed by Dam Safety Team at downstream of Dam Axis. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations		
	Sub-Total (C)	**110.00**			**110.00**
	Total (A+B+C)	**742.00**			**742.00**

68. In view of the above, the total additional capital expenditure of Rs. 742 lakh (Rs. 200 lakh + Rs.432 lakh + Rs. 110 lakh) is allowed in 2019-20.

2020-21

(Rs in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. Left Over Items allowed in 2014-19					
1	Purchase of Loader	40.00	Commission has approved Rs 42.0 lakhs in 2018-19 vide its order dated 6.1.2016 in petition no. 232/GT/2014 for purchase of Loader. Delay in purchase is on account of non-availability of participants in floated tender in 2018-19. Assumed deletion mentioned at sl no 4 of 9B(i) 2019-24 for old asset deletion value. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations	Since the additional capital expenditure for this asset is was allowed vide order dated 6.1.2016 in Petition 232/GT/2014, the claim of the Petitioner is **allowed** under Regulation 25(2)(a) of the 2019 Tariff Regulations. The Petitioner is directed to submit the relevant documents to substantiate the claim that the asset has been fully depreciated. The de-capitalization of the old asset has been considered under Assumed Deletion	40.00
	Sub-total (A)	**40.00**			**40.00**
B. Replacement of Assets deployed under the original scope after cut-off date (Regulation 25)					
1	Control and Monitoring System (SCADA)	300.00	**On replacement basis:** Rangit Power Station was commissioned in 2000 and the unit control system was implemented using hard wired relay logic control for sequential control of units. The above system has been built around microprocessor base hardware pro-control P13/42. This hardware is manufactured at BHEL in collaboration with ABB Switzerland. M/s ABB stated their site as follows "The new S+ Operations – P13 Connect is a modern HMI solution designed to	Considering the fact that the expenditure claimed is on account of replacement of asset /work due to obsolescence of technology, the claims of the Petitioner, are **allowed** under Regulation 25(2)(c) of the 2019 Tariff Regulations. The Petitioner is directed to submit the documents from the OEM to substantiate its claim	300.00

			replace existing operator stations in Pro-control P13/42 control systems. It runs on the latest Windows 64-bit technology and supports all variants from single compact systems to large distributed and redundant client/server configurations. Presently, SCADA system is not installed in Rangit Power Station. The units/ lines are being synchronised manually. The existing sequential control/ synchronizer are based on old and obsolete technology, for which spares are not available. Problems like frequent failure of cards and software related problems, are affecting Generation by the way of maloperation of Generating units. Also, required support is not available from OEM (BHEL). Recently FRAS and DSM for plant operation has been introduced for better Grid stability and reliability for which precise control and monitoring of Operation parameters is required. To facilitate reliable operation and effective monitoring of power station, the existing Control and Monitoring is required to be replaced with latest SCADA system. All the Unit controller kept shall put to use by FY 2020-21 and commissioned. Assumed deletion is given at sl no 2 of 9B(i) 2020-21 for add cap of B1 2019-20 and B1 of 2020-21.	of obsolescence, at the time of truing -up of tariff. The de-capitalization of old asset/work has been considered under 'Assumed Deletions'.	
2	Replacement of 220 V Battery	13.00	**On replacement basis:** Two sets of 550 AH, 220 Volt DC Battery Bank was		13.00

	Charger & DCDB		installed at Rangit Power Station during commissioning in year 2000. It is source of, the un-interrupted power supply to Control & Protection system, Digital Governor. Existing Battery Bank has completed its useful life of more than 20 years. Due to ageing some cells of battery dead and being old and obsolete its spares are also not available. Therefore, existing Battery Bank along with Charger and DCDB is required to be replaced with new. Assumed deletion is given at sl no 3 of 9B(i) 2020-21 for add cap of B2 2019-20 and B2 of 2020-21. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
3	Purchase of HS Lube system	8.00	**On replacement basis:** The existing system was installed during commissioning in year 2000**.** Due ageing rusting in pipe line, in circuit of HS pipe line and leakages have been observed. The pumps and motors installed in this system are non-energy efficient. such a old existing system is not a reliable. If it not works properly causes damage of runner disc and thrust bearing pads. It is proposed to replace it in two Units. Refer sl no 6 of 9B(i) 2020-21 for assumed deletion. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.	Considering the fact that these assets/ works are claimed are for replacement of the assets/works which are within the original scope of work of the project and after cut-off date, the additional capital expenditure claimed is **allowed** under Regulation 25(2)(a) of the 2019 Tariff Regulations. The original value of old asset/work has been considered under assumed deletions.	8.00
4	Purchase of 350 KVA DG set at Power House	40.00	**Replacement basis:** One no 350 KVA DG set has been installed at PH at the time of commissioning in year 2000. In normal	It has been observed from the submission of the Petitioner that the asset under the projected additional	0.00

			condition auxiliary supply is being fed through switchyard through 20 MVA 132/66 KV and then 3 MVA 66/11 KV Transformer. During grid failure or tripping of line auxiliary supply is only fed through 350 KVA DG installed (since 1992). As this DG set is in Operation since last 20 years have become very old and is not reliable. Frequent problems are encountered in this DG set. In case of failure of DG there is no alternate Power supply source other than grid supply and during failure of grid auxiliary power essential for starting of unit and feeding station load through UAT is not available. Hence for fulfilling basic requirement i.e. running of drainage and dewatering system to avoid flooding condition a new DG set is required in place of old DG. Keeping in view of criticality and avoiding flooding of Power house 1 no. additional DG set is being proposed for purchase. Refer sl no 7(ii) of 9B(i) 2020-21 for assumed deletion. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations	capital expenditure is of spare in nature. Since capitalization of spares are not allowed beyond cut-off date, the same is **not allowed**.	
5	Purchase of 350 KVA DG set at Dam	40.00	**New Asset** One no 350 KVA DG set has been installed at Dam at the time of commissioning. In normal condition auxiliary supply is being fed through switchyard through 10 MVA, 132/66 KV and then 3 MVA 66/11 KV Transformer. During grid failure or tripping of lines,	Considering the fact that these assets/ works are claimed as replacement of assets/works which are within the original scope of the existing project and after cut-off date, the additional capital expenditure are **allowed** under	40.00

			auxiliary supply is only fed through 350 KVA DG installed (since 1992). This DG set is in Operation since last 28 years has become very old and is not as much reliable as new DG set. Also, frequent problems are being encountered in these DG sets. There is no standby DG set available at Dam for gate operation which may lead to disaster if gates are not operated timely during monsoon season. Hence for operation of radial gates SFT and SFG one new DG set is required in place of old DG. Refer sl no 7(i) of 9B(i) 2020-21 for assumed deletion. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.	Regulation 25(2)(a) of the 2019 Tariff Regulations. The original value of old asset/work has been considered under assumed deletions.	
6	Construction of Bailey Bridge in replacement of existing old Bailey Bridge at Power House	230.00	**On replacement basis:** The Rangit power house is situated on the left bank of Rangit river. For connection of left and right bank of rangit river, Bailey bridge was constructed on Rangit river during construction of project in year 1995 and has completed its useful life. This is only access for movement of Man and material from National Highway to Power House. Garden Reach Shipbuilders & Engineers Ltd. (A Govt. of India Undertaking) has suggested to replace the Bailey bridge with new bridge for satisfactory performance. So, existing Bailey bridge is proposed to be replaced with new bridge for safety of vehicle and smooth running of Power House**.** Refer sl no		230.00

			7 of 9B(i) 2020-21 for assumed deletion of old bridge. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.		
7	Replacement of TATA Tipper with new one	30.00	**On replacement basis:** Garbage as well as transportation of muck/misc items/ loose fall rock soil is being disposed by using TATA tipper. The TATA tipper also required for transportation of spares from Store to Power House and other locations. One no. TATA tipper available is 22-23 years old and is vulnerable to breakdown any time. For smooth operation & carrying works it is proposed to replace old tipper with new one. Refer sl no 5 of 9B(i) 2020-21 for assumed deletion of old Tipper. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.		30.00
	Sub-Total (B)	**661.00**			**621.00**
C. Additional Capitalization beyond the original scope after the cut-off date (Regulation 26)					
1	Migration from analog to IP based high end surveillance system. Changes to Supply, Installation, Testing and Commissioning of IP based CCTV Surveillance systems at Rangit Power Station.	25.00	The existing CCTV systems are based on Analog signals and the storage capacity for the existing camera footage's is at the most for one week against the storage requirement of 90 days as per Standard Operating Procedures (SOP) of Security in NHPC (Copy enclosed). There is no centralized controlling and monitoring software for the installed systems. Areas like Switchyard, ECD Office, Township office and Central Workshop Office etc. are not covered by the existing system. These facts along with other requirements are	These expenditures are related to the security and safety of the generating station. The Petitioner has furnished documentary evidence in support of its claims. Accordingly, the same are **allowed** under Regulation 26(1)(d) of the 2019 Tariff Regulations.	25.00

			highlighted during the Security Inspection of Rangit Power Station carried out by IB, MHA. Therefore, new IP based CCTV surveillance system is proposed for Power Station. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.		
2	Emergency Flood Dewatering System	30.00	**New Asset** As per CEA guidelines i.e "Measure to be adopted to avert flooding of power house, in addition to drainage dewatering pumps, provision of suitable number of submersible pumps of adequate capacity at MIV floor with provision for automatic starting by means level switches is required. Drainage system shall be designed with capability of discharging normal seepage from power station walls, floors, leakages from “turbine shaft seals”, water from back flushing of cyclone separator(s) (if provided) etc. with an additional margin of at least 50%. So new scheme is proposed for Drainage dewatering, as per the scheme all the panels of flood dewatering system were mounted on machine floor. The pumps are dewatered water from drainage and dewatering pit located at turbine floor. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.		30.00
3	Construction of new approach road to Dam site of Rangit Power Station	50.00	**New Asset:** The major part of existing approach road to Dam is situated at the left bank of the upstream of Dam. The approach road near 300 m of upstream on left bank		50.00

			from Dam axis near Dam control room becomes very vulnerable to Traffic movement during monsoon. In that portion, differential settlement occurs along the road since commissioning due to erosion in embankment during reservoir flushing. Various measures were taken in past to protect the road but sinking in left bank still continues. Also, during entire monsoon of 2016, 2017 & 2018; the dam site road was flooded and blocked at many locations due to landslides from the uphill of left bank. As such, due to the frequent blockade of road during the monsoon, the approach to Dam become difficult so performing round the clock duty, shifting of maintenance / construction materials for pre-planned maintenance or break down maintenance becomes very tough task. Considering the above reasons, to ensure uninterrupted movement to dam, an alternate approach road to Dam is proposed by Dam Safety Team at downstream of Dam Axis. The work is to be done in 2019-20 (Rs 110 lakh) & 2020-21 (Rs 50 lakhs). Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.		
	Sub-Total (C)	**105.00**			**105.00**
	Total (A+B+C)	**806.00**			**766.00**

69. In view of the above, the total additional capital expenditure of Rs. 766.00 lakh (Rs. 40.00 lakh + 621.00 lakh + Rs. 105.00 lakh) is allowed in 2020-21.

2021-22

(Rs in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. Replacement of Assets deployed under the original scope after cut-off date (Regulation 25)					
1	Replacement of excitation system for 3 nos . Units	100.00	**On replacement basis**: The existing excitation system was installed in year 2000 during commissioning. The excitation system is very old model and its spares are not easily available. The latest excitation system is required to meet stringent grid requirements and also to avoid the generation loss due to faults in the excitation system. It is proposed to replace excitation systems of all units in 2021-22 & 2022-23 respectively. *Refer sl no 14of 9B(i) 2022-23 for assumed deletion of old asset*. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.	Considering the submissions of the Petitioner and keeping in view that these expenditures are on account of replacement of asset /work due to obsolescence of technology, the claims of the Petitioner are **allowed** under Regulation 25(2)(c) of the 2019 Tariff Regulations. The de-capitalization of old asset/work has been considered under assumed deletion.	100.00
2	Control & Monitoring System (SCADA-Communication -Laying of OFC Cable between Power House -Admin building -Dam and Admin secured wireless communication) Changes to Control & Monitoring System (SCADA-Augmentation/upgradation of Networking System at Rangit Power Station for	45.00	**On replacement basis:** 12 core OFC cable was laid at the time commissioning in year 2000. These are un armoured cables. Due to aging and unarmoured, OFC cable has been repaired by jointing. Due to increase of number of joints, data losses is more. Proper communication through this OFC cable is not happening. SCADA is to be implemented at Power Station shortly. The existing LAN infrastructure requires upgradation/enhancement as the Present installed LAN system is not suitable for implementation of OT systems like SCADA. which require a stable, robust and secure system. The Existing LAN at Rangit Power Station has been organised in a haphazard way comprising of a mix of Wired		45.00

	seamless support of SCADA systems		and wireless Networks and the structured cabling system has been distorted at many locations due to which proper network Scalability has not been observed. For proper implementation of SCADA Systems, integration of different components like Local Area Network (LAN) and Wide Area Network (WAN) along with other network components and various OT systems are required. Therefore, Upgradation/Augmentation of existing Local Area Network for seamless support of the coming SCADA system is necessary and required. The above requirement are fresh ones which are to be integrated with the existing systems. *Refer sl no 8 of 9B(i) 2021-22* for assumed deletion of old asset. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
3	Replacement of CO2 fire-fighting system and accessories	30.00	**On replacement basis**: Power station has completed almost 20 years in an operation. CO2 Fire protection system to protect the Generating unit from fire. The existing System consist of Initial and delayed CO2 Bank. Each Initial and delayed bank having 10 and 12 cylinders respectively. OEM of existing system is Technico (India) Pvt Ltd, and the firm had received ordered for execution of above system in the year 1992 through M/s BHEL. The power station was also experienced the completely submergence. All the above factors effecting the proper operation of the CO2 system. 1. In Most of the CO2 cylinders of existing system, due to leakage (CO2 cylinder valves damaged during transportation		30.00

			for refilling), were not maintaining the required pressure. 2. For automatic operation of the system, solenoid valve and pneumatic valves have been installed on the said system, most of these valves are observed not operating properly. spares supplied by Original Equipment manufacturer exhausted and OEM has shown in ability for supply of the same due to absolute of technology. 3. The system operating so many years, proper operation of CO2 flooding system and to avoid the leakage in piping in the way to generator barrel (CO2 is most dangerous gas and will) from CO2 room, strengthening of corrosive pipelines and discharge Nozzles also be needed for replacement. Therefore, for better ,safe and reliable operation, existing CO2 fire protection system to be replaced with latest available technology and also no response found for supply of compatible spares from competitive bidders. Refer sl no 9. of 9Bi)2021-22 for deletion of old asset. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
4	Replacement of Bypass valve.	12.00	**On replacement basis:** The existing Bypass valves are old and installed at the time commissioning. These are operating in high pressure path. The same gets damaged with prolong use and operation in silt content water. The bypass valve is operated before start of machines so as to balance the upstream & downstream pressure in order to open the MIV. Leakage through this valve will disbalance the pressure		12.00

			difference leading to non-operation of MIV. Further due to leakage, repair works of underwater parts are not possible as the entire draft tube is to be emptied before taking up any under water works or even inspection of underwater parts. Refer sl no 10. of 9Bi)2021-22 for assumed deletion of old asset. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
	Sub-Total (A)	**187.00**			**187.00**
B Additional Capitalization beyond the original scope after the cut-off date (Regulation 26)					
1	Construction of Ladies Toilets	5.00	**New Assets** In Factory act 1948 chapter-V following is mentioned (copy enclosed): **42. Washing facilities.** *(1) In every factory-- (a) adequate and suitable facilities for washing shall be provided and maintained for the use of the workers therein. (b) separate and adequately screened facilities shall be provided for the use of male and female workers such facilities shall be conveniently accessible and shall be kept clean.* Initially during commissioning of project, according to the posting of NHPC employees / contract staff, only men's toilet was required in Power House. Whereas, in later stage, many female staff on contract basis are engaged. Hence, a separate lady's toilet is required in addition to the existing at old building (Power House). Presently, 11 nos. female staff from R&M housekeeping are working. Therefore, as per above guidelines, a separate lady's toilet is required to be provided at power house. Claimed under Regulation 26(1)(b) of 2019 Tariff Regulations.	As the expenditures claimed are in the nature of O&M expenses, the claims are **not allowed.**	0.00

2	Head Loss Measurement system	15.00	At Rangit Dam there are two intakes gates. Trash racks are installed in front of intake. During monsoon season these gates are blocked due to heavy trash due to which net head reduces drastically. Due to head losses, the generating units are not able to run at their rated capacity. There is a 11.7 to 15.1 meters head loss is measured by CPRI form part load to full load. The head loss can be reduced by cleaning of trash rack by trash rack cleaning machine or back flashing. Trash rack cleaning is only possible by proper monitoring of head loss with Head loss measurement system. So, it is proposed, to install Head Loss Measuring system. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.		0.00
3	Sewerage treat plant for colony (Project inspection, designing and consultancy services for STP)	40.00	Ministry of Power directed to establish a system to ensure for treatment of effluents/ waste water of septic tank before discharging. The present disposal systems of sewage (domestic fluent) generated from Rangit Nagar Colony which includes residential quarters, office buildings, School, Hospital, Field Hostel etc. are not proper. The present disposal system of sewage (domestic effluent) generated from septic tank of Power House and Rangit Nagar colony area of Rangit Power station is grounded through cesspool/soak pit. Whereas grounding of untreated domestic effluent is highly unhygienic and it is contaminating ground water and creating water borne diseases. All the domestic effluents from the outlet of the septic tank	It is noticed that the Petitioner has claimed expenditures under this head during the years 2021-22 and 2022-23. The claim for Power house location has been allowed in 2022-23 (Sl no.3 under the head of additional capital expenditure beyond the cut-off date) in this order below. However, the claim for other location such as school, hospital, etc. has not been **allowed.** Since the claim is for colony area and the same is in the nature of O&M expenses and not related to the operation of the	0.00

			shall be channelized and collected in sewage treatment plant for purification. After treatment of domestic effluents, it shall be grounded. The work for Rangit Nagar Colony shall be taken up during this financial year 2021-22 and it shall be completed and capitalised in the financial year 2022-23. for Power House/ Dam shall be taken up during the financial year 2022-23 and it shall be completed**.** Claimed under Regulation 26(1)(b) of 2019 Tariff Regulations.	plant, the same is **not allowed.**	
	Sub-Total (B)	**60.00**			**0.00**
	Total (A+B)	**247.00**			**187.00**

70. In view of the above, the total additional capital expenditure of Rs. 187.00 lakh (Rs. 187.00 lakh + Rs.0.00 lakh) is allowed in 2021-22.

<u>2022-23</u>

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A.	**Replacement of Assets deployed under the original scope, but after the cut-off date (Regulation 25)**				
1	Replacement of excitation system for 3 nos. Units	200.00	The existing excitation system was installed in year 2000 during commissioning. The excitation system is very old model and its spares are not easily available. The latest excitation system is required to meet stringent grid requirements and also to avoid the generation loss due to faults in the excitation system. It is proposed to replace excitation systems of all units in 2021-22 & 2022-23 respectively. Refer sl no 14of 9B(i) 2022-23 for assumed deletion of old asset. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.	Considering the submissions of the Petitioner and keeping in view that the expenditures are on account of replacement of asset /work due to obsolescence of technology, the claim of the Petitioner are **allowed** under Regulation 25(2)(c) of the 2019 Tariff Regulations. The de-capitalization of old asset/work	200.00
2	Replacement of 11 KV SSB panels at	50.00	**On replacement basis:** The existing 11 KV SSB panels were installed at the		50.00

	switch yard and power house with spare VCB breakers and better IP class panels and accessories at Power house		time of commissioning in year 2000. The Circuit breakers and relays has now become obsolete. Due to ageing the auto operation of the same is not possible. Its panels are not vermin proof, dust proof and shall not meet the requirements of protection class of latest edition of IEC/IS. Frequent tripping due to shorting of phases of bus bars / breakers and earthing of phases bus bars / breakers by snakes has been observed. Maintenance of these Vacuum circuit breakers (VCB) is also difficult. The measuring CT's, PT's and instruments installed in the panels are of less accuracy class and are not working properly. Therefore, old breakers (VCB) and panels are required to be replaced with SF6 breakers and better IP class panels. Total no of breakers at switch yard 4 no. (1 incomer & 3 out comers) and PH 3 nos. *Refer sl no 15 of 9B(i) 2022-23 or deletion valve of old asset.* Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.	has been considered under assumed deletion.	
3	Replacement of 415V SSB panel, UAB and accessories at Power house and 415 V LT switcg gear at dam	85.00	**On replacement basis:** The existing 415 V SSB & UAB panels were installed at the time of commissioning in year 2000. The circuit breakers and relays have now become obsolete. Frequent tripping due to shorting of phases of bus bars / breakers and earthing of phases bus bars / breakers by snakes has been observed. In view of above a new 415 V panels is proposed with extra bay for DG on Bus -I and creating special provision for special arrangement for Drainage system panels at Machine floor to be installed		85.00

			with new features and safety. Refer sl no 16 of 9B(i) of 2022-23 for assumed deletion valve of old asset. Claimed under Regulation 25(2)(c) of 2019 Tariff Regulations.		
4	Construction of Permanent School Building at Rangit Power Station.	150.00	**On replacement basis:** DAV school (Jr. & Sr. Section) was running in temporary building from time of completion of project at Rangit Nagar. Condition of both building of junior & senior section are not good. Few blocks of residential quarters are totally damaged and abandoned and it becomes beyond repairable. Hence, permanent quarters at Rangit Nagar Colony are required as replacement to temporary quarters. So, a permanent school building is proposed to be constructed in replacement of Temporary building for providing better atmosphere & facilities for students in future at Rangit Power Station. Tentative budget of Rs. 250 lakh (Rs 150 lakhs in 2022-23 & Rs 100 Lakhs in 2023-24) to be required for construction of new permanent building in 2022-23 & 2023-24. Refer Sl. no 18 of 9B(i) of 2023-24 for deletion of old asset. Claimed under Regulation 25(2) of 2019 Tariff Regulations.	Considering the fact that these assets/ works are claimed as replacement of assets/works which are within the original scope of the existing project and after cut-off date, the additional capital expenditure are **allowed** under Regulation 25(2)(a) of the 2019 Tariff Regulations. The original value of old asset/work has been considered under assumed deletions.	150.00
5	Replacement of temporary quarter with permanent quarter at Rangit Nagar Colony.	100.00	**On replacement basis:** During the construction of project for accommodating the employees, temporary quarters were constructed. The establishment of Rangit Nagar colony including school building is around 30 years old and very heavily damaged due to frequent earthquakes and heavy rains. Due to earthquake, the walls of the quarters got cracked. The condition of quarters is not good. Few blocks of residential quarters are totally damaged and		100.00

			abandoned and it becomes beyond repairable. Hence, permanent quarters at Rangit Nagar Colony are required as replacement to temporary quarters. At present executive level and supervisor level staff families are staying in some of these quarters. Some of these quarters are not suitable for living. In view of above, it has been decided to construct the Permanent quarters with better facilities. Tentative budget of Rs. 300 lakh (Rs 150 lakhs in 2022-23 & Rs 200 Lakhs in 2023-24) Refer sl no 19 of 9B(i) of 2023-24 for assumed deletion of old asset. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.		
	Sub-Total (A)	**585.00**			**585.00**
B.	**Additional Capitalization beyond the original scope after the cut-off date (Regulation 26)**				
1	Construction of Barrack for Security Personal.	100.00	IRB deputed on sensitive place of project area for security purpose at Rangit Power Station. At present, security Personnel of IRB is staying at CGI Sheet shed. The establishment of Rangit Nagar colony including temporary accommodation for IRB is around 30 years old and very heavily damaged due to frequent earthquakes and heavy rain. Repair and renovation were done many times but now it becomes beyond repairable. It is not secure and hygiene for security Personnel. IRB officer demanded from long time a permanent barrack for security Personnel. Tentative budget of Rs. 200 lakh (Rs 100 lakhs in 2022-23 & Rs 100 Lakhs in 2023-24) to be required for construction of new Barack for Security staff in different 2022-23 & 2023 -24. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.	The expenditure is related to the security and safety of the generating station. The Petitioner has furnished documentary evidence in support of its claim. Accordingly, the same is **allowed** under Regulation 26(1)(d) of the 2019 Tariff Regulations.	100.00

2	Sewerage treatment plant for colony (Project inspection, designing and consultancy services for STP)	95.00	Ministry of Power directed to establish a system to ensure for treatment of effluents/ waste water of septic tank before discharging. The present disposal systems of sewage (domestic fluent) generated from Rangit Nagar Colony which includes residential quarters, office buildings, School, Hospital, Field Hostel etc. are not disposed properly. The present disposal system of sewage (domestic effluent) generated from septic tank of Power House and Rangit Nagar colony area of Rangit Power station is grounded through cesspool/soakpit. Whereas grounding of untreated domestic effluent is highly unhygienic and it is contaminating ground water and creating water borne diseases. All the domestic effluents from the outlet of the septic tank shall be channelized and collected in sewage treatment plant for purification. After treatment of domestic effluents it shall be grounded. The work for Rangit Nagar Colony shall be taken up during 2021-22 and completed in 2022-23. Claimed under Regulation 26(1)(b) of 2019 Tariff Regulations.	From the Submission of the Petitioner, it has been observed that the proposed works are not related to operation of the plant and therefore, do not qualify under change in law. Accordingly, the claim is **not allowed**.	0.00
3	Sewerage treat plant for Power House (Project inspection, designing and consultancy services for STP)	40.00	Ministry of Power directed to establish a system to ensure for treatment of effluents/ waste water of septic tank before discharging. The present disposal systems of sewage (domestic fluent) generated from Rangit Nagar Colony which includes residential quarters, office buildings, School, Hospital, Field Hostel etc. are not proper. The present disposal system of sewage (domestic effluent) generated from septic tank of	The submission of the Petitioner has been considered. As discussed at Sl. No. 7 of the FY 2021-22, the same is **allowed.**	40.00

			Power House and Rangit Nagar colony area of Rangit Power station is grounded through cesspool/soak pit. Whereas grounding of untreated domestic effluent is highly unhygienic and it is contaminating ground water and creating water borne diseases. All the domestic effluents from the outlet of the septic tank shall be channelized and collected in sewage treatment plant for purification. After treatment of domestic effluents it shall be grounded. The work for Rangit Nagar Colony shall be taken up during this financial year 2020-21 and it shall be completed and capitalised in the financial year 2022-23. for Power House/ Dam shall be taken up during the financial year 2022-23 and it shall be completed. Claimed under Regulation 26(1)(b) of 2019 Tariff Regulations.		
	Sub-Total (B)	**235.00**			**140.00**
	Total (A+B)	**820.00**			**725.00**

71. In view of the above, the total additional capital expenditure of Rs. 725.00 lakh (Rs. 585.00 lakh + Rs. 140.00 lakh) is allowed in 2022-23.

2023-24

(Rs. in lakh)

S. No	Details of the claim	Amount claimed	Justification submitted by the Petitioner	Remarks on admissibility	Amount Allowed
A. Replacement of Assets deployed under the original scope, but after the cut-off date (Regulation 25)					
1	Replacement of Guide vane Lever (3 sets)	48.00	**Replacement Basis:** Levers were installed in all three units at the time of commissioning in year 2000 by OEM. Permissible clearances allowed in such a way that to rotate (approx. 02mm), however, it has been observed that play increased due to prolonged	Considering the fact that these assets/ works are claimed as replacement of assets/works which are within the original scope of the existing project and after cut-off	48.00

			use and required to be replaced with new one in all units. Therefore, new guide vane lever is proposed to be purchased against old asset. *Refer Sl. no 20 of 9B(i) of 2023-24 for assumed deletion of old asset.* Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.	date, the additional capital expenditure are **allowed** under Regulation 25(2)(a) of the 2019 Tariff Regulations. The original value of old asset/work has been considered under assumed deletions.	
2	Construction of Permanent School Building at Rangit Power Station.	100.00	**Replacement Basis:** DAV school (Jr. & Sr. Section) was running in temporary building from time of completion of project at Rangit Nagar. Condition of both building of junior & senior section are not good. Few blocks of residential quarters are totally damaged and abandoned and it becomes beyond repairable. Hence, permanent quarters at Rangit Nagar Colony are required as replacement to temporary quarters. So, a permanent school building is proposed to be constructed in replacement of Temporary building for providing better atmosphere & facilities for students in future at Rangit Power Station. Tentative budget of Rs. 250 lakhs to be required for construction of new permanent building in 2022-23 & 2023-24. *Refer sl no 18 of 9B(i) of 2019-24 for deletion of old asset.* Claimed under Regulation 25(2) of 2019 Tariff Regulations.		100.00
3	Replacement of temporary quarter with permanent quarter at Rangit Nagar Colony.	200.00	**On replacement basis:** During the construction of project for accommodating the employees, temporary quarters were constructed. The establishment of Rangit Nagar colony including school building is		200.00

			around 30 years old and very heavily damaged due to frequent earthquakes and heavy rains. Due to earthquake, the walls of the quarters got cracked. The condition of quarters is not good. Few blocks of residential quarters are totally damaged and abandoned and it becomes beyond repairable. Hence, permanent quarters at Rangit Nagar Colony are required as replacement to temporary quarters. At present executive level and supervisor level staff families are staying in some of these quarters. Some of these quarters are not suitable for living. In view of above, it has been decided to construct the Permanent quarters with better facilities. Tentative budget of Rs. 300 lakh (Rs 150 lakhs in 2022-23 & Rs 200 Lakhs in 2023-24) *Refer sl no 19 of 9B(i) of 2023-24 for assumed deletion of old asset*. Claimed under Regulation 25(2)(a) of 2019 Tariff Regulations.		
	Sub-Total (A)	**348.00**			**348.00**
B. Additional Capitalization beyond the original scope after the cut-off date (Regulation 26)					
1	Construction of Barrack for Security Personal.	100.00	IRB deputed on sensitive place of project area for security purpose at Rangit Power Station. At present, security Personnel of IRB is staying at CGI Sheet shed. The establishment of Rangit Nagar colony including temporary accommodation for IRB is around 30 years old and very heavily damaged due to frequent earthquakes and heavy rain. Repair and renovation were done many times but now it becomes	The expenditure is related to the security and safety of the generating station. The Petitioner has furnished documentary evidence in support of its claim. Accordingly, the same is **allowed** under Regulation 26(1)(d) of the 2019 Tariff Regulations.	100.00

			beyond repairable. It is not secure and hygiene for security Personnel. IRB officer demanded from long time a permanent barrack for security Personnel. Tentative budget of Rs. 200 lakhs (Rs 100 lakhs in 2022-23 & Rs 100 Lakhs in 2023-24) to be required for construction of new Barack for Security staff in different 2022-23 & 2023 -24. Claimed under Regulation 26(1)(d) of 2019 Tariff Regulations.		
	Sub-Total (B)	**100.00**			**100.00**
	Total (A+B)	**448.00**			**448.00**

72. In view of the above, the total additional capital expenditure of Rs. 448.00 lakh (Rs. 348.00 lakh + Rs. 100.00 lakh) is allowed in 2023-24.

De-capitalization

73. The Petitioner has claimed the projected de-capitalization, as per Form 9Bi, as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
(-)58.72	(-)247.03	(-)52.23	(-)99.97	(-)35.47

74. It is observed, that the Petitioner has claimed projected decapitalization under 'Assumed Deletions'. Accordingly, the same has been dealt in the subsequent para.

Assumed Deletions

75. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is to be allowed for the purpose of tariff, provided that the capitalization of the said asset is followed by the de-capitalization of the original value of the old asset. However, in certain cases, where decapitalization is affected in books during the following years, to the year of capitalization of new

asset, the de-capitalization of the old asset for the purpose of tariff is shifted to the very same year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed deletion". Further, in absence of the gross value of the asset being de-capitalized, the same is calculated by de-escalating the gross value of new asset @ 5% per annum till the year of capitalization of the old asset.

76. Accordingly, based on above methodology, the decapitalization value of old asset has been worked out as under:

(Rs. in lakh)

S No	Asset	Amount Allowed	Year of De Capitalization	Assumed Deletion
1	(410701) / Replacement of 2 nos. G40 Governor with new one.	200	2019-20	75.38
2	Control and Monitoring System (SCADA)	400.00	2019-20	150.76
3	Replacement of 220 V Battery Bank	32.00	2019-20	12.06
	Total			**238.19**
1	Purchase of Loader	40.00	2020-21	14.36
2	Control and Monitoring System (SCADA)	300.00	2020-21	107.68
3	Replacement of 220 V Battery Charger & DCDB	13.00	2020-21	4.67
4	Purchase of HS Lube system	8.00	2020-21	2.87
5	Purchase of 350 KVA DG set at Dam	40.00	2020-21	14.36
6	Construction of Bailey Bridge in replacement of existing old Bailey Bridge at Power House	230.00	2020-21	82.56
7	Replacement of TATA Tipper with new one	30.00	2020-21	10.77
	Total			**237.26**
1	(410711) / Replacement of excitation system for 3 nos. units	100.00	2021-22	34.18
2	(410711) Control & Monitoring System (SCADA- Augmentation/upgradation of Networking System at Rangit Power Station for seamless support of SCADA systems	45.00	2021-22	15.38
3	(410701) / Replacement of CO2 fire-fighting system and accessories	30.00	2021-22	10.26
4	(410701) / Replacement of Bypass valve.	12.00	2021-22	4.10
	Total			**63.93**
1	Replacement of excitation system for 3 nos. Units	200.00	2022-23	65.11

2	Replacement of 11 KV SSB panels at switch yard and power house with spare VCB breakers and better IP class panels and accessories at Power house	50.00	2022-23	16.28
3	Replacement of 415V SSB panel, UAB and accessories at Power house and 415 V LT switch gear at dam	85.00	2022-23	27.67
4	Construction of Permanent School Building at Rangit Power Station.	150.00	2022-23	48.84
5	Replacement of temporary quarter with permanent quarter at Rangit Nagar Colony.	100.00	2022-23	32.56
	Total			**190.46**
1	Replacement of Guide vane Lever (3 sets)	48	2023-24	14.88
2	Construction of Permanent School Building at Rangit Power Station.	100.00	2023-24	31.01
3	Replacement of temporary quarter with permanent quarter at Rangit Nagar Colony.	200.00	2023-24	62.01
	Total			**107.90**

Discharge of liabilities

77. The un-discharged liabilities as on 31.3.2019 is 'Nil'. However, the Petitioner has claimed discharge of liabilities of Rs.7.61 lakh in 2019-20, against un-discharged liability, which was pertaining to 'Electrical Incinerator Capacity' during 2018-19. Since, the same has been disallowed during 2018-19, the discharge of liabilities amounting to Rs.7.61 Lakhs has also been disallowed. Accordingly, discharge of liabilities during the period 2019-24, has been considered as 'Nil.

Additional capital expenditure allowed for the period 2019-24

78. In view of above, the net additional capital expenditure allowed is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Additional capital expenditure allowed (a)	742.00	766.00	187.00	725.00	448.00
Less: De-capitalisation considered (b)	238.19	237.26	63.93	190.46	107.90
Discharge of liabilities (c)	0.00	0.00	0.00	0.00	0.00
Net additional capital expenditure allowed (c)=(a)-(b)+(c)	**503.81**	**528.74**	**123.07**	**534.54**	**340.10**

Capital cost allowed for the period 2019-24

79. Accordingly, the capital cost allowed for the generating station is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	49672.37	50176.18	50704.91	50827.99	51362.53
Net Additional capital expenditure allowed during the year/ period	503.81	528.74	123.07	534.54	340.10
Closing Capital Cost	**50176.18**	**50704.91**	**50827.99**	**51362.53**	**51702.63**

Debt-Equity Ratio

80. Regulation 18 of the 2019 Tariff Regulations provides as under:

"18. Debt-Equity Ratio: (1) For new projects, the debt-equity ratio of 70:30 as on date of commercial operation shall be considered. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:
i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:
iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

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

(2) The generating company or the transmission licensee, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt:equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication, system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30%shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2019, the Commission shall approve the debt: equity ratio in accordance with clause (1) of this Regulation.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation."

81. In terms of the above regulations, the debt equity ratio is considered as 70:30, for the purpose of additional capitalization. De-capitalization of assets has been deducted from the corresponding loan as well as equity, taking into consideration the debt equity ratio, applied in the year in which it was capitalized. Accordingly, the details of debt-equity ratio in respect of the generating station as on 1.4.2019 and as on 31.3.2024 are as under:

(Rs. in lakh)

	Capital cost as on 1.4.2019		**Additional Capital Expenditure**		**Decapitalization**		**Capital cost as on 31.3.2024**	
	Amount	**(%)**	**Amount**	**(%)**	**Amount**	**%**	**Amount**	**(%)**
Debt (A)	30844.25	62.10%	2007.60	70.00%	520.63	62.15%	32331.22	62.53%
Equity (B)	18828.12	37.90%	860.40	30.00%	317.11	37.85%	19371.41	37.47%
Total (C)=(A)+(B)	**49672.37**		**2868.00**		**837.74**		**51702.63**	

Return on Equity

82. Regulations 30 and 31 of the 2019 tariff Regulations provide as under:

"30. Return on Equity

(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.

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

Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system;

Provided further that:

i. In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;
ii. in case of existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;
iii. in case of a thermal generating station, with effect from 1.4.2020:
a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute;
b) an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%:

Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.

31. Tax on Return on Equity:

(1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:
Rate of pre-tax return on equity = Base rate / (1-t)
Where "t" is the effective tax rate in accordance with clause (1) of this Regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess.
Illustration-
(i) In case of a generating company or a transmission licensee paying Minimum Alternate Tax (MAT) @ 21.55% including surcharge and cess: Rate of return on equity = 15.50/(1-0.2155) = 19.758%
(ii) In case of a generating company or a transmission licensee paying normal corporate tax including surcharge and cess:
(a) Estimated Gross Income from generation or transmission business for 2019-20 is Rs. 1,000 Crore;
(b) Estimated Advance Tax for the year on above is Rs. 240 Crore;

(c) Effective Tax Rate for the year 2019-20 = Rs. 240 Crore/Rs. 1000 Crore = 24%;

(d) Rate of return on equity = 15.50/ (1-0.24) = 20.395%.
(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee, as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term customers, as the case may be, on year to year basis."

83. The Return on Equity (ROE) for the existing asset base and the additional capital expenditure allowed in this order for asset/works within the original scope of work, has been calculated by grossing up the base RoE at MAT rate of 17.472% as submitted by the Petitioner. Further, based on the additional capital expenditure which are beyond the original scope and allowed in this order, ROE has been calculated considering the weighted average rate of interest claimed by the Petitioner. Accordingly, ROE has been worked out and allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Opening Equity (A)	18828.12	18927.21	19035.35	19068.39	19183.51
Total addition due to Capitalization (B)	99.09	108.14	33.04	115.13	63.40
Closing Equity (C)=(A)+(B)	18927.21	19035.35	19068.39	19183.51	19246.91
Average Equity (D)=(A+C)/2	18877.67	18981.28	19051.87	19125.95	19215.21
Base rate (%) (E)	16.500%	16.500%	16.500%	16.500%	16.500%
Effective Tax rate (%) (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Effective ROE rate (%) (G)	19.993%	19.993%	19.993%	19.993%	19.993%
Return on Equity within the original scope of work (H)=(D)*(G)	**3774.21**	**3794.93**	**3809.04**	**3823.85**	**3841.70**
Addition due to additional capitalization beyond original scope of work					
Opening Equity (I)	0.00	33.00	64.50	64.50	94.50
Addition due to Capitalization beyond scope of work (J)	33.00	31.50	0.00	30.00	30.00
Closing Equity (K)=(I)+(J)	33.00	64.50	64.50	94.50	124.50
Average Equity (L)=(I+K)/2	16.50	48.75	64.50	79.50	109.50
Rate of return for additional capitalization beyond original scope (i.e. weighted average rate of interest approved by the Commission) (%) (M)	7.9200%	7.9200%	7.9200%	7.9200%	7.9200%
Rate of Return (Grossed up) (N)	9.597%	9.597%	9.597%	9.597%	9.597%

	2019-20	2020-21	2021-22	2022-23	2023-24
Return on equity for additional capitalization beyond original scope (O)=(L)*(N)	1.58	4.68	6.19	7.63	10.51
Total Return on Equity (P)=(O)+(H)	**3775.80**	**3799.61**	**3815.23**	**3831.48**	**3852.21**

Interest on Loan

84. Regulation 32 of the 2019 Tariff Regulations provides as under:

"32. Interest on loan capital:

(1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalisation of such asset.

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

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

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

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

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

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

85. The actual loan of the project has already been repaid. The normative loan on account of admitted additional capital expenditure during the respective year of the entire period have also been considered as paid fully, as the admitted depreciation is more than the amount of normative loan in these years. Accordingly, Interest on Loan for the generating station during the period 2019-24 is 'Nil'.

Depreciation

86. Regulation 33 of the 2019 Tariff Regulations provides as under:

"33. Depreciation:

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

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

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

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

Provided that the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable;

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

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

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

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

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

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

(6) In case of the existing projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2019 from the gross depreciable value of the assets.

(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure five years before the completion of

useful life of the project along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure.

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

87. Accordingly, the cumulative depreciation amounting to Rs.30098.56 lakh as on 31.3.2019, has been considered for the purpose of tariff. COD of the generating station is 15.2.2000. The project has completed 12 years of commercial operation and the remaining depreciable value has been spread over the balance useful life of the generating station from 2012-13 onwards.

88. In terms of the 2014 Tariff Regulations, the useful life of a hydro generating station was 35 years. However, the 2019 Tariff Regulations stipulates that the useful life of a hydro generating station is 40 years. Accordingly, the balance useful life of the generating station as on 1.4.2019 has been considered as 20.87 years in line with the 2019 Tariff Regulations. Accordingly, depreciation has been computed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Opening Gross block (A)	49672.37	50176.18	50704.91	50827.99	51362.53
Net Additional capital expenditure during 2019-24 (B)	503.81	528.74	123.07	534.54	340.10
Closing gross block (C=A+B)	50176.18	50704.91	50827.99	51362.53	51702.63
Average gross block (D)=(A+C)/2	49924.27	50440.55	50766.45	51095.26	51532.58
Land Value	294.80	294.80	294.80	294.80	294.80
Depreciable Value (E=(D-Land Value) *90%)	44666.53	45131.17	45424.49	45720.41	46114.00
Remaining Depreciable Value at the beginning of the year (F=E-Cum Dep at 'K' at the end of previous year)	14567.96	14479.57	14189.80	13773.62	13516.83
Balance useful Life (G)	20.87	19.87	18.87	17.87	16.87
Depreciation (H=F/G)	**697.96**	**728.63**	**751.89**	**770.67**	**801.13**
Cumulative Depreciation at the end of the year (J=I+ Cum Dep	30796.52	31380.23	31986.57	32717.46	33398.30

	2019-20	2020-21	2021-22	2022-23	2023-24
at 'K' at the end of previous year)					
Adjustment on account of decapitalization (L)	144.92	145.55	39.78	120.29	69.02
Cumulative Depreciation at the end of the year (J=K-L)	**30,651.60**	**31,234.68**	**31,946.79**	**32,597.17**	**33,329.28**

Operation & Maintenance Expenses

89. The Petitioner has claimed the following additional O&M Expenses:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative O&M expenses as per Regulation 35(3)(a) (A)	5336.17	5590.53	5857.00	6136.18	6428.66
Additional O&M expenses due to 7th Pay Commission wage revision- 3rd PRC applicable to CPSUs (B)	568.34	595.45	623.86	653.61	684.79
Additional O&M expenses due to 7th Pay Commission wage Revision of Kendriya Vidyalaya (KV) Staff (C)	28.37	29.72	31.14	32.63	34.18
Impact of Goods & Service Tax (D)	53.16	55.70	58.35	61.14	64.05
Total O&M Expenses claimed (A+B+C+D+E)	**5986.04**	**6271.40**	**6570.35**	**6883.56**	**7211.69**
Security Expenses (E)	331.78	347.61	364.19	381.56	399.76

90. Regulation 35(2)(a) of the 2019 Tariff Regulations provides as under:

(2) Hydro Generating Station: (a) Following operations and maintenance expense norms shall be applicable for hydro generating stations which have been operational for three or more years as on 1.4.2019:

	2019-20	***2022-21***	***2021-22***	***2022-23***	***2023-24***
Rangit	*5336.17*	*5590.53*	*5857.00*	*6136.18*	*6428.66*

Note: The impact in respect of revision of minimum wage, pay revision and GST, if any, will be considered at the time of determination of tariff.

xxxxxx"

91. The generating station is in operation for more than 3 years, as on 1.4.2019. As the Normative O&M expenses claimed by the Petitioner are in terms of Regulation 35(2)(a) of the 2019 Tariff Regulations, the same is allowed.

Additional O&M Expenses

Impact of wage revision

92. The Petitioner has claimed additional O&M expenses on account of the impact

of wage/ pay revision and GST as under:

(Rs. in lakh)

Period	2019-20	2020-21	2021-22	2022-23	2023-24
Additional O&M expenses due to 7th Pay Commission wage revision- 3rd PRC applicable to CPSUs (a)	568.34	595.45	623.86	653.61	684.79
Additional O&M expenses due to 7th Pay Commission wage Revision of Kendriya Vidyalaya (KV) Staff (b)	28.37	29.72	31.14	32.63	34.18
Impact of Goods & Service Tax (c)	53.16	55.70	58.35	61.14	64.05
Security Expenses (d)	331.78	347.61	364.19	381.56	399.76
Total O&M Expenses claimed (a+b+c+d)	**981.65**	**1028.48**	**1077.54**	**1128.94**	**1182.78**

Impact of wage revision due to 3rd PRC applicable to CPSUs

Based on the impact of pay revision of Petitioner's staff and KV staff in 2018- 19, the Petitioner has claimed expenses for Rs.568.34 lakh and Rs. 28.37 lakh in 2019-20, as additional O&M expenses, due to impact of pay revision of Petitioner's Staff and KV staff, respectively. It is pertinent to mention that the Commission in its order dated 10.11.2022 in Petition No. 232/MP/2019, had observed that there is no under recovery due to Impact of pay revision of Petitioner's staff and KV staff in 2018-19 for this generating station. Accordingly, the claim of the Petitioner on account of impact due to pay revision of Petitioner's staff and KV staff is not allowed. However, the Petitioner is granted liberty to approach the Commission for the same at the time of truing up of tariff along with relevant documents including auditor certified statement.

Goods & Service Tax

94. The Respondent BRPL has submitted that, the Petitioner is seeking the grant of GST without further examination whether the amount provided in the norm-based tariff is adequate or not and thus, any proposal which has a bearing on the norms can be accepted, only if the Petitioner, proves that the norms are inadequate to meet the additional expenditure on account of GST. Further, the Respondent has pointed

out that, details provided by the Petitioner would show that the GST has been claimed by the Petitioner under the Security Services and the operational services. In response the Petitioner submitted that, subsequent to applicability of GST w.e.f. 1.7.2017 (in the state of J&K w.e.f. 8.7.2017), there has been additional impact on account of GST on the O&M Expenses which were fixed by the commission for the tariff period 2014-19. The Petitioner submitted that, since this is an additional expenditure on account of change in Law i.e., introduction of GST, the Petitioner was unable to meet this expenditure from already allowed O&M Expenses.

95. We have considered the submissions of the parties. The Petitioner has claimed impact of GST for the period 2019-24 on the basis of the actual impact of GST in 2018-19. The Petitioner has submitted the total GST amount of Rs. 78.70 lakh for the period from 1.7.2017 to 31.3.2019, based on actual audited accounts for 21 months (Rs. 27.96 lakh in 2017-18 and Rs.50.74 lakh in 2018-19). On scrutiny of the details, it is noticed that the claim of Petitioner also includes impact of GST on security expenses which is summarized as under:

S. No.	Year	Security Services	Operational Services	Total
1	2017-18	4.31	23.65	27.96
2	2018-19 (till Dec.18)	7.31	28.20	35.50
3	2018-19 (1.1.19 to 31.03.19)	2.11	13.12	15.24
	Total	**13.73**	**64.97**	**78.70**

96. As per Regulation 35(2)(d) of the 2019 Tariff Regulations, Security expenses shall be allowed separately after prudence check. Hence, excluding the security expenses, the same works out as Rs. 64.97 lakh as shown in the table above, for the period from 1.7.2017 to 31.3.2019. This has been normalized and an amount of Rs. 38.94 lakh has been worked out for 2019-20 (after escalating above amount of Rs.

37.17 lakh @ 4.77%). Accordingly, the base value of 2019-20 has been escalated @4.77% and GST impact has been worked out and allowed for the period 2020-24, as per note under Regulation 35(2)(a) of the 2019 Tariff Regulations as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
38.94	40.80	42.75	44.79	46.92

Capital Spares

97. With regards capital spares, the Petitioner has submitted that same will be claimed at the time of truing-up of tariff for the period 2019-24 based on the actual expenses incurred. In view of this, capital spares have not been considered in this order.

Security Expenses

98. Regulation 35(2)(c) of 2019 Tarff Regulations provides as under:

> *"(c) The Security Expenses and Capital Spares for hydro generating stations shall be allowed separately after prudence check:*
> *Provided further that the generating station shall submit the assessment of the security requirement and estimated expenses, the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification."*

99. The estimated security expenses claimed by the Petitioner for the period 2019-24 based on security requirement of the generating station is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
331.78	347.61	364.19	381.56	399.76

100. The Petitioner has claimed actual security expenses of Rs. 316.67 lakh in 2018-19 and has escalated the same at the rate of 4.77%. Considering the security requirements of the generating station, we allow the projected security expenses as claimed by the Petitioner for the period 2019-24. The Petitioner is however, directed to submit the actual security expenses incurred, duly audited, at the time of truing up of tariff. Accordingly, the estimated security expenses allowed are as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
331.78	347.61	364.19	381.56	399.76

101. Accordingly, the O&M expenses allowed for the generating station are as under:

(Rs. in lakh)

Allowed	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Normative O&M expenses (a)	5336.17	5590.53	5857.00	6136.18	6428.66
Additional O&M expenses due to 7th Pay Commission wage Revision- 3rd PRC applicable to CPSUs (b)	0.00	0.00	0.00	0.00	0.00
Additional O&M expenses due to 7th Pay Commission wage Revision of Kendriya Vidyalaya (KV) Staff (c)	0.00	0.00	0.00	0.00	0.00
GST (d)	38.94	40.80	42.75	44.79	46.92
Total expenses excl. Security (e=a+b+c+d)	5375.11	5631.33	5899.75	6180.97	6475.58
Security Expenses (f)	331.78	347.61	364.19	381.56	399.76
Total additional O&M Expenses (g=e+f)	**5706.89**	**5978.94**	**6263.93**	**6562.53**	**6875.34**

Interest on Working Capital

102. Sub-section (c) of clause (1) of Regulation 34 of the 2019 Tariff Regulations provides as under:

> *"34. Interest on Working Capital: (1) The working capital shall cover*
>
> *(c) For Hydro generating station (Including Pumped Storage Hydro Generating Station) and transmission system:*
>
> *(i) Receivables equivalent to 45 days of annual fixed cost;*
>
> *(ii) Maintenance spares @ 15% of operation and maintenance expense including security expenses; and*
>
> *(iii) Operation and maintenance expenses including security expenses for one month"*

103. Regulation 34(3) of the 2019 Tariff Regulations provides as under:

> *"34(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2019-24 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later." Provided that in case of truing-up, the rate of interest on working capital shall be considered at bank rate as on 1st April of each of the financial year during the tariff period 2019-24."*

Receivables for Working Capital

104. The Receivable component of working capital has been worked out based on 45 days of fixed cost as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1290.57	1333.25	1372.02	1414.60	1456.98

Maintenance Spares for Working Capital

105. Maintenance spares @15% of O&M expenses are worked out and allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
856.03	896.84	939.59	984.38	1031.30

O&M Expenses for Working Capital

106. O&M expenses for 1 month for the purpose of working capital are as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
475.57	498.24	521.99	546.88	572.95

Rate of Interest on Working Capital

107. In accordance with Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital considered on projection basis, for the period 2019-24 is 12.05% (i.e., 1-year SBI MCLR of 8.55% as on 1.4.2019 + 350 basis points). As the tariff of the generating station for the period 2019-24 is being determined during 2021-22, SBI MCLR as on 1.4.2020 (7.75%) and as on 1.4.2021(7.00%) and 1.4.2022 (7.00%) is also available which is lower in comparison to the rates as on 1.4.2019 (8.55%). Since, the rate of interest on working capital is subject to revision at the time of truing-up of tariff, based on the bank rate as on 1st April of each financial

year, we find it prudent to allow the rate of interest as on 1.4.2020, 1.4.2021 and 1.4.2022, for the subsequent financial years. Accordingly, the rate of interest for the year 2019-20 is 12.05%, 2020-21 is 11.25%, 2021-22 is 10.50%, 2022-23 is 10.50% and for the subsequent years the rate of interest of 10.50% has been considered (i.e., 1-year SBI MCLR of 7.75% as on 1.4.2020 + 350 basis points, 1-year SBI MCLR of 7.00% as on 1.4.2021 + 350 basis points and 1-year SBI MCLR of 7.00% as on 1.4.2022 + 350 basis points). Accordingly, Interest on working capital is allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Working capital for O&M expenses (one month)	475.57	498.24	521.99	546.88	572.95
Working capital for Maintenance Spares	856.03	896.84	939.59	984.38	1031.30
Working capital for Receivables	1290.57	1333.25	1372.02	1414.60	1456.98
Total Working capital	**2622.18**	**2728.33**	**2833.60**	**2945.86**	**3061.23**
Rate of interest (%)	12.05%	11.25%	10.50%	10.50%	10.50%
Interest on Working capital	**315.97**	**306.94**	**297.53**	**309.32**	**321.43**

Annual Fixed Charges for the period 2019-24

108. Based on the above, the annual fixed charges approved for the generating station for the period 2019-24, are summarized as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Depreciation	697.96	728.63	751.89	770.67	801.13
Interest on loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	3775.80	3799.61	3815.23	3831.48	3852.21
Interest on Working capital	315.97	306.94	297.53	309.32	321.43
O&M Expenses	5336.17	5590.53	5857.00	6136.18	6428.66
Additional O&M expenses	370.72	388.41	406.93	426.35	446.68
Total	**10496.62**	**10814.11**	**11128.58**	**11473.99**	**11850.11**

109. The annual fixed charges allowed as above, are subject to truing-up, in terms of Regulation 13 of the 2019 Tariff Regulations.

Normative Annual Plant Availability Factor (NAPAF)

93. The Petitioner has claimed NAPAF of 90%. Clause (4) of Regulation 50 (A) of the 2019 Tariff Regulations provides of 90% Normative Annual Plant Availability Factor (NAPAF) for the instant hydro generating station. Accordingly, NAPAF of 90% is considered in this order.

Design Energy (DE)

110. The Commission in this order had considered the annual Design Energy (DE) of 338.61 million units for the period 2014-19 in respect of this generating station. The same has been allowed for the period 2019-24 as per month-wise details as under:

Month	Design Energy (MUs)
Apr	22.83
May	30.29
Jun	41.04
July	42.41
Aug	42.41
Sept	41.04
Oct	40.10
Nov	24.44
Dec	15.04
Jan	13.46
Feb	11.88
Mar	13.67
Total	**338.61**

Application Fee and Publication Expenses

111. The Petitioner has sought the reimbursement of fees paid by it for filing the tariff petition and for publication expenses in respect of the same. Accordingly, in terms of the Regulation 70(1) of the 2019 Tariff Regulations, the Petitioner shall be entitled for the reimbursement of filing fees and publication expenses in connection

with the present petition, directly from the beneficiaries, on pro-rata basis.

112. Similarly, RLDC fees & charges paid by the Petitioner in terms of the Central Electricity Regulatory Commission (Fees and Charges of Regional Load Dispatch Centre and other related matters) Regulations, 2015, shall be recovered from the beneficiaries. In addition, the Petitioner is entitled recovery of statutory taxes, levies, duties, cess etc. levied by the statutory authorities in accordance with the 2019 Tariff Regulations.

113. Accordingly, the annual fixed charges and security charges claimed and allowed for the period 2019-24, is summarized as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Annual Fixed Charges Claimed	10825.15	11196.46	11566.22	11941.50	12343.98
Annual Fixed Charges **Allowed**	10164.84	10466.51	10764.40	11092.44	11450.35
Security Charges Claimed	331.78	347.61	364.19	381.56	399.76
Security Charges **Allowed**	331.78	347.61	364.19	381.56	399.76

114. Petition No. 257/GT/2020 is disposed of in terms of the above.

Sd/-
(Pravas Kumar Singh)
Member

Sd/-
(Arun Goyal)
Member

Sd/-
(I.S. Jha)
Member