

Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 31 of 2017

In the Matter of:

Petition seeking determination of project specific tariff for 5 MW Tanga Small Hydro Power Project of M/s Himalaya Hydro Pvt. Ltd. under Section 62 and 86 of the Electricity Act, 2003 read with Regulation 13 of Uttarakhand Electricity Regulatory Commission (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2013.

In the matter of:

M/s Himalaya Hydro Pvt. Ltd.

...Petitioner

AND

In the matter of:

Uttarakhand Power Corporation Ltd.

...Respondent

CORAM

Shri Subhash Kumar Chairman

Date of Order: April 10, 2019

This Order relates to the Petition dated 02.06.2017 filed by M/s Himalaya Hydro Private Limited (hereinafter referred to as “the Petitioner” or “the generator”) seeking determination of project specific tariff for its 5 MW Small Hydro Power Project on Seraghad River, near Seraghat Village, Munsiyari Block, Pithoragarh District, Uttarakhand under Section 62 and 86 of the Electricity Act, 2003 read with Regulation 13 of UERC (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2013 (hereinafter referred to as “RE Regulations, 2013”).

1. Background and Petitioner’s Submission

- 1.1 A Petition dated 02.06.2017 was filed by the Petitioner under Section 62 and Section 86 of the Electricity Act, 2003 read with Regulation 13 of RE Regulations, 2013 seeking determination of project specific tariff for sale of energy generated by its 5 MW Tanga Small

Hydro Power Project (hereinafter referred to as “the Project/Plant”) to Uttarakhand Power Corporation Limited (hereinafter referred to as “UPCL” or “the Respondent”).

- 1.2 The Petitioner has setup a project having an installed capacity of 5 MW in the name of Tanga SHP which was commissioned on 20.03.2017.
- 1.3 The Petitioner had earlier filed a petition on 14.09.2016 seeking determination of provisional tariff for Tanga SHP under Regulation 13, sub-clause (2) of RE Regulations, 2013 in anticipation of commissioning of the Tanga project and the Commission vide its Order dated 06.02.2017 allowed a provisional Tariff of Rs. 5.43/kWh till the determination of final tariff and directed the Petitioner to file a fresh petition upon commissioning of the Tanga SHP based on the actual capital cost in accordance with the Regulations for determination of final tariff.
- 1.4 The Petitioner, vide its letter dated 18.06.2016 intimated UPCL of its option to seek Project Specific Tariff for 5 MW Tanga SHP.
- 1.5 The Petitioner submitted that it entered into an implementation agreement dated 28.04.2004 with the Government of Uttarakhand to implement the Tanga SHP with an installed capacity of 3 MW. The Petitioner further, entered into a PPA dated 05.02.2003 with UPCL for sale of energy from Tanga SHP's with an installed capacity of 3 MW. Thereafter, Tanga SHP's installed capacity was enhanced to 5 MW and the Petitioner entered into a supplementary IA dated 23.11.2007 with the Govt. of Uttarakhand. Subsequently, a supplementary PPA dated 07.12.2009 was executed between the Petitioner and UPCL, for sale of the enhanced capacity of 5 MW of power from Tanga SHP.
- 1.6 The Petitioner submitted that they encountered numerous problems during the execution of the Tanga SHP leading to time and cost increase for reasons beyond its control. The Petitioner submitted that they were endeavouring to complete the Tanga SHP in the second half of 2013 and the project had achieved substantial progress to meet this target, however, the project suffered extensive damage during the unprecedented floods of June, 2013 which had completely devastated Uttarakhand State and as a result, the project work had come to a complete standstill and had to be revived and reconstructed.
- 1.7 The Petitioner submitted that from June 14th, 2013 and continuing for several days thereafter, Uttarakhand State experienced heavy rainfall, cloud bursts and flashfloods,

which caused catastrophic damage to life and property across the State of Uttarakhand, wherein entire villages, roads, buildings and a number of hydro power projects were completely washed away or severely damaged. The Petitioner submitted the copies of newspaper cuttings citing out the reported damage suffered by Tanga SHP.

- 1.8 The Petitioner summarized the damage due to the flood and its aftermath to the Tanga SHP and the surrounding region as detailed below:
 - a. The Petitioner submitted that the Headworks of Tanga SHP is about 2 Km inside the Seraghat River valley from the confluence point of the Seraghat River with the Goriganga River. This location is about 30 km, on the motor road from Jauljibi to Munsiyari. This motor road runs along the left- bank of the Goriganga River, and is the only way to reach the Tanga project site. The Petitioner submitted that this motor road was washed away almost completely due to the flooding of the Goriganga River and therefore the entire Seraghat valley was completely cut off from civilization due to these floods. UPCL's 33 kV transmission line from Munsiyari to Seraghat was also severely damaged, and even cell phone communications were not available in the aftermath of the flood.
 - b. The Petitioner submitted that the devastation brought by the flood was so complete that even food and water was supplied to Seraghat Village and other surrounding villages by army helicopters as the roads to the location were completely washed away.
 - c. The Petitioner submitted that due to the life threatening conditions most of Petitioner's staff was evacuated by army helicopters along with a large number of local people from the village of Bangapani which is about 7 km from the Seraghat village.
 - d. The Petitioner submitted that several weeks after the floods, army helicopters were used to airlift bull-dozers and heavy earthmoving equipment from Pithoragarh to the BRO camp at Bangapani village (about 7 kilometers from Seraghat Village) since the approach road from Jauljibi was completely destroyed. The damage to the motor road and the bridges on the Jauljibi to Munsiyari motor road was so extensive, that partial road connectivity was restored for small vehicles only around February, 2014. Several bridges on the motor road from Jauljibi to Munsiyari had suffered extensive damage and were not repaired until much later, which made the movement of heavy vehicles

almost impossible.

- e. The Petitioner submitted that UPCL's 33 kV transmission line from Darathi Substation to Seraghat village was restored only in May, 2014, i.e. about 11 months after the flood, and as UPCL had cited lack of approach roads for the delay, it further demonstrates the extent of damage suffered by this region in the calamity.
 - f. The Petitioner submitted that in view of extraordinary circumstances, it had to assess the damage to the Tanga project and thereafter, plan and execute its revival and construction. However, as the project site was completely cut off and given the dangerous conditions there, it was possible to make the initial site visit only in October, 2013 with great difficulty after trekking several kilometers.
 - g. The Petitioner submitted that after the floods, given the extensive damage to the plant, the Petitioner engaged M/s Engineering Consultant Group to reassess the technical and economic viability of the project and prepare a Revised Detailed Project Report (DPR).
 - h. The Petitioner submitted that after the floods of June, 2013, the work on the Tanga project came to a complete standstill due to the above mentioned damage to project components, lack of approach roads and the general devastation of the surrounding region. Further, given the extent of the damage to civil and hydro-mechanical works and the loss of electro-mechanical equipments, it was impossible to begin immediate revival of the project without first undertaking a thorough technical/economic reassessment of the project and also achieving financial closure anew in the form of additional loans from the Petitioner's lending agency M/s Indian Renewable Energy Development Agency (IREDA).
- 1.9 The Petitioner submitted that in view of the damages due to natural calamity as discussed above and with a view to ensure the survival of the project, M/s IREDA, the Petitioner's lending agency, sanctioned a Funded Interest Term Loan(FITL) of Rs. 11.37 Crore vide its sanction letter dated 31.03.2014. Further, M/s IREDA had also sanctioned additional loan of Rs. 12 Crore in view of the technical reassessment of the project vide sanction letter dated 17/03/2015, whereby it approved total project cost of Rs. 68.73 Crore. The Petitioner submitted that prior to the floods, IREDA had sanctioned loans of Rs. 10.10 Crore and Rs. 12.90 Crore vide sanction letters dated 14.03.2005 and 13.08.2008. M/s IREDA has in total

sanctioned loans of Rs. 46.37 Crore against the total approved project cost of Rs. 68.73 Crore.

- 1.10 The Petitioner submitted that till CoD, i.e. 20.03.2017 the Petitioner has incurred Capital Expenditure of Rs. 76.35 Crore on Tanga SHP, and has enclosed the copy of auditor's certificate dated 01.06.2017 in support of the same. The Petitioner further submitted that out of the total capital expenditure of Rs. 76.35 Crore, the IDC component is Rs. 26.20 Crore, and the hard cost of the project (civil, E&M and project management) is Rs. 50.15 Crore.
- 1.11 The Petitioner submitted that the majority of the increase in project cost is due to the increase in IDC, which is about a third of total project cost, which in turn is a direct result of the delay in commissioning caused by the flood and its aftermath, i.e. due to a Force Majeure event.
- 1.12 The Petitioner submitted that the major increase in project cost is due to the increase in IDC which was on account of delay in commissioning caused due to the flood and its aftermath. The Petitioner summarised the circumstances and reasons causing increase in project cost as detailed below:
 - a. The Petitioner submitted that the project suffered damage due to the unprecedented floods of June, 2013.
 - b. The Petitioner submitted that E&M equipment were lost in the floods of June, 2013 and the redesign and procurement of new generators and other equipment had lead to unavoidable increase in time and cost.
 - c. The Petitioner submitted that it had to face increase in time and cost due to relocation of major components of the project in the aftermath of the floods as described in the revised DPR which was intimated to the Government of Uttarakhand.
 - d. The Petitioner submitted that it faced geological problems during project execution that lead to unavoidable addition of a major cost and time consuming component, i.e. Head Race tunnel of 420 m length which was not envisaged in the original DPR.
 - e. The Petitioner submitted that after the flood of June, 2013, it had to construct several new large-scale protection works to protect the powerhouse, switchyard and head-works, which has contributed to significant additional cost and time which was not envisaged in the original DPR. The Petitioner submitted that these protection works were necessary for long term safety and operation of the project.

1.13 The Petitioner summarized the reasons for claiming higher capital cost with respect to the Tanga SHP as against the normative cost fixed in the Tariff Regulations, 2013, as discussed below:

- a. The Petitioner submitted that in June, 2013 the project suffered extensive damage during the unprecedented floods witnessed in Uttarakhand State, due to which the entire project was disrupted and a number of its components had to be relocated in order to complete the project. The major areas of time and cost overrun on account of the same are as discussed below:
 - (i) The powerhouse service bay was washed away and had to be reconstructed in a new location, i.e. in place of the old control room, which had to be dismantled and relocated at additional cost and time.
 - (ii) The project's 2 X 2.5 MW Generators, originally supplied by WEG, Brazil, were present in the service-bay awaiting erection and were lost in the flood of June, 2013. Since WEG had stopped the manufacture of the originally supplied model, new generators had to be redesigned and matched with the turbines which had been supplied prior to the flood in 2013. After extensive and lengthy redesign efforts by M/s BFL Ltd (the Petitioner's Electro-Mechanical equipment supplier and integrator) and WEG, new generators were designed and matched to the turbines and finally manufactured in July, 2016.
 - (iii) In view of the heavy rains and floods witnessed in Pithoragarh District during the monsoon season of 2016, it was very risky to transport the newly manufactured generators as they were very heavy (weighing about 13 tons each) requiring use of large trailer trucks, and the roads to the project site in Pithoragarh district were very dangerous with roads frequently collapsing due to flooding and landslides.
 - (iv) There were several weak bridges between Jauljibi and Seraghat Village which would not support heavy trucks and the generators. Large trucks with loads over 10 Tons were prohibited by GREF from using these bridges and had to use temporary diversion roads along the river beds which were flooded during the monsoon, making it impossible to transport these heavy generators during the monsoon. To avoid, any possible damage or loss of the generators while attempting to transport them during the monsoon season, given the dangerous

road conditions, the Petitioner and its contractor had to wait until the end of the monsoon before transporting the generators to the project site and the same could only reach the site in November, 2016.

- (v) The Petitioner further submitted that it had contracted with M/s BFL for design, procurement and project management of supply and erection of all electro-mechanical equipment and M/s BFL in turn procured the generators from M/s WEG. The insurance company only reinstated the generators and other equipment lost/and or damaged as per their rules and the insurance proceeds were paid to M/s BFL. Consequently, the Petitioner was absolved from making the payment towards procurement of new generators, however, it was liable towards the project management expenses of M/s BFL. The redesign and remanufacturing of the new generators, and the subsequent delay in their transportation and erection delayed the project's commissioning due to reasons beyond the control of the Petitioner, which in turn increased the IDC for the project.
- (vi) The penstock had to be realigned due to the erosion of a portion of the original alignment, which in turn caused the surge shaft to be relocated. The penstock realignment had necessitated that it be placed underground and encased in concrete throughout its length, which resulted in additional cost and time.
- (vii) The new surge shaft location was fixed based on the realigned penstock. The project encountered geological problems at the surge shaft location, which required extensive treatment of the foundation by means of rock-drilling and stitching which in turn resulted in additional cost and time.
- (viii) The switchyard location was eroded and washed away by the Seraghat river. This had to be relocated and reconstructed, which resulted in additional time and cost.
- (ix) The head-race pipeline had suffered damages in multiple places due to flood erosion and landslides. Large portions of the HR pipeline pathway were washed away during the floods. Extensive protection works were constructed and backfilling was undertaken to restore these areas so that new pipeline could be erected.

- (x) Tanga SHP's weir, intake and desilting tank were originally located just downstream Motighat SHP's powerhouse. During the flood, the river had washed away the left bank region and had changed its course. As a result, the Motighat SHP's tail-pool and tailrace were heavily damaged and washed away. The river had also washed away Tanga SHP's weir, intake and desilting tank locations. After the technical reassessment, which was informed to the government, it was recommended that the raised weir be replaced by a trench-weir across the Motighat SHP tail-race keeping in view the overall safety and long term operations of both Motighat and Tanga SHPs. This arrangement would ensure that in the event of future floods, Tanga SHPs weir would not restrict water flow in the river, thereby avoiding any danger to Motighat SHPs powerhouse. This revised arrangement with new weir, feeder channel and stilling basin led to reduction in overall time and cost required to revive and commission Tanga SHP after the floods of June, 2013.
- (xi) During the floods of June, 2013, the Seraghat and Goriganga rivers had washed away and eroded their left banks extensively, where all the major components of the Tanga project were located. In order to ensure the future safety of the project and its long term operations, the Petitioner has undertaken extensive newly envisaged protection and river-bank restoration works, which has significantly increased overall project cost and time.
- (xii) During the floods of June, 2013, the main approach road to the project site at Seraghat Village, i.e. Jauljivi to Mungsiari road were completely washed away. There was no approach road to the project site till February, 2014, when only light vehicles could approach the project site. As a result the project was completely inaccessible and stranded from June, 2013 to February, 2014 causing delay and increase in project cost. It was only after February, 2014, the Petitioner's consultants could undertake the technical reassessment of the project and recommend a path to reviving the project.
- (xiii) The Petitioner further submitted that it had to achieve financial closure afresh after the flood by approaching its lending agency, M/s IREDA by seeking additional loans and IREDA sanctioned Rs. 11.37 Crore of Funded Interest Term

Loan in March, 2014, and additional loan of Rs. 12 Crore in March, 2015 and only after that it was possible to begin reconstruction of the project. This entire process added to the delay and cost, and was beyond the control of the Petitioner.

(xiv) The Petitioner submitted that due to the floods of June, 2013 and the subsequent delay in project commissioning they incurred additional expenditure on project management, administrative overheads, travel, consultancy charges, staff salaries etc. which was unavoidable and has contributed to increase in project cost.

(xv) The Petitioner submitted that due to the floods of June, 2013 and its aftermath, a large number of construction machinery & equipment related to civil and hydro-mechanical works were stranded at the project site for several months as there was no access to the project site and they were forced to bear the idling costs of the contractors and staff who were stranded at the project site, which has also contributed to the cost increase.

- b. The Petitioner submitted that Tanga SHP is located in very hostile terrain in the upper Himalayan region near the Indo-Nepal-Tibet border at a distance of about 350 km from Haldwani, the nearest railhead. All construction material including steel, cement, machinery etc. had to be carted from this distance which has increased overall cost and even diesel, which was used for all construction activity including all machinery, diesel generators etc. had to be brought from a distance of about 100 km from Pithoragarh as it was not available locally.
- c. The Petitioner further submitted that reliable grid power from UPCL was not available at the Tanga project site and, therefore, the Petitioner relied exclusively on diesel generators for construction power, which has also contributed to overall project cost increase.
- d. The Petitioner submitted that the main approach road to Seraghat village from Jauljivi and Munsiyari was in a state of complete disrepair. All the bridges to the project site were in a bad state and only small vehicles could cross them due to which the material had to be carted to the site in small trucks only, which greatly increased transport costs. The Petitioner submitted that they had to make bypass arrangements and strengthen the bridges temporarily to carry some of the heavier equipment such as transformers and generators to the project site at additional expense.

- e. The Petitioner submitted that the project head/weir site is located 2 km from the main road inside the Seraghat river valley and was only accessible by foot and they had to construct a new road, which had to be further widened and maintained due to the demand of local villages and district administration, thereby incurring additional expenditure.
- f. The Petitioner submitted that there were no tele-communication facilities at the project site due to its remote location and due to the same, the Petitioner had to incur additional expenditure towards personnel, travel etc. and this greatly hampered the overall project management causing time and cost increase.
- g. The Petitioner submitted that it encountered significant delays in completing the land acquisition process from the dept. of forests, the initial 3 MW implementation agreement was signed in April, 2004 and subsequently the land lease could only be executed in April, 2006.
- h. The Petitioner further submitted that it encountered significant delays in getting loan disbursements in a timely manner from its financial institution, as IREDA expressed difficulty in disbursing the loan for the Petitioners project till the time Petitioner could indicate the actual tariff, which was not possible due to the regulations prevailing at that time. The Petitioner further submitted that IREDA sanctioned a loan for the initial capacity of 3 MW in March, 2005, but made its first disbursement two years later in April, 2007, even though Petitioner had executed its agreement with the civil contractor and commenced activity at the project site immediately after forest land acquisition process was completed in April, 2006.
- i. The Petitioner submitted that it filed an application before the GoU in August, 2006 for capacity enhancement and approval was only granted in November, 2007, the delay on account of which was beyond their control. The Petitioner also submitted that their lending agency, M/s IREDA also did not disburse any loans pending approval of capacity enhancement, and made the second disbursement only in March, 2008, i.e. almost 12 months post first disbursement.
- j. The Petitioner further submitted that M/s IREDA sanctioned additional loan for the enhanced capacity in August, 2008, but the disbursement could not be made in the absence of supplementary PPA for 5 MW capacity with UPCL, the delay on account of

which was beyond the control of the Petitioner. Further, M/s IREDA made the next disbursement only in March, 2009, i.e. almost 12 months after the last disbursement in the absence of signed PPA for enhanced capacity, which again caused great deal of financial uncertainty in project execution resulting in delays and cost increase.

- k. The Petitioner submitted that there were frequent disruptions in construction work due to agitations, resulting in delays and cost overrun.
- l. The Petitioner submitted that due to extremely remote & hostile terrain with extreme weather conditions at the project site they could undertake construction activity for only about 5 months in a year as all the construction activity had to be halted during the monsoon season from June to October and the site was virtually cut off during this period due to frequent landslides at various locations and during these unproductive monsoon periods, the Petitioner incurred additional costs to continue to pay for labour and machinery to prevent contractors from abandoning the project site. Further, during the winter months of November to February, the temperatures are so low that construction activity cannot be taken up at a fast pace.
- m. The Petitioner submitted that cloud burst in August, 2010 caused flash floods and landslides at the project site which delayed the commissioning date by several months and resulted in time & cost increase.
- n. The Petitioner submitted that in the year 2010 it encountered geological problems after having already completed the excavation of more than 1 Km length of the Head-Race pipeline pathway and this location which was roughly mid-way between the powerhouse and weir was found to be unstable and prone to landslides. The Petitioner submitted that their design consultants in the overall interest and safety of the project and also the nearby villages, decided that Head-race pipeline would not be suitable in this location and instead recommended that an underground tunnel be constructed which required additional permissions from the forest department and other government authorities which was secured only in the year 2012. Further, cost of the tunnel was not part of the original DPR and has eventually resulted in significant increase in both time and cost overruns. Further, the introduction of the tunnel into the project scheme also resulted in the change in location of the surge-shaft for which work was in progress, resulting in additional cost in the surge-shaft excavation,

- foundation etc. that eventually resulted in additional IDC cost for the period of delay encountered.
- o. The Petitioner submitted that as there were no skilled labours available at the project site given its remote location, the Petitioner contracted with the labour contractors, experienced in the construction of hydro power projects, from Himachal Pradesh, Uttar Pradesh, Kerala, Nepal and other places at higher cost.
- 1.14 The Petitioner submitted that against a benchmark cost of Rs. 55.55 Crore for 5 MW (Hard Cost) as per the MNRE report on “Benchmark Costs for Small and Large Hydropower Projects”, the expenditure incurred on Tanga SHP is only around Rs. 50.15 Crore (Hard Cost). The Petitioner further submitted that the project’s overall cost has increased primarily due to the high IDC of Rs. 26.20 Crore due to force majeure events such as the devastating floods of June, 2013, which were beyond the control of the Petitioner. Further, due to the delay in commissioning, the Petitioner has incurred additional administrative, project management, travel, staff salaries, consultancy costs etc.
- 1.15 The Petitioner submitted that they also own and operate the Motighat SHP (5MW), which is located upstream of the Tanga SHP on the Seraghat River. The Motighat SHP was also severely damaged in the floods of June, 2013 and the Commission allowed an adjustment in tariff due to the additional capitalization as a result of a force majeure event, for Motighat SHP. Since the Tanga SHP is located right next to Motighat SHP and has suffered from very same natural calamity, the additional cost incurred for Tanga SHP is comparable (taking into account the additional time delay) to the additional cost incurred for Motighat SHP and, hence, the same be considered.
- 1.16 The Petitioner submitted that both Motighat SHP and Tanga SHP evacuate the power generated through the same 33 kV transmission line from Seraghat Village to Darati 33 kV substation and onwards to the Pithoragarh 132/33 kV substation. The total length of UPCL’s 33 kV transmission line from Seraghat Village to Pithoragarh is about 140 km, which experiences frequent grid failures and abnormally high voltage levels, causing significant problems for power evacuation, thus leading to generation and financial losses to the Petitioner.
- 1.17 The Petitioner submitted that UPCL’s 33 kV grid voltage frequently exceeds 36 kV, which is much higher than the 34.98 kV voltage (i.e. 33 kV + 6%) permitted under the Regulations.

- 1.18 The Petitioner further submitted that even before Tanga SHP was commissioned, the Petitioner was unable to operate Motighat SHP at its full installed capacity of 5 MW continuously, despite availability of water during the peak generation season of May to November, due to abnormally high voltages of over 36 kV in UPCL's 33 kV transmission line at various times during the day.
- 1.19 The Petitioner submitted that Deemed generation of 588 Hours for FY 2012-13 was awarded for the Petitioner's Motighat SHP due to UPCL's grid failures and high voltage over a 7.5 month period.
- 1.20 The Petitioner submitted that the Commission vide its order dated 20.06.2014 directed UPCL as follows:

"As regards the prayer of the Petitioner in (iii), it is ordered that a comprehensive timebound plan for appropriate and reliable evacuation of power from Petitioner's plant be formulated by the Respondent within one month of the order and be submitted to the Commission."

The Petitioner further submitted that in response to the same, UPCL had submitted its letters dated 13.08.2014 and 06.09.2014 wherein it had said reliable evacuation of power would be possible by connecting a 33 kV feeder to the proposed Baram 220/33 kV S/s. The Petitioner also submitted that construction and commissioning of the Baram substation would substantially alleviate power evacuation problems being faced by the Petitioner by harnessing the full energy potential available at Tanga SHP and Motighat SHP.

- 1.21 The Petitioner submitted that in view of the difficulties being faced with power evacuation, they are unlikely to meet the design PLF of 46.9%. Further, the government authorities and UPCL have been regularly informed of the various problems encountered during the execution of the project and the problems with power evacuation.
- 1.22 The Petitioner submitted that it had incurred a total cost of Rs. 7,635.54 Lakh until the Commercial Operation Date inclusive of Interest during Construction against the cost of Rs. 6,744.47 Lakh as envisaged in the DPR of the project prepared post natural calamity of June 2013. The Petitioner in support of the capital cost of the Tanga SHP as on the date of commissioning of the project submitted a certificate dated 01.06.2017 issued by Chartered Accountant firm. The breakup of the Capital Cost of the project as certified by the CA is as

follows:

Table 1.1: Capital Cost Claimed for Tanga SHP (Rs. in Lakh)

S. No.	Particulars		Expenses Incurred upto 20.03.2017
1	Land & Preliminaries (including afforestation)		38.10
2	Civil Works		3560.43
2.1	- Head Works	611.83	
2.2	- HR Pipe Line 2.1m dia	1,042.35	
2.3	- Surge Shaft	208.30	
2.4	- Penstock (1.8m & 1.4m dia)	332.06	
2.5	- Power House	371.80	
2.6	- Tail Pool	34.73	
2.7	- Tail Race Channel	34.62	
2.8	- Control Room & Service bay relocation	59.14	
2.9	- Switchyard civil works & ODY structure erection	49.53	
2.10	- Gates & Hoists	63.76	
2.11	- HR Tunnel	404.10	
2.12	- Protection Works	348.21	
3	Power Plant Electro-mechanical equipment		858.88
4	Misc Fixed Assets including Transmission line		15.66
5	Preliminary & Pre-operative expenses including engg & consultancy		542
6	Interest During Construction		2620.48
	Total		7635.54

1.23 The Petitioner submitted that the increase in capital cost as compared to the DPR is mainly on account of steep rise in the cost of material, higher transportation, storage & handling cost, execution of additional components viz. Head Race Tunnel, and increase in Interest during Construction due to delay in project completion for reasons beyond the control of the Petitioner.

1.24 The Petitioner submitted that, total capital expenditure incurred as on 20.03.2017 towards commissioning of Tanga SHP was Rs. 76.36 Crore. M/s IREDA, the financial institution has sanctioned the total loan of Rs. 48 Crore. In addition, the Petitioner has invested Rs. 22.94 Crore in the capital cost of the project as on CoD out of its own funds/sources as equity, Rs. 3.61 Crore has been invested through internal accruals and balance Rs. 1.80 Crore are towards creditors which will be discharged through infusion of additional equity. The Petitioner submitted that as the equity employed is more than 30% of the capital cost, accordingly, as per RE Regulations, 2013, equity has been limited to 30% and balance equity has been considered as normative loans, and accordingly, the equity for tariff purposes has been considered as Rs. 22.91 Crore and balance amount of Rs. 53.45 Crore has been

considered as loan.

- 1.25 The Petitioner submitted that Interest on Loan capital including that on normative loan has been worked out at the rate of 12.70% in accordance with Regulation 16(2) of RE Regulations, 2013, although the weighted average rate of interest for the project availed from IREDA works out to 12.99%. The Petitioner submitted that actual rate of interest which it is bound to pay to IREDA be allowed to them. Further, the repayment of loan has been considered from the first year of commercial operation of the project and is equal to the annual depreciation allowed and the normative period of loan repayment has been considered as 12 years in accordance with Regulation 16 of RE Regulations, 2013.

The Petitioner also submitted that 75% of the capital subsidy receivable from MNRE, i.e. Rs. 2.40 Crore has been reduced from the opening loan in accordance with the RE Regulations, 2013, however, the amount and timing of subsidy to be received is contingent to the Petitioner complying with the terms and conditions laid down by IREDA which in turn is dependent on the water discharges and UPCL's evacuation system. Accordingly, the Petitioner submitted that the subsidy from MNRE be adjusted when it is received by the Petitioner and not from the first year itself as it would deprive the Petitioner from recovering its cost.

- 1.26 The Petitioner submitted that Depreciation for the first 12 years has been considered at the rate of 5.83% per annum in accordance with Regulation 17 of RE Regulations, 2013 and the remaining depreciation has been spread over the remaining useful life of the project, i.e. for remaining 23 years. Further, RoE has been charged @ 20% for first 10 years and 24% from 11th year onwards on the equity base in accordance with RE Regulations, 2013.
- 1.27 The Petitioner submitted that as per Regulation 28 of RE Regulations, 2013 the O&M expenses of Rs. 26.43 Lakh/MW (which was later amended by the Commission as Rs. 35.33 Lakh/MW) for the first year of commissioning for a project having capacity of 5 MW, has been considered. Further, for subsequent years an escalation factor of 5.72% has been applied as specified in the Regulations and, accordingly, O&M expenses have been worked out for life of the project.
- 1.28 The Petitioner submitted that Working capital requirement has been worked out based on the norms specified in the RE Regulations, 2013 and interest on working capital has been considered @ 13.20% in accordance with the Regulations.

- 1.29 The Petitioner submitted that for tariff calculation purposes the CUF has been considered as 46.90% which is the design CUF of the project. However, while sanctioning the loans and approving the revised project cost after the calamity of 2013, M/s IREDA has only considered CUF of 45% for loan repayment and, accordingly, the Petitioner requested the Commission to consider the CUF of 45%.
- 1.30 The Petitioner submitted that with change in the loan balances each year due to repayment of loans, the weighted average cost of capital would be different for each year and hence, there cannot be a uniform weighted average cost of capital for the entire life of the project and, accordingly, requested the Commission to consider the approach adopted by the Petitioner in this regard.
- 1.31 Based on the above, the Petitioner initially claimed the levellised tariff of Rs. 7.13/unit considering the discounting factor as the weighted average cost of capital. The Petitioner while computing the Saleable Energy, considered "free energy to home state @ 18%" from 16th year onward. The Petitioner later on, in response to queries raised by the Commission submitted the revised calculation of AFC for Tanga SHP after considering revised O&M expenses as per the amended RE Regulations, 2017 and claimed the levellised tariff of Rs. 7.23/unit. The AFC & levellised tariff claimed by the Petitioner is summarized in the table below:

Table 1.2: AFC & Levellised Tariff Claimed (Rs. in Crore)

Year	ROE	O&M Charges	Interest on WC	Interest on Debt	Dep	Total	Net Saleable Energy (MU)	Tariff (Rs./kWh)	Discount Factor %	Discounted Tariff
1	4.40	1.32	0.39	6.03	4.28	16.42	20.34	8.07	1.00	8.07
2	4.40	1.59	0.39	5.50	4.28	16.16	20.34	7.95	0.87	6.89
3	4.40	1.87	0.39	4.98	4.28	15.92	20.34	7.83	0.75	5.88
4	4.40	1.97	0.39	4.46	4.28	15.50	20.34	7.62	0.65	4.95
5	4.40	2.09	0.38	3.93	4.28	15.08	20.34	7.42	0.56	4.18
6	4.40	2.21	0.38	3.41	4.28	14.68	20.34	7.21	0.49	3.52
7	4.40	2.33	0.37	2.88	4.28	14.26	20.34	7.02	0.42	2.97
8	4.40	2.47	0.37	2.36	4.28	13.88	20.34	6.82	0.37	2.50
9	4.40	2.61	0.36	1.83	4.28	13.48	20.34	6.63	0.32	2.10
10	4.40	2.76	0.36	1.31	4.28	13.11	20.34	6.45	0.27	1.77
11	5.28	2.91	0.38	0.79	4.28	13.64	20.34	6.71	0.24	1.60
12	5.28	3.08	0.37	0.26	4.28	13.27	20.34	6.53	0.21	1.35
13	5.28	3.26	0.30	-	0.64	9.48	20.34	4.66	0.18	0.83
14	5.28	3.44	0.31	-	0.64	9.67	20.34	4.76	0.15	0.74
15	5.28	3.64	0.32	-	0.64	9.88	20.34	4.86	0.13	0.65
16	5.28	3.85	0.33	-	0.64	10.10	16.68	6.05	0.12	0.70
17	5.28	4.07	0.34	-	0.64	10.33	16.68	6.19	0.10	0.62
18	5.28	4.30	0.35	-	0.64	10.57	16.68	6.34	0.09	0.55
19	5.28	4.55	0.37	-	0.64	10.84	16.68	6.50	0.08	0.49
20	5.28	4.81	0.38	-	0.64	11.11	16.68	6.66	0.07	0.44
21	5.28	5.08	0.39	-	0.64	11.39	16.68	6.83	0.06	0.39
22	5.28	5.37	0.41	-	0.64	11.70	16.68	7.02	0.05	0.34
23	5.28	5.68	0.42	-	0.64	12.02	16.68	7.21	0.04	0.31
24	5.28	6.01	0.44	-	0.64	12.37	16.68	7.42	0.04	0.27
25	5.28	6.35	0.46	-	0.64	12.73	16.68	7.63	0.03	0.24
26	5.28	6.71	0.48	-	0.64	13.11	16.68	7.86	0.03	0.22
27	5.28	7.10	0.50	-	0.64	13.52	16.68	8.10	0.02	0.19
28	5.28	7.50	0.52	-	0.64	13.94	16.68	8.36	0.02	0.17
29	5.28	7.93	0.54	-	0.64	14.39	16.68	8.63	0.02	0.16
30	5.28	8.39	0.57	-	0.64	14.88	16.68	8.92	0.02	0.14
31	5.28	8.86	0.59	-	0.64	15.37	16.68	9.22	0.01	0.12
32	5.28	9.37	0.62	-	0.64	15.91	16.68	9.54	0.01	0.11
33	5.28	9.91	0.64	-	0.64	16.47	16.68	9.88	0.01	0.10
34	5.28	10.47	0.67	-	0.64	17.06	16.68	10.24	0.01	0.09
35	5.28	11.07	0.71	-	0.64	17.70	16.68	10.61	0.01	0.08
Levellised Tariff (per unit)										7.23

1.32 The Commission vide its Order dated July 11, 2017 admitted the Petition filed by M/s HHPL for determination of project specific Tariff for its Tanga SHP of 5 MW. UPCL, the sole Respondent in the present matter, vide its letter dated 29.08.2017 filed its comments and the same was forwarded to the Petitioner for its reply. In response, the Petitioner vide its letter dated 24.04.2018 submitted its rejoinder on the same. The submissions of UPCL

and the Petitioner have been dealt with at appropriate places in the order.

- 1.33 The Petition filed by the Petitioner had some deficiencies which were communicated to it vide Commission's letter dated 10.08.2017 and 31.08.2018. The Petitioner submitted its reply on the same vide its letter dated 17.11.2018. Subsequently, additional deficiencies/shortcomings in the replies filed by the Petitioner were communicated to it from time to time.
- 1.34 The Commission has considered the replies/information submitted by the Petitioner as well as the contentions raised by the Respondent and the same have been discussed at appropriate places in the Order alongwith the Commission's views on the same.

2. Respondent's Comments

- 2.1 UPCL, the sole Respondent in the matter submitted its comments vide letter dated 29.08.2017, on the Petition filed by M/s HHPL for determination of project specific Tariff for its Tanga SHP.
- 2.2 The Respondent submitted that the Petitioner has not disclosed the construction and other activities in phases, i.e. at the time of initial PPA for 3 MW till June 2013 and the construction and other activities carried out after preparation of revised DPR. Further, the petitioner has not filed any proof of procuring the materials before and after June 2013 including receipt and dispatch documents, the documents required for carriage and transport, works contracts, placing of orders with complete details including quantity and amount of the material.
- 2.3 The Respondent submitted that the petitioner has not disclosed whether any subsidy have been received from MNRE or other agencies for its Tanga SHP.
- 2.4 The Respondent further submitted that the Petitioner should file satellite imagery of project site at the time of construction, and after the alleged catastrophe in June/July 2013 and before making any new construction so that from the said photographs/videos the date and time can be ascertained accurately.
- 2.5 The Respondent submitted that as per the Supplementary PPA executed between the parties, the Petitioner has already exercised its option to opt for generic tariff as per the Regulations as amended from time to time and hence, cannot be permitted to change

the same in the garb of the present RE Regulations, 2013, and the petitioner cannot claim project specific tariff under the said Regulations. Further, the Petitioner has claimed that they have conducted technical/economic reassessment of the project and almost all existing structures were reallocated meaning thereby that initial contemplation of the project no longer survive and consequently the PPA executed between the parties loses its relevance. The Respondent submitted that in view of the same they should be afforded an opportunity to reconsider the PPA.

- 2.6 The Respondent submitted that the petitioner has failed to comply with the terms and conditions of the PPA with regard to occurrence of Force Majeure conditions, tariff for saleable energy, commissioning of project in time, achieving financial closure, providing periodic reports on the progress of development and construction of the project, maintaining cost during the entire agreement period keeping adequate insurance and amicable settlement etc.
- 2.7 The Petitioner in response submitted that the Petitioner has filed all the relevant documents with the petition, which has been lawfully admitted by the Commission for adjudication on its merits. Further, the Petitioner has already provided all the details regarding the construction of the project before and after the floods of June, 2013 in the present petition. Further, from 2006 till the time of the flood in 2013, the Petitioner has spent about Rs. 45 Crore on the project and work was ongoing to complete the project quickly. Majority of the civil, hydro-mechanical and electro-mechanical work was in advanced stage of completion, i.e. over 80% complete, when the project construction work was interrupted by the devastation caused by the floods of June, 2013.
- 2.8 The Petitioner submitted that after the flood damage, insurance was claimed and New India Assurance Company Ltd, the insurance company has settled the claim by reinstating generators and various other equipment lost in the flood at a cost of over Rs. 2.21 Crore (paid to M/s BFL Hydro and other equipment vendors). The Petitioner submitted that the same proves that the project was severely damaged in the floods of June, 2013 and completely refutes the Respondent's false allegations that no damage had occurred.
- 2.9 The Petitioner submitted that they have not received any subsidy till date from MNRE

or other agencies. The Petitioner further submitted that they might not be able to achieve the PLF required as per MNRE's Regulations, which is solely due to generation losses being suffered because of frequent grid failures and over-voltage in the Respondent's 33 kV transmission line used to evacuate power from the project, and might not obtain the subsidy from MNRE, for no fault of the Petitioner.

- 2.10 The Petitioner further submitted that the terms and conditions of loans obtained by the Petitioner are a matter of record and the same has been complied by the Petitioner. The Petitioner has also complied with all the other statutory requirements of government agencies. Further, the Petitioner has submitted various documentary evidences of the work done before and after June 2013 in the present petition along with revised DPR and the Petitioner has separately submitted documents pertaining to bills, contracts etc. in compliance with the directions of the Commission.
- 2.11 The Petitioner further submitted that they have filed sufficient photographic and documentary evidence of the damages to the project during the floods of June, 2013. The Petitioner had intimated the Respondent and various government agencies about the damage caused due to June, 2013 flood and the steps taken to revive the project thereafter. Further, the Respondent had every opportunity to inspect the state of the project before and after the floods of June, 2013 and is only exposing its own incompetence by making such absurd claims at this stage by asking for satellite imagery.
- 2.12 The Petitioner submitted that, they have never exercised any option for generic tariff and has in fact opted for Project Specific Tariff as per the UERC, RE Regulations, 2013 vide its letter dated 18.06.2016. Further, the Respondent had made no such objection during the course of the hearing and admission of the Petitioner's petition for provisional tariff by the Commission which was admitted vide Order dated 05.10.2016. Moreover, the Respondent had raised no such objection in its reply dated 06.01.2017, prior to the Commission's Order dated 06.02.2017 whereby the Commission had fixed provisional tariff of Rs.5.43, nor had it raised any objection whatsoever when the present petition for fixation of final tariff was heard and admitted vide Commission's Order dated 11.07.2017. Furthermore, the Respondent has already complied with the

Commission's Order dated 23.01.2018, and executed a new Supplementary Power Purchase Agreement dated 16.03.2018 with the Petitioner, wherein the tariff is explicitly mentioned as project specific tariff to be determined by the Commission.

- 2.13 The Petitioner submitted that they made a detailed technical study after the floods of June, 2013 in a bid to reconstruct and revive the project, which has been duly communicated to all the relevant government agencies along with the revised DPR. The Petitioner submitted that it is required to conduct a study and make technical adjustments as per ground realities after a major flood, where the river has changed its course and washed away many civil structures, and the contention of the Respondent that this has caused the PPA to lose its relevance is not tenable.
- 2.14 The Petitioner also submitted that they have complied with all the terms and conditions of the PPA and the Implementation Agreement with regard to occurrence of Force Majeure conditions, tariff for saleable energy, commissioning of project within time (other than for reasons beyond the control of the petitioner), achieving financial closure, providing periodic reports on the progress of the project, maintaining costs, having adequate insurance etc.
- 2.15 The Respondent submitted that regarding the evacuation problem, the petitioner had themselves referred to letter dated 13.08.2014 and 09.09.2014 of UPCL, wherein UPCL had informed the Commission that reliable evacuation of power would be possible by connecting a 33 kV feeder to the proposed 220/33 kV Baram S/s. The Respondent further submitted that the construction of the same is not within the control of UPCL as it is for the transmission licensee to construct the same.

The Petitioner, in this regard submitted that the Respondent has failed to evacuate even the available power from Tanga SHP and hence, should be held liable for the same. Further, in response to the Respondent's comment that the Petitioner has attained a PLF of about 42% in May, 2017 and 49% in June, 2017, the Petitioner submitted that the Respondent is trying to misguide the Commission by presenting data related to particular months and not the year as a whole.

- 2.16 The Respondent submitted that the levelised tariff as proposed by the petitioner is

highly excessive and exorbitant and is not acceptable to the petitioner. In response to the same, the Petitioner submitted that UPCL had duly executed a new supplementary PPA on 16.03.2018 for Tanga SHP, wherein the tariff is explicitly mentioned as project specific to be determined by the Commission, and accordingly the question of non-acceptability of levelised Tariff cannot be raised.

2.17 The Respondent submitted that UPCL entered into the PPA with the Petitioner company assuming that tariff from Tanga Small Hydro Plant will remain reasonable and affordable, but the whole narrative of the petition submitted by the Petitioner contradicts the basic assumption of reasonable low cost of power perceived by UPCL in the light of Project Specific Tariff of Rs. 7.13 per unit claimed by the Petitioner. The Respondent further submitted that the Petitioner could not complete its project during the period from 2003 to 2012, and after the natural calamity of 2013 is claiming that the Project was almost ready for commissioning.

The Petitioner in this regard submitted that, Section 61 of Electricity 2003 specifically mandates that the State Electricity Regulatory Commission while dealing with tariff related matters must ensure “safeguarding of consumers’ interest and at the same time ensure recovery of the cost of electricity in a reasonable manner” and also ensure “the promotion of co-generation and generation of electricity from renewable sources of energy”, and as such it is lawful for Tanga SHP to seek project specific tariff. The Petitioner also submitted that they had already submitted in detail the reasons for not achieving the CoD in time, which was beyond their control, and hence, cannot be held liable for that.

2.18 The Respondent submitted that the claimed Project Specific Tariff of Tanga SHP is almost double the rate of generic tariff specified in UERC (Tariff and Other Terms for Supply of Electricity from non-conventional and Renewable Energy Sources) Regulations, 2013 and applicable amendments. The Respondent submitted that it being the other party of the commercial arrangement should have right to reconsider the PPA if two most important conditions of the PPA, i.e. tariff and the completion time of the project are being varied by the petitioner disproportionately.

In this regard, the Petitioner submitted that, since the Respondent has executed a

new supplementary Power Purchase Agreement dated 16.03.2018 with the Petitioner, wherein the tariff is explicitly mentioned as project specific to be determined by the Commission, all objections raised by the Respondent's regarding right to reconsider the PPA is not valid.

2.19 The Respondent submitted that, clause 5.6 of the Power Purchase Agreement dated 05.02.2003 states as under:

“Atleast six months before the Scheduled Synchronization Date of the first unit. The parties shall establish an Operating Committee comprising of four (4) members. The Company and the Corporation shall appoint two (2) members each. The corporation shall appoint one of the members, who shall be of the rank of Superintending Engineer as chairman of the Operating Committee. The Operating Committee shall be responsible for the Co-ordination of the operation of the project with the Grid...”

The Respondent submitted that the above clause clearly states that the Petitioner company and Respondent were required to establish Operating Committee responsible for coordination of the operation of the project with the Grid System. However, the committee could not be framed as the Petitioner company did not intimate the Respondent that it was about to complete the construction of the plant and this shows that either the Petitioner is making false claims of readiness of its plant in June, 2013 before the occurrence of the flashfloods or the company has breached a very important clause of the PPA wherein it deliberately avoided intimation of setting up of committee for synchronization of the plant and its onward smooth operation.

The Petitioner, in response to the same submitted that they had informed the Respondent vide letter dated 18.06.2016 that Tanga SHP was getting ready for commissioning and that they are opting for “Project Specific Tariff” and also vide its letter dated 09.09.2016 had given notice to the Respondent for grid synchronization as per clause 4.1.1 of the PPA. The Petitioner further submitted that, they had repeatedly informed the Respondent of its failure to evacuate the full installed capacity of the Tanga SHP, however, the Respondent has not taken any steps whatsoever to form the “Operating Committee” and that also no such committee had been formed till date.

2.20 The Respondent's other submissions on the specific items along with the Petitioner's

comments and the Commission's views on the same have been dealt at relevant paras in the Order.

3. Commission's Approach & Analysis

3.1 Statutory Requirements

3.1.1 The Commission had specified the RE Regulations, 2013 under Section 61 of the Electricity Act, 2003. For the purposes of this Order, the Commission has been guided by the said Regulations.

3.1.2 In accordance with sub-Regulation (2) of Regulation 10 of RE Regulations, 2013, the RE based generating stations may opt for the generic tariff or may file a petition before the Commission for determination of "Project Specific Tariff". Relevant part of the aforesaid Regulation is reproduced hereunder:

"The RE Based Generating Stations and Co-generating Stations, except those mentioned under Proviso 2 to sub- Regulation (1) of Regulation 2, may opt for the generic tariff, as determined based on norms specified in these Regulations for different technologies, or may file a petition before the Commission for determination of "Project Specific Tariff". For this purpose RE Based Generating Stations and Co-generating Stations shall give its option to the distribution licensee at least 3 months in advance of date of commissioning of the project or commissioning of the 1st unit, in case of multiple units or one month after the date of issuance of these Regulations, whichever is later. This option once exercised shall not be allowed to be changed during the validity period of the PPA."

With respect to the Respondent's submission that the Petitioner is not entitled to project specific tariff, the Commission is of the view that the respondent had sufficient opportunity to contest this issue at the time of execution of PPA and further at the time of determination of provisional tariff by the Commission for Tanga SHP, which the Respondent never did. Moreover, the Respondent never contested the Petitioner's letter whereby M/s HHPL intimated UPCL, that they wish to opt for project specific Tariff.

Moreover, in its Judgment dated May 25, 2016 in Appeal No. 179 of 2015, Hon'ble ATE on the similar issue had held as under:

" 11.15 Further, Regulation 13(2) of RE Regulations, 2013 clearly specifies the fixation of final tariff of RE Based Generating Stations or Co-Generating Stations may either accept

the generic tariff as provisional tariff or make an application for determination of provisional tariff in advance of the anticipated date of completion of project based on the capital expenditure actually incurred up to the date of making the application. The provisional tariff determined by the Commission, may be charged from the Commercial Operation Date (COD) of the respective unit of the generating station ...

This clearly mentions that the project developer has been given a privilege to make an application for fixation of tariff once the actual cost of the project is known to the project developer.

11.16 This Tribunal in its Judgment held that the State Commission has powers to revise the Tariff in a concluded PPA keeping in view of the change in the circumstances of the case which are uncontrollable...

Thus, the State Commission can consider the case of the Appellant with respect to relax the option already exercised at the time of signing PPA based on the condition to exercise the option three months before commencement of the project.

In the instant case, the project execution was under progress at the time of signing the PPA and accordingly the Appellant/Petitioner exercised option for generic tariff for supply of power.

11.17 The Appellant/Petitioner can exercise the option for Project Specific Tariff keeping the mandate of Section 61 of Electricity 2003 which specifically provides that the State Electricity Regulatory Commission while dealing with tariff related matters, safeguard consumers' interest and at the same time ensure recovery of the cost of electricity in a reasonable manner."

Accordingly, in view of the above-mentioned Regulations and also the Judgment of Hon'ble ATE as referred above, since the Petitioner has opted for Project Specific Tariff for its Tanga SHP in accordance with sub-Regulation (2) of Regulation 10 of RE Regulations, 2013, therefore, the Petitioner is entitled for the same and, accordingly, the Commission has worked out the Tariff for the Petitioner's project.

3.2 Design Energy

- 3.2.1 The Petitioner submitted the revised DPR prepared after the calamity of June 2013 for its Tanga SHP and stated that the CUF envisaged in the said DPR was considered as 46.90%. The Petitioner, as discussed earlier, requested the Commission to consider the

CUF of the plant as 45% as assessed by M/s IREDA, the lending agency of the Petitioner's project, after the natural calamity of June 2013.

3.2.2 Regulation 10(3) of RE Regulations, 2013 specifies as under:

“Project Specific Tariff, on case to case basis, shall be determined by the Commission in the following cases:

(a) For projects opting to have their tariffs determined on the basis of actual capital cost instead of normative capital cost as specified for different technologies under Chapter 5, the CUF (generation) for recovery of fixed charges shall be taken as that envisaged in the approved DPR or the normative CUF specified under Chapter 5 for the relevant technology, whichever is higher;...”

3.2.3 The Commission examined the revised DPR of the Petitioner's SHP wherein the CUF of the plant was stated as 46.90% (based on 90% dependable year considering the flow data for 7 years from 2006 to 2012), as against the Petitioner's submission of 45% as discussed above. The yearly generation as per the aforesaid DPR based on 90% dependable year was envisaged as 20.54 MUs. The RE Regulations, 2013 does not specify whether the design PLF would be based on 90% dependable year. In this regard, reliance was placed on Regulation 3(2) of UERC RE Regulations, 2013 which specifies as under:

“Save as aforesaid and unless repugnant to the context or if the subject matter otherwise requires, words and expressions used in these regulations and not defined, but defined in the Act, or the UERC (State Grid Code) Regulations or the Commission's Regulations on determination of Tariff shall have the meanings assigned to them respectively in the Act or the State Grid Code or the Commission's Regulations on determination of Tariff.”

Hence, reliance is placed on Regulation 3(25) of UERC (Terms and Conditions for Determination of Tariff) Regulations, 2011 that defines design energy as under:

“Design Energy” means the quantum of energy which can be generated in a 90% dependable year with 95% installed capacity of the hydro generating station;”

Accordingly, the Commission has relied upon the generation in the 90% dependable year as calculated in DPR which is 20.54 MUs which has also been considered by the Petitioner in its tariff calculations, and which is also in accordance with the Regulations. This in turns translates to a CUF of 46.90% which is higher than the normative CUF of 45% specified in the RE Regulations, 2013. Hence, the CUF of 46.90% in accordance with the Regulations has been considered as the CUF for recovery

of AFC of the Petitioner's plant. Further, from the submissions made by the Petitioner to re-consider the CUF as 45%, the Commission is of the view that there is no merit in deviating from the CUF of 46.90%, as envisaged in the revised DPR, since the Regulations without any ambiguity clearly spells out the basis for considering the CUF for the generating stations, and accordingly, no change in the same has been carried out by the Commission.

The gross energy at a CUF of 46.90% for plant having capacity of 5 MW works out to 20.54 MUs.

3.2.4 Further, in accordance with the RE Regulations, 2013 normative auxiliary consumption including transformation losses of 1% has been reduced from the normative design generation of 20.54 MUs to work out the saleable energy of the said SHP which works out to 20.34 MUs which has also been considered by the Petitioner in its Tariff calculations.

3.2.5 Para 4.2 of the Implementation Agreement dated 28.04.2004 executed between GoU and the Petitioner requires that a royalty of 10% will be applicable after 15 (fifteen) year of CoD in all cases of sale of power. Hence, saleable energy for the purpose of computation of tariff has been further reduced by 10% w.e.f. 16th year onwards. Approved saleable energy for 35 years is shown in **Appendix-I**.

3.2.6 The Commission observed that the Petitioner has raised the issue of volatile grid frequency of UPCL and lack of evacuation infrastructure, and claimed that due to the same the entire generation of the Petitioner's plant could not be evacuated. In this regard, the Commission is of the view that this matter requires separate consideration and detailed analysis based on the actual data, and if the Petitioner feels aggrieved due to inaction of the Respondent in this regard, then they may raise the issue separately for consideration of the Commission.

3.3 Capital Cost

3.3.1 Regulation 13 of RE Regulations, 2013 specifies as under:

"13. Petition and proceedings for determination of Project Specific Tariff

(1) The RE Based Generating Stations and non-fossil fuel based Co-generating Stations may make an application for fixation of Project Specific Tariff based on actual Capital Cost in respect of the

completed units of the RE Based Generating Stations and Co-generating Stations in such formats and along with such information as the Commission may require from time to time.

Provided that for Project Specific Tariff determination, the RE Based Generating Stations and Co-generating Stations shall submit the break-up of Capital Cost items along with its petition.

(2) Till fixation of final tariffs a RE Based Generating Stations or Co-generating Stations may either accept the generic tariff as provisional tariff or make an application for determination of provisional tariff in advance of the anticipated date of completion of project based on the capital expenditure actually incurred up to the date of making the application or a date prior to making of the application, duly audited and certified by the statutory auditors. The provisional tariff as may be determined by the Commission may be charged from the Commercial Operation Date (CoD) of the respective unit of the generating station.

Provided that the RE Based Generating Stations and Co-generating Stations shall be required to make a fresh application for determination of final tariff based on actual capital expenditure incurred up to the date of commercial operation or commissioning of the generating station, with duly audited and certified copies of accounts by the statutory auditors within 18 months from the CoD.

(3) The generating company shall file application for determination of tariff for as many years for which it wants the tariff to be fixed.

(4) A petition for determination of tariff shall be accompanied by such fee as specified in the UERC (Fee and Fines) Regulations, 2002, as amended from time to time, and shall be accompanied by:

(a) information in forms 1.1, 1.2, 2.1 and 2.2 as the case may be, and as appended in these regulations;

(b) Detailed project report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan etc.

(c) A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined.

(d) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. This statement shall also separately include the proposed tariff calculated with and without consideration of the subsidy and incentive.

(e) Any other information that the Commission requires the Petitioner to submit."

3.3.2 The Petitioner in the instant Petition and further in its replies on the deficiencies pointed out by the Commission, submitted the break-up of Capital Cost alongwith the reasons for delay during construction of the project broadly segregating the same into time overrun and cost overrun.

The Respondent submitted that the reasons given by the Petitioner for claiming high capital cost are fictitious and on hypothetical assumptions without any strong and supportive evidence and are wrong and denied. The Petitioner is giving the reasons which are well known to him even before signing the implementation agreement for the plant and counting the reasons like hurdles in reaching the location, transportation issues, risky zone, non-availability of various items etc. simply suggested the escapist attitude of petitioner and is simply an effort to cover the poor planning and even bad execution on part of the petitioner.

The Respondent further submitted that the report on “Benchmark Costs for Small and Large Hydropower Projects” referred by the Petitioner did not consider any delays and its impact thereof. The Petitioner nowhere in the petition has claimed that the actual construction cost is more than the one provided as per RE Regulation and it is the delay in project which seems to be the only reason for the higher cost and hence the parameters of report are insignificant and non-applicable in the present matter. The Respondent further submitted that the study relates to the construction in the year 2015 while the instant plant was awarded way back in 1997 and was to be completed under any circumstances by 2009 as per revised IA.

The Respondent submitted that from the head-wise cost of plant as shown in the loan document of year 2005, 2008, 2015 and Capital expenditure verified by the CA as on the date of Commissioning, i.e. 20.03.2017 following observations have been made:

- i. Cost of Building and Civil Works has been pegged at Rs. 3560.43 Lakh only which is 525.77 % higher than initial estimates of Rs. 568.97 Lakh of year 2005. This cost needs to be scrutinized vis-à-vis what kind of planning was made by the petitioner, what was the design of plants, whether soil study and climatic study was conducted because incidents like flashfloods, cloud burst or landslide are commonplace in the high hilly region and what verifiable precautionary steps were taken by the petitioner against these foreseeable events in the design of civil works of the plants.

If the petitioner had taken the precautionary steps before the occurrence of the events such massive and alleged damage to the plant could have been averted or could have been mitigated to larger extent.

- ii. Engineering & Consultancy and Preliminary Expenses have been merged and pegged at Rs. 542.00 Lakh which is 1968.70 % higher than the estimates of Rs. 26.20 Lakh of year 2005.
- iii. Heads of Electro-Mechanical Works, Installation & Supervision and Taxes and Duties have been clubbed together, and cost of these two heads has been pegged at Rs. 858.88 Lakh only which is 35.82% higher than estimates of Rs. 632.38 Lakh for year 2005. UPCL submitted that the said clubbed cost is not acceptable to UPCL.
- iv. Heads of Interest During Construction has been pegged at Rs. 2620.48 Lakh only against the estimated cost of Rs. 139.80 Lakh for IDC in year 2005 which is 1774.45% higher than the estimates of Rs. 139.80 Lakh of year 2005. This rise of 1774.45% is a very huge rise and constitutes a major portion of the project cost.
- v. There is no mention of Project Management Cost in the Cost verified by CA, and if it was not necessary, why it was planned as a cost from the beginning and every time in the loan approving document and because of what reasons it suddenly vanished from picture having become redundant.
- vi. Provision for Contingencies has also met the same treatment as Project Management Cost.
- vii. The year-wise data of cost provided either in the petition by the Petitioner or the by the CA on behalf of petitioner gives a hazy picture of data wherein firsthand the cost of different and individually distinct works appear to have been clubbed together with ultra vires motives as no categorical and logical reasons of the same have been assigned to and more importantly it is not apparent whether the year-wise capital costs approved by IREDA and shown by the Petitioner are cumulative or not.
- viii. That considering the comparison of data of 3 MW power plant with power plant of 5 MW capacity various analysis can be made which clearly projects towards unexplainable increase in the cost as there are various components which remain unaffected irrespective of the capacity.

The Petitioner in this regard submitted that they had already provided reasoning/justification and documents in support of their claim and the Respondent is fairly wrong in questioning the competence of the Petitioner. The Petitioner further submitted that the report of MNRE on Benchmark Capital cost has been submitted by the MNRE to CERC and the Respondent has wrongly stated that this report relates to construction in the year 2015, rather it relates to cost of project commissioned in 2015 and thereafter. The Petitioner further submitted that the Respondent appears to have deliberately tried to compare cost estimates of 3 MW project against the present cost of the 5 MW project just to show an abnormal increase in cost, which is wrong and incorrect and therefore all the conclusions drawn are also incorrect.

The Petitioner in its reply to the queries raised by the Commission submitted the physical and financial readiness of the major components of the project in June, 2013 and details of time and expense taken to complete them as summarized below:

- a. Rs. 454 Lakh was spent on head works comprising the diversion weir, intake, head regulator, feeder channel, desilting tank, stilling basin and related protection works prior to June, 2013. In the subsequent period, the Petitioner spent Rs. 157 Lakh. This work was completed during the period February, 2016 to August, 2016.
- b. Rs. 880 Lakh was spent on civil works (including approach road), fabrication and erection of 2.1 m diameter head race pipeline of 1 km length prior to June, 2013. In 2015/2016, the Petitioner spent Rs. 162 Lakh. This work was completed during the period January, 2016 to June, 2016.
- c. Rs. 91 Lakh was spent on the Penstock and civil works prior to June, 2013 and Rs. 241 Lakh was spent in 2016 by the Petitioner. This work was completed in the period from February to August, 2016.
- d. Rs. 47 Lakh was spent on the Surge-shaft prior to June, 2013. Rs. 161 Lakh was spent in 2016, for preparation of foundation at new location and for fabrication & erection of steel surge shaft, from October to November 2016.
- e. Rs. 371 Lakh was spent on the powerhouse and Rs. 35 Lakh was spent on tail pool prior to June, 2013 and they were 100% complete with no additional cost incurred thereafter. Rs. 6 Lakh was spent on tail-race prior to June, 2013 and additional Rs. 29

Lakh was incurred subsequently in 2016.

- f. Rs. 373 Lakh was spent on the Head-race tunnel prior to June, 2013 and the component had been completed. Rs. 31 Lakh was spent towards grouting and water proofing in August, 2016 prior to commissioning.
- g. Rs. 750 Lakh was spent towards the supply and erection of Electro-Mechanical works (by M/s BFL Hydro Ltd) prior to June, 2013. Rs. 109 Lakh was spent after 2015 to complete the works, including additional cost incurred for re-erection of certain equipment.

The Commission has noted the submissions made by the Respondent and clarifies that for the purpose of approval of capital cost of the project, the Commission considers the actual expenditure incurred after carrying out the prudence check of cost escalations, if any, with reference to the cost estimated in the DPR based on the justification for cost overrun and time overrun as furnished by the Petitioner. Hence, submission of the Petitioner regarding steep rise in cost of material and labour have not been considered in toto in support of its claims for cost escalation. However, submissions of the Petitioner have been analyzed and further information were sought on the replies submitted by the Petitioner on various dates before arriving at the Capital Cost allowable to the Petitioner as discussed in the subsequent paras. Further, the submission of UPCL while comparing the project cost of 3 MW way back in 2005 with the executed cost of the project of 5 MW as on the date of CoD, i.e. 20.03.2017 appears to be unjustified as on the one hand the project capacity has changed and on the other, huge time has elapsed till the time of completion of project and input costs may have rose manifolds.

- 3.3.3 The Commission vide its letter dated 10.08.2017 and further vide its letter dated 31.08.2018 asked the Petitioner to submit its reply on certain deficiencies/shortcomings observed in the Petition filed before the Commission. The Petitioner vide its reply dated 17.11.2018 submitted the requisite information. The aforesaid reply of the Petitioner alongwith the replies submitted subsequently on the additional queries raised by the Commission at various point of time, were analyzed by the Commission. It was observed that the Petitioner has engaged numerous contractors for execution of works related to Tanga SHP, and most of the contracts have been entered on work execution/

rate contract basis, without any firm value. Moreover, it took more than 10 years for the project to commission which ought to have substantially affected the various input costs required for execution of the project. Hence, a comparison of contract value with the actual executed cost will not portray a true and fair view of the financial efficiency of the Petitioner in execution of the project, and moreover will not serve any purpose to derive any conclusion from the same. Accordingly, the Commission in order to establish the claims of the Petitioner and to have a more realistic approach to analyze the claimed cost, asked the Petitioner to provide copies of all the invoices exceeding Rs. 2.50 Lakh alongwith the other information. The Commission, subsequently, also sought details of expenses below Rs. 2.50 Lakh from the Petitioner.

- 3.3.4 The Commission analyzed the revised DPR submitted by the Petitioner prepared after the floods of June 2013, wherein it was stated that total expenditure on project till March, 2014 based on the audited balance sheet of the Petitioner was Rs. 4784.10 Lakh (including IDC of 1259.27 Lakh) and additional cost required to revive and complete the project after the floods of June, 2013, will be Rs. 1179.08 Lakh. Further, additional IDC due to delay in project works consequent to floods of June, 2013, was projected as 780.82 Lakh in the aforesaid revised DPR.
- 3.3.5 The Petitioner in its submissions submitted that it had to incur additional cost to cater to the geological surprise that necessitated the construction of HRT in place of power channel. In this regard, the Commission is of the view that from the submissions of the Petitioner it is evident that they took bonafide clearance from various authorities for construction of HRT, and accordingly, the need for the same cannot be denied. Therefore, actual expense under this head is allowable to the Petitioner subject to prudence check.
- 3.3.6 The Petitioner in its submissions submitted that it had to incur additional cost towards protection works after the floods of June, 2013. The revised DPR prepared after the floods of June, 2013 has also taken into account this head of expenditure. In this regard, the Commission is of the view that as envisaged in the revised DPR of Tanga SHP, the additional protection works were necessitated to prevent any future damages to the project from occurrence of untoward events, and accordingly, the actual cost incurred subject to prudence check is allowable to the Petitioner.

- 3.3.7 The Petitioner submitted the copies of the invoices, which were examined by the Commission. The Petitioner's submissions and the Commission's views on the same are discussed in the subsequent paras.
- 3.3.8 The Commission, as discussed above, in order to establish the actual expenditure incurred on the Tanga SHP, examined the invoice/details submitted by the Petitioner and based on the same and also the cost envisaged in the revised DPR, the actual allowable capital cost as on CoD has been worked out.
- 3.3.9 The Commission, from the invoices and details submitted by the Petitioner observed that multiple works related to the project were being carried on by different contractor, in simple terms it was not possible to assign each and every single invoice directly to a particular head of expense. Accordingly, the Commission took cognizance of the head wise cost breakup provided by the Petitioner in its submission, to analyze the capital cost to be approved for Tanga SHP as on CoD.
- 3.3.10 The total invoices submitted by the Petitioner under the head civil works amounted to Rs. 2801.41 Lakh. Further, the Petitioner also submitted details of invoices less than 2 Lakh amounting to Rs. 613.50 Lakh. Accordingly, the Commission has considered an amount of Rs. 3414.92 Lakh under the head civil works against the Petitioner's claim of Rs. 3560.43 Lakh. Further, as discussed above, in order to work out the head wise expenditure under each head of civil works, the Commission has pro-rated the amount of capital cost, as per the actual bills & details of expenses less than Rs. 2 Lakh submitted by the Petitioner, in the ratio of head wise expense claimed by the Petitioner under the head civil works. The Comparison of revised DPR cost with the cost claimed by the Petitioner and cost considered by the Commission under the head civil works is as summarized in the Table below:

Table 3.1: Details of capital expenditure under the head Civil Works (Rs. in Lakh)

S. No.	Work Detail	DPR Cost (post floods of June 2013)	Cost Claimed by the Petitioner	Actual Bills / Details submitted by the Petitioner considered by the Commission
1	Head Works	630.91	611.83	586.83
2	HR Pipe Line 2.1m dia	1,094.72	1,042.35	999.75
3	Surge Shaft	106.45	208.30	199.79
4	Penstock (1.8m & 1.4m dia)	312.72	332.06	318.49
5	Power House	359.58	371.80	356.60
6	Tail Pool	34.73	34.73	33.31
7	Tail Race Channel	76.16	34.62	33.21
8	Control Room & Service bay relocation	55.67	59.14	56.72
9	Switchyard civil works & ODY structure erection	50.26	49.53	47.50
10	Gates & Hoists	83.68	63.76	61.16
11	HR Tunnel	354.85	404.10	387.58
12	Protection Works	310.33	348.21	333.98
	Total Civil Works	3,470.06	3,560.43	3414.92

3.3.11 The invoices and details submitted by the Petitioner under the head Civil works appears to be reasonable, and also, as can be seen from the table given above, the total value of invoices/details submitted by the Petitioner for expenditure under the head civil works, is within the cost envisaged in the DPR, prepared after the floods of June 2013. Accordingly, the Commission approves Rs. 3,414.92 Lakh under the head Civil works for Petitioner's Tanga SHP as on CoD.

3.3.12 As regards the Land Cost, since the actual contracts/details submitted by the Petitioner amounting to Rs. 38.10 Lakh are within the DPR Cost, hence, the Commission has allowed the same based on the actual details submitted by the Petitioner and accordingly allows an amount of Rs. 38.10 Lakh under the head Land cost.

3.3.13 The contract for Power Plant & Electro-mechanical equipments was awarded by the Petitioner to M/s Boving Fouress Limited (M/s BFL) for a total value of Rs. 828.00 Lakh vide contract dated 21.01.2008 as detailed in the Table below:

Table 3.2: Detail of contract for electromechanical equipment of Tanga SHP (Rs. in Lakh)

S. No.	Particulars	Amount
1	Design, manufacture, testing at factory, supply of Electrical and Mechanical equipment etc.	788.00
2	Transportation to site, installation and commissioning etc.	40.00
	Total	828.00

3.3.14 The Petitioner in support of the contracted cost of Power Plant & Electro-mechanical equipments submitted invoices raised by M/s BFL amounting to Rs. 810.78 Lakh. In

addition the Petitioner also submitted invoices of miscellaneous supplier/vendors for works related to Power Plant & Electro-mechanical equipment amounting to Rs. 47.82 Lakh.

- 3.3.15 The Commission analysed the submissions made by the Petitioner and observed that as per the revised DPR the cost envisaged under the head Power Plant & Electro-mechanical equipment was Rs. 749.80 Lakh as against the Petitioner's claim of Rs. 858.60 Lakh. In this regard the Petitioner submitted that around Rs. 750 Lakh were spent by the Petitioner towards the supply and erection of Electro-mechanical works prior to flood of June, 2013 and around Rs. 109 Lakh were spent after 2015 to complete the works, including additional cost incurred for re-erection of certain equipment.
- 3.3.16 In this regard, the Commission is of the view that based on the invoices submitted by the Petitioner and further details submitted in this regard, the actual expenditure on Power Plant & Electro-mechanical equipment appears to reasonable moreso, in light of the fact that its generators was also washed away during the catastrophe of 2013 and, accordingly, the Commission allows an amount of Rs. 858.60 Lakh as on CoD, under this head.
- 3.3.17 Further, the Petitioner has also claimed miscellaneous fixed assets amounting to Rs 15.66 Lakh, against which an amount of Rs. 10.35 Lakh could be verified from the invoices submitted by the Petitioner. Accordingly, the Commission allows an amount of Rs. 10.35 Lakh under the head miscellaneous fixed assets for Tanga SHP as on CoD
- 3.3.18 Further, the Petitioner also submitted that at the time of flood of June, 2013, the project was in construction stage and the total flood losses were estimated at approximately Rs. 500 Lakh against which an insurance claim was settled at Rs. 221 Lakh. The Commission has, accordingly, based on the submission of the Petitioner adjusted the recovery of insurance claim of Rs. 221 Lakh from the allowable project cost of Tanga SHP as on CoD.
- 3.3.19 Accordingly, based on the analysis as dealt in the preceding Paras, the hard cost of the project works out to Rs. 4100.96 Lakh as against Rs. 4473.07 Lakh claimed by the Petitioner and the same is presented in the Table given below:

Table 3.3: Hard Cost allowed by the Commission (Rs. In Lakh)

S. No.	Particulars	Amount (Rs. in Lakh)
1	Land	38.10
2	Civil Works	3414.92
3	Power Plant & Electro-mechanical equipments	858.60
4	Miscellaneous Fixed assets	10.35
6	Less: Recoveries from Insurance Company	-221
7	Net Hard Cost Allowed	4100.96

3.3.20 The Petitioner submitted the details of Preliminary & Pre-operative expenses amounting to Rs. 542 Lakh incurred during the construction period and upto CoD, of Tanga SHP, as detailed in the table below:

Table 3.4: Preliminary & Preoperative expenses submitted by the Petitioner (Rs. in Lakh)

Particulars	Amount
Salaries & Other Benefits	256.23
Rent	18.60
Rates & Taxes	2.48
Traveling & Conveyance	104.71
Professional & Consultancy Charges	90.19
Repairs & Maintenance	11.47
Other Expenses	58.32
Total	542.00

3.3.21 The Petitioner submitted that it had incurred an amount of Rs. 2620.48 Lakh as Interest During Construction (IDC) against the IDC of Rs. 2040.09 Lakh as projected in the revised DPR. The Petitioner submitted the bank statement/supporting documents in support of the IDC claimed by it wherein the total interest charged by the financial institutions during the period March, 2006 to March, 2017 was Rs. 2608.06 Lakh excluding the penal interest of Rs. 27.00 Lakh. The penal interest charged by the banks is not an allowable item for the purposes of Tariff, accordingly, the same has not been allowed by the Commission.

3.3.22 The Preliminary & Preoperative expenses and Interest During Construction is a time linked factor, and, the Petitioner vide its Petition and further through various submissions made before the Commission provided the reason/justification for the time overruns which were analyzed by the Commission and following view has been taken on the same:

- (i) Based on the Supplementary Implementation Agreement and permission for capacity enhancement granted by GoU, the Petitioner was required to achieve commissioning of its project by October 2008, i.e. within the period prescribed in

the original IA dated 28.04.2004. However, the same has been completed and put to commercial use w.e.f. March, 2017. Hence, there is substantial delay of more than 8 years in achieving commissioning of the project.

- (ii) Further, with regard to treatment of the impact of cost escalations caused by time overrun, the Commission has decided to take references of the judgment pronounced by Hon'ble APTEL. In this regard, it would be relevant to refer to the judgment April 27, 2011 in Appeal No. 72/2010 of Hon'ble APTEL. Relevant part of the same is reproduced as under:

"7.4. The delay in execution of a generating project could occur due to following reasons:

i) due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.

ii) due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.

iii) situation not covered by (i) & (ii) above.

In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/ suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer..."

- (iii) The Petitioner claimed that there was a considerable delay in land acquisition from the GoU. The Petitioner submitted that they paid the requisite lease rent and compensatory afforestation for allotment of land for their Tanga SHP vide letter

dated 02.01.2006, but the land lease agreement was only executed on 21.03.2006 and the forest land was demarcated and handed over to the Petitioner by the GoU vide letter dated 04.08.2006. Further, M/s IREDA, the Petitioner's lending agency had sought letter of assurance from the Dept. of Forests, Govt. of Uttarakhand, without which it refused to disburse any funds, which could only be obtained from the Dept. of Forests vide letter dated 08.10.2006.

- (iv) The Petitioner further submitted that due to a geological surprise and keeping in view the overall safety of the project and the surrounding villages, it became necessary for the Petitioner to construct a Head Race tunnel of length 420 metre, which was not envisaged in the original DPR. Even though the Head Race tunnel was considered to be a part of the power channel and no additional land was required, it became necessary for the Petitioner to obtain permission from the dept. of Forests, GoU and other Government authorities for change of land use, which was a lengthy and protracted process, and the permission was obtained in January, 2013. The Petitioner also submitted that the project site was prone to dangerous landslides, with large boulders suddenly rolling down from the mountain side, causing serious injuries or even fatalities to labour, due to which the pace of the work was greatly disrupted.
- (v) The Petitioner further submitted that unprecedented floods of June, 2013 caused extensive damage to the project and a number of its components had to be relocated in order to complete the project. The Petitioner summarized the major damages due to the floods of June, 2013 as follows:
- i. The powerhouse service bay was washed away and had to be reconstructed in a new location.
 - ii. The project's 2 X 2.5 MW generators were lost in the floods and new generators had to be re-designed and matched with the turbines that had been supplied prior to the flood in 2013, which were finally manufactured in July 2016. The Petitioner further submitted, that in view of the heavy rains and floods witnessed in Pithoragarh District during the monsoon season of 2016, it was very risky to transport the newly manufactured generators as they were very heavy (weighing about 13 tons each),

requiring the use of large trailer trucks and the new generators could only reach the site only in November, 2016.

- iii. The penstock had to be re-aligned due to the erosion of a portion of the original alignment, which in turn caused the surge shaft to be relocated. The penstock realignment necessitated that it to be placed underground and encased in concrete throughout its length, which resulted in additional cost and time.
- iv. The new surge shaft location was fixed based on the realigned penstock. The Petitioner encountered geological problems at the surge shaft location, which required extensive treatment of the foundation by means of rock-drilling and stitching.
- v. The switchyard location was eroded and washed away by the Seraghat river, which had to be relocated and reconstructed.
- vi. The head-race pipeline had suffered damage in multiple places due to flood erosion and landslides and extensive protection works were done and backfilling was undertaken to restore these areas so that new pipeline could be erected.
- vii. The Tanga SHPs, weir, intake and desilting tank locations were completely washed away.
- viii. During the floods of June, 2013, the Seraghat and Goriganga rivers had washed away and eroded their left banks extensively, where all the major components of the Tanga project were located, and in order to ensure the future safety of the project and its long term operations, the Petitioner had undertaken extensive newly envisaged protection and river-bank restoration works, which significantly increased the overall project cost and time.
- ix. The main approach road to the project site at Seraghat Village, i.e. the Jauljivi to Munsiri road was completely washed away. There was no approach road to the project site till February, 2014, when only light vehicles could approach the project site. As a result the project site was

completely inaccessible and stranded from June, 2013 to February, 2014 causing delay and increase in project cost.

- (vi) The Respondent submitted that the Petitioner has claimed the cost of Rs. 76.35 Crore incurred upto CoD of the project, wherein the IDC component alone is Rs. 26.20 Crore while the hard cost of the project is Rs. 50.15 Crore. The Respondent submitted that the Petitioner has not established its IDC claim against the delays beyond the contractual completion period and hence IDC for the same should not be allowed to the petitioner. The Respondent further submitted that the delay in commissioning of the project is solely attributable to the Petitioner as they failed in commissioning initially envisaged 3 MW project on time and also the project for enhanced capacity thereafter. The Respondent submitted that, the Petitioner has also not mentioned the reasons of delay in Commissioning of project, for the period from the year 2003 to 2013, and has emphasized only on flashflood in June 2013 as the main reason and the circumstances of its aftermath for delay in commissioning of the project.

The Commission analyzed the submissions of the Petitioner and the Respondent and observed that the loan disbursement for the Petitioner's Tanga SHP commenced in the month of March 2007, i.e. FY 2006-07 and upto the completion of Tanga SHP in March, 2017, the Petitioner has incurred total IDC for 121 months.

Further, the Petitioner's claim of Preliminary & Pre-operative expenses was analysed by the Commission and it was observed that an amount of Rs. 10.43 Lakh in FY 2005-06, was appearing under the head other expenses stated as "opening balance sheet expenses". Inclusion of this amount indicates that the Preliminary & Pre-operative expenses claimed by the Petitioner also include similar expense for FY 2004-05 as well. Moreover, the initial IA of Tanga SHP was executed on 28.04.2004, therefore the Petitioner ought to have started incurring preliminary expenses therefrom. Accordingly, the Commission is of the view that the claimed Preliminary & Pre-operative expenses of Rs. 542 Lakh covers a period of commencing from FY 2004-05 to FY 2016-17, i.e, upto CoD of the project, thus, covering a total period of 156 months.

The Petitioner signed the initial IA with GoU on 28.04.2004. As a prudent business practice, the Petitioner must have started the preliminary execution of activities related to Tanga SHP including land allotment etc. right after the signing of IA with GoU in the year 2004, as executed PPA with UPCL existed on that date. However, the Petitioner applied for land allotment on 02.01.2006, and got the letter of assurance regarding land allotment on 08.10.2006. In this regard, the Commission is of the view that the time overrun pertaining to FY 2004-05 to FY 2006-07 cannot be fully attributed to the Petitioner, as till the actual allotment of land for the project no substantial progress could have been expected from the Petitioner related to Tanga SHP. However, it is also to be noted that the Petitioner started the proceedings for land acquisition quite late after the signing of initial IA with GoU, i.e., almost after two years, which had eventually led to delay in getting the land allotted for the Tanga SHP. Accordingly, the Preliminary & Pre-operative expenses has been partially disallowed to the Petitioner for the period commencing from FY 2004-05 to FY 2006-07, i.e. 36 months, in accordance with the principles laid down in the Hon'ble ATE's above referred Order. Accordingly, in the absence of any satisfactory justification of the Petitioner, the Commission has disallowed 50% of average Preliminary & Pre-operative expense for a period of 36 months as discussed above.

The Petitioner submitted that the supplementary PPA was entered with UPCL for enhanced capacity on 07.12.2009, and thereafter IREDA made the further disbursement of loan for the Petitioner's project. The Commission observed that prior to entering into a PPA with UPCL for enhanced capacity, the Petitioner got the letter of assurance for land allotment on 08.10.2006, only after which the project works could have formally started, apart from few preliminary works. The Commission further observed that, the Petitioner had applied for enhanced capacity, from 3 MW to 5 MW, with the GoU on 14.08.2006 and supplementary IA was executed on 23.11.2007, i.e. almost after 15 months from the date of application. In this regard, the Commission is of the view that delay in getting the project capacity enhanced with GoU cannot be attributed to the Petitioner and accordingly time overrun for this period has been considered as fully uncontrollable.

Further, after entering into the supplementary IA with GoU, it took further two years to get the supplementary PPA signed with UPCL for enhanced capacity. Furthermore, Chairman, M/s IREDA, vide letter dated 01.06.2009 sought the intervention of the Commission informing that Tanga SHP had reached advanced stage of completion and was scheduled to be commissioned by March, 2010, but M/s IREDA was unable to disburse any funds pending execution of the Supplementary PPA for 5 MW capacity. In this regard, the Commission is of the view that the delay in getting the supplementary PPA signed with UPCL cannot be fully attributed to the Petitioner, as they themselves were the beneficiary. However, the Petitioner has also claimed this period as uncontrollable and beyond their control.

The Petitioner submitted that they faced a geological surprise during the execution of the project, and appointed a consultant to appraise the alternative alignment of HRT/Penstock of Tanga SHP. The Consultant vide its letter dated 09.04.2009 submitted the report and advised the Petitioner, to limit the HRT pipe line length to around 430 mtr and an underground tunnel be constructed in place of the same. The Petitioner sought permission from the Chief Forest Conservator, GoU, on 14.10.2009 seeking approval for tunnel construction in place of 400 metre power channel, due to geological surprise, and after various correspondences with the Govt. authorities the Petitioner got the final clearance on 10.01.2013.

In this regard, the Commission is of the view although the Petitioner got the supplementary PPA executed with UPCL in December, 2009, still they could have initiated the clearance proceedings for tunnel right after receiving the report dated 09.04.2009 from their consultant appointed for the purpose. The Petitioner, instead of acting promptly, waited until October, 2009 to apply for clearance from Chief Forest Conservator, GoU. It is also worth mentioning that the Petitioner did not wait for signing of supplementary PPA before applying to Chief Forest Conservator, GoU, which clearly shows that the clearance proceedings for tunnel has no linkage with the signing of supplementary PPA and the Petitioner could have acted promptly to sought clearance at a much earlier date. Accordingly, the Commission is of the view that the entire period of delay in getting the supplementary PPA executed with UPCL cannot be treated as fully uncontrollable,

as although there was a delay in signing of supplementary PPA with UPCL, but the Petitioner still could have initiated the proceedings related to tunnel clearances etc. in April, 2009, instead of waiting till October, 2009 to kick off the same. Therefore, the Commission is of the view that the period between 23.11.2007, i.e. the date of signing of supplementary IA with GoU, upto March, 2009, i.e. prior to the date of report from the consultant can be treated as fully uncontrollable and beyond the control of the Petitioner. Further, the period post April, 2009 has been dealt separately in the subsequent paras.

The Commission observed that it took almost 45 months to the Petitioner to get the clearance from the forest department GoU, i.e. from 09.04.2009 till 10.01.2013. The Petitioner got the report from their consultant, regarding the tunnel construction, in April, 2009 itself, and after passage of almost 6 months the Petitioner applied with authorities of GoU, to seek clearance for construction of tunnel, in October, 2009, and finally got the clearance in January 2013. In this regard the Commission is of the view that the period of 6 months from April, 2009 to October, 2009 was fully controllable and the Petitioner should have acted promptly in their own interest, and, therefore, the Commission disallows the period of delay of 6 months as being fully controllable.

The Petitioner submitted that, the tunnel work could only be completed after change of land use permission granted in January, 2013, which directly impacted the time frame for the construction of the surge-shaft and penstock, as their location and alignment was interlinked with the construction and alignment of the tunnel. In this regard, the Commission is of the view that from the submissions of the Petitioner it appears that they are trying to put the blame of the entire delay on government authorities for delay in construction of tunnel, whereas, as discussed above, the Petitioner themselves initially delayed the process of applying for tunnel construction clearance by almost 6 months. Further, even after that it took another 39 months to the Petitioner in getting the final clearance. However, the Petitioner through its submissions has tried to shift this entire delay of entire 39 months on the Government authorities. In this regard, the Commission is of the view that the approach of the Petitioner in getting the clearance for tunnel construction appears to be very lackadaisical, as they being a

developer, were expected to correspond and follow up with various clearance authorities for getting the early clearances for their project. It appears, rather than acting pro-actively in the matter of tunnel clearance, the Petitioner waited for the same to happen at its own pace which led to a delay of 39 months as discussed above.

The Commission agrees that there can be legitimate delay in getting these type of clearances, where different Govt. departments are involved and feasibility reports etc. needs to be prepared, but still there is no question of such delays extending to almost 39 months. The Commission is of the view that this clearly depicts negligence of the Petitioner in getting the clearance and if the petitioner would have acted proactively, then it should not have taken a period of more than 12 months to obtain the clearance. Accordingly, the Commission, considers a period of 12 months as legitimate period for getting the approval from the authorities, and disallows a period of 27 months out of total 39 months as being fully controllable.

Hence, in accordance with the principles laid down in the Hon'ble ATE's above referred Order and in the absence of any satisfactory justification of the Petitioner, the Commission disallows average interest cost and average preliminary & pre-operative expense for a period of 33 months (6 months plus 27 months) as discussed above.

- (vii) Further, as discussed above, the Petitioner has submitted the cloud burst and heavy rains in the project vicinity in June 2013 as one of the reasons for time overrun, which had severely affected their project.

The Commission, in order to establish the claims of the Petitioner and to examine the extent of damage caused to the Petitioner's project due to the aforesaid events, vide its letter dated 28.08.2017, asked District Magistrate Pithoragarh, UREDA & UJVN Ltd. to provide information alongwith supporting documentary evidence, if any, in respect of the natural calamity caused due to cloud burst & extra-ordinary heavy rainfall, citing out the nature & extent of damages caused to areas situated in and around 5 MW Tanga SHP, during the floods of June 2013. The Petitioner in its Petition has also furnished the photographic evidence, news paper reports etc. in support of damages caused by

heavy rainfall/flood to its 5 MW Tanga SHP.

The Commission took note of the submissions of the Petitioner and the other relevant information sought from various departments in this regard. UJVNL vide its letter dated 04.10.2017, provided the correspondences with respect to Tanga SHP citing out the impact of damage including a report dated 29.07.2013 from SDM, Munsyari.

The Commission observed that SDM, Munsyari, in its report, with respect to damages caused to Tanga SHP during the floods of June 2013, has stated as under:

“Physical examination of the project site was done and it was observed that due to occurrence of floods on 16th & 17th June, 2013, the under construction Tanga SHP was severely damaged and the damages to the project due to aforesaid event are as summarized below:

- 1. The approach roads to under construction Tanga SHP have suffered damages at several places.*
- 2. Penstock of the project has suffered damages.*
- 3. Service Switch-Yard and service bay have suffered severe damages.*
- 4. Power-house has suffered damages.*
- 5. Two generators have flooded away.*
- 6. Guest house of the M/s HHPL has suffered damages.*
- 7. The stock of cement, sand etc. and machineries for construction activities have flooded away.”*

The Commission analysed the report of SDM, Munsyari and observed that findings of said report indicate that the Petitioner’s Tanga SHP was adversely affected during the floods of June 2013, and additional time required to revive from the aftermath of the floods of June, 2013 cannot be denied. The Commission also analysed the revised DPR of Tanga SHP prepared after the calamity of June, 2013, which stated that the project site was inaccessible until March, 2014 and the project may be revived and completed by July 2016.

Accordingly, in view of the aforesaid report of SDM, Munsyari, and also

the revised DPR of Tanga SHP, the Commission is of the view that the Petitioner's Tanga SHP got adversely affected due to the floods of June 2013 and the period of delay post flood till the scheduled completion date as per the revised DPR, i.e. July 2016 was beyond the control of the Petitioner being fully uncontrollable.

Further, the Commission is of the view that the period of delay of 8 months from July, 2016, i.e. as per the schedule given in the revised DPR till the CoD, i.e. 20.03.2017 cannot be assumed to be uncontrollable as no proper justification for said period of delay has been provided by the Petitioner, and accordingly, the delay on account of said period of 8 months has been disallowed by the Commission as being fully controllable.

Accordingly, the Commission disallows the average interest cost and average preliminary & pre-operative expense for the period of 8 months from August, 2016 to March, 2017. Therefore, the total disallowance of time overrun on account of fully controllable factors attributable to the Petitioner works out to 41 months, as discussed above, and the Commission disallows the average interest cost and average preliminary & pre-operative expense for said 41 months as discussed in following paras.

Further, the average Preliminary & Pre-operative expense from FY 2004-05 to FY 2006-07, i.e., 36 months, are being allowed to the Petitioner only to the extent of 50% as discussed above.

3.3.23 The Petitioner also submitted its financial statements from FY 2005-06 to FY 2016-17. The Commission based on the audited financial statements submitted by the Petitioner observed that an amount of Rs. 68.24 Lakh has been booked by the Petitioner under the head other income from FY 2011-12 to FY 2016-17 with respect to Tanga SHP. The Commission is of the view that since the said income pertains to the period of construction of the project, hence, based on the accounting principles, the same should be reduced from the capital cost of the project.

3.3.24 The Commission in view of the above allows the Preliminary & pre-operative expenses to the Petitioner as detailed below:

**Table 3.4 : Preliminary & Pre-operative expenses allowed by the Commission
(Rs. in Lakh)**

Particulars	Total
Preliminary & Pre-operative expense for approx 156 months i.e. from FY 2004-05 to FY 2016-17 (upto CoD)	542.00
Less: 50% of Average expenses for 36 months disallowed	-62.54
Less: Average expense for 41 months disallowed	-142.45
Net Preliminary & Pre-operative expenses allowed	337.01

3.3.25 Accordingly, the capital cost of the project (Hard Cost) as per Table 3.3 alongwith preliminary & pre-operative expenses as allowed above by the Commission works out to Rs. 4437.98 Lakh.

3.3.26 The IDC arrived at after reducing the penal interest has been prorated in the ratio between the “actual capital cost allowed (Hard Cost)” and “the capital cost claimed by the Petitioner (Hard Cost)”.

3.3.27 The Commission in view of the above allows the IDC of Rs. 1525.92 Lakh to the Petitioner as detailed below:

Table 3.5 : Interest During Construction allowed by the Commission (Rs. in Lakh)

Particulars	Total
Interest Booked (less of penal interest) for approx 121 months i.e. March 2007 to March 2017	2608.06
Interest Cost Prorated on the allowed capital cost	2307.95
Less: Average Interest for 41 Months disallowed	-782.03
Net Interest Cost Allowed	1525.92

3.3.28 In view of the above discussion, the total cost allowed to the Petitioner as on CoD is as summarized below:

Table 3.6: Capital Cost allowed by the Commission (Rs. in Lakh)

S. No.	Particulars	Amount (Rs. in Lakh)
1	Land	38.10
2	Civil Works	3414.92
3	Power Plant & Electro-mechanical equipments	858.60
4	Miscellaneous Fixed assets	10.35
5	Preliminary & Pre-operative expenses	337.01
	Less: Recoveries from Insurance Company	-221
7	Net Hard Cost Allowed	4437.98
6	Interest During Construction	1525.92
7	Less: Other Income	68.24
	Total	5895.65

3.4 MNRE Grant

3.4.1 Regulation 24 of RE Regulations, 2013 specifies as under:

“The Commission shall take into consideration any incentive or subsidy offered by the Central or State Government, including accelerated depreciation benefit if availed by the generating company, for the renewable energy power plants while determining the tariff under these Regulations.

Provided that only 75% of the capital subsidy for the financial year of commissioning as per applicable scheme of MNRE shall be considered for tariff determination.

...”

3.4.2 The Petitioner in this regard submitted that the grant from MNRE be adjusted on actual receipt of the same and not in anticipation of receipt. As per Govt. guidelines the subsidy eligible for Tanga SHP works out to Rs. 320 Lakh and the same has been considered by the Commission and also the Petitioner for the purposes of tariff determination in accordance with the Regulations. Further, the submission of the Petitioner, that the grant may be adjusted only if actually received by the Petitioner, has no merit as the grant is dependent upon certain terms and conditions to be fulfilled by the developer and default on that account cannot be passed on to the consumers in the form of Tariff. In this regard Regulation 15(4) of the RE Regulations, 2013 specifies as follows:

“The amount of subsidy shall be considered for each renewable source as per the applicable policy of MNRE. If the amount of subsidy is increased or reduced by MNRE, then necessary corrections in tariffs would be carried out by the Commission provided the reduction in subsidy amount is not due to the inefficiency of the generating company.”

Hence, the Commission has factored in the subsidy while determining the tariffs in accordance with the RE Regulations, 2013.

3.5 Debt-Equity Ratio

3.5.1 Regulation 15 of RE Regulations, 2013 specifies as under:

“(2) Debt-Equity Ratio

The debt-equity ratio for generic and project specific tariff shall be as follows:

(a) For generic tariff debt–equity ratio shall be 70:30.

(b) For project specific tariff, the following provisions shall apply:

If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

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

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

(3) Subsidy available from MNRE, to the extent specified under Regulation 24, shall be considered to have been utilized towards pre-payment of debt leaving balance loan and 30% equity to be considered for determination of tariff.

Provided further that it shall be assumed that the original repayments shall not be affected by this prepayment.

(4) The amount of subsidy shall be considered for each renewable source as per the applicable policy of MNRE. If the amount of subsidy is increased or reduced by MNRE, then necessary corrections in tariffs would be carried out by the Commission provided the reduction in subsidy amount is not due to the inefficiency of the generating company."

3.5.2 The Commission asked the Petitioner to submit the CA certificate with respect to the capital cost as on CoD, citing out the funding pattern of the project cost as on CoD. The Petitioner in response submitted CA certificate dated 17.08.2018, and as per the said certificate, the actual equity of Rs. 2,835 Lakh and debt of Rs. 4,800.45 lakh has been deployed to finance the capital cost of Rs. 7635.54 Lakh, as claimed by the Petitioner, thus indicating a Debt:Equity ratio of 63% debt and 37% equity. The Commission has worked out the capital cost on CoD as Rs. 5,895.65 Lakh. The proportion of equity as per the CA certificate is 37%, which is in excess of 30%. Thus, in accordance with the Regulations, equity is capped to 30% of the capital cost and equity in excess of 30% is treated as normative loan having terms similar to the actual loan portfolio.

3.6 Depreciation

3.6.1 For the purpose of computation of depreciation, Regulation 17 of RE Regulations, 2013 specifies as under:

"(1) For the purpose of tariff, depreciation shall be computed in the following manner, namely:

(a) The value base for the purpose of depreciation shall be the capital cost of the project as admitted by the Commission.

(b) 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.

(c) Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan tenure and period beyond loan tenure over useful life computed on 'Straight Line Method'. For generic tariff the depreciation rate for the first 12 years of the Tariff Period shall be 5.83% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 13th year onwards.

(d) Depreciation shall be chargeable from the first year of commercial operation.

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis for computation of project specific tariff.

(2) 75% of the Capital subsidy received by the generator shall be reduced from the capital cost for depreciation purposes."

3.6.2 In accordance with the above referred Regulations, depreciation for the first 12 years of the tariff period has been computed @ 5.83% per annum of the approved Capital Cost of Rs 5,895.65 Lakh which is further reduced by 75% of the capital subsidy of Rs. 320.00 Lakh in accordance with the above provisions of the regulations. The balance depreciation has been spread over the remaining useful life of the project. Depreciation as approved by the Commission has been shown in enclosed **Appendix-I**.

3.7 **Return on Equity (RoE)**

With regard to computation of RoE, Regulation 18 of RE Regulation, 2013 specifies as under:

" (1) The value base for the equity shall be as determined under Regulation 15(2).

(2) The Return on Equity shall be:

(a) Pre-tax 20% per annum for the first 10 years.

(b) Pre-tax 24% per annum 11th year onwards."

Accordingly, return on equity on the equity deployed in the capital cost has been computed in accordance with the Regulations. The approved RoE is shown in enclosed **Appendix-I**.

3.8 **Interest on Loan**

3.8.1 The amount of Loan including normative loan has been worked out towards the approved project cost in accordance with Regulation 15 of the RE Regulations, 2013 as already discussed in Para 3.5.3 above.

3.8.2 Further, Regulation 15(3) of RE Regulations, 2013 specifies as under:

“Subsidy available from MNRE, to the extent specified under Regulation 24, shall be considered to have been utilized towards pre-payment of debt leaving balance loan and 30% equity to be considered for determination of tariff.

Provided further that it shall be assumed that the original repayments shall not be affected by this prepayment.”

3.8.3 Accordingly, from the loan amount worked out in Para 3.5.3 above, 75% of the capital subsidy of Rs. 320.00 Lakh has been considered as utilized towards pre-payment of debt in accordance with the Regulations.

3.8.4 However, as discussed in Petitioner’s submission above, the Petitioner has requested that in case the subsidy is not received, the capital cost may be adjusted accordingly. The same may be reviewed in accordance with Regulation 15(4) of RE Regulations, 2013 which is reproduced hereunder:

“The amount of subsidy shall be considered for each renewable source as per the applicable policy of MNRE. If the amount of subsidy is increased or reduced by MNRE, then necessary corrections in tariffs would be carried out by the Commission provided the reduction in subsidy amount is not due to the inefficiency of the generating company.”

3.8.5 Interest on Loan has been worked out in accordance with Regulation 16 of RE Regulations, 2013 which is reproduced hereunder:

“16. Interest on loan capital

(1) The loans arrived at in the manner indicated in Regulation 15(2) shall be considered as gross normative loan for calculation of interest on loan. The normative loan outstanding as on 1st April of every year shall be worked out by deducting the cumulative repayment up to 31st March of previous year from the gross normative loan.

(2) For the purpose of computation of generic tariff, the normative interest rate shall be considered as average State Bank of India (SBI) Base Rate prevalent during the first six months of the previous year plus 300 basis points.

For the purpose of computation of project specific tariff, interest rate shall be considered as lower of the actual interest payable to the financial institutions or the average State Bank of India (SBI) Base Rate prevalent during the first six months of the previous year plus 300 basis points

(3) Notwithstanding any moratorium period availed by the generating company, the repayment of loan is being considered from the first year of commercial operation of the project and shall be equal

to the annual depreciation allowed.

While calculating project specific tariff, notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed or actual repayment made, whichever is higher.

(4) Normative period of loan repayment shall be taken as 12 years."

3.8.6 The Commission has worked out the normative rate of interest in accordance with Regulation 16(2) of RE Regulations 2013, which works out to 12.76%. As per the Petitioner's submission made in the Petition, the weighted average rate of interest levied by its lender, i.e. M/s IREDA is 12.99%. Since the normative rate of interest is lower than the actual rate payable to the financial institution, therefore, the Commission has allowed interest on loan from the date of commissioning of the project at the rate of 12.76% per annum in accordance with the above provisions of the regulations. Further, loan repayment has been considered as annual depreciation allowed or actual repayment schedule of the loan, whichever is higher, as per above referred regulations.

3.8.7 The approved interest on loan for the tariff period is shown in the enclosed **Appendix-I**.

3.9 **Operation & Maintenance (O&M) Expenses**

3.9.1 For projecting the O&M expenses, relevant provisions of RE Regulations, 2013 are as under:

"20. Operation and Maintenance expenses

(1) Operation and maintenance expenses for the year of commissioning shall be determined based on normative O&M expenses specified by the Commission under Chapter 5 for different technologies for the first Year of Control Period, i.e. for FY 2013-14. These expenses shall be escalated @ 5.72% p.a. to arrive at O&M expenses for the ensuing years.

(2) Normative O&M expenses allowed for the year of commissioning shall be escalated at the rate of 5.72% p.a. to determine the O&M expenses for the different years of the Tariff Period."

3.9.2 Further, Regulation 28 of RE Regulations, 2013 specifies O&M expenses @ Rs 26.43 Lakh/MW for the SHPs commissioned on or after April 01, 2013 having capacity upto 5 MW. Subsequently, the Commission issued the Sixth amendment to the RE Regulations, 2013 which inter alia amends Regulation 28 of the RE Regulations and specifies O&M expenses @ Rs 35.33 Lakh/MW for the SHPs commissioned on or after April 01, 2013

having capacity upto 5 MW. The said amendment was effective from the date of notification, i.e. 23.09.2017.

3.9.3 In accordance with the above referred Regulations and the subsequent amendments thereof, O&M expenses as approved by the Commission for the tariff period of the project is shown in enclosed **Appendix-I**.

3.10 Interest on Working Capital

3.10.1 Regulation 19 of RE Regulations, 2013 specifies as under:

19. Interest on Working Capital

(1) The Working Capital requirement in respect of wind energy projects, small hydro power, Solar PV, Canal Bank and Canal Top Solar PV, Solar thermal and grid interactive roof top and small solar PV power projects shall be computed in accordance with the following:

(a) Operation & Maintenance expenses for one month;

(b) Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative CUF;

Provided for determination of project specific tariff sale of electricity will be calculated based on the CUF envisaged in the approved DPR or the normative CUF specified for the relevant technology under Chapter 5, whichever is higher.

(c) Maintenance spare @ 15% of operation and maintenance expenses

...

3) Interest on Working Capital shall be at interest rate equivalent to the average State Bank of India Base Rate prevalent during the first six months of the previous year plus 350 basis points.

3.10.2 In accordance with the above mentioned Regulations, components of working capital for each financial year during the tariff period have been computed. Further, as specified in the above mentioned Regulations, the rate of interest as computed based on the aforesaid regulation works out to 13.26%, which has been considered for working out the interest on working capital. Interest on Working Capital (IWC) as approved by the Commission is given in enclosed **Appendix-I**.

3.10.3 Based on the analysis and computation of Annual Fixed Charges (AFC) as described above for the Tariff Period of 35 years, yearly AFC as approved by the Commission is as shown in enclosed **Appendix-I**.

3.11 Annual Tariff

Based on the AFC and saleable energy as approved by the Commission, annual tariff for the period of 35 years has been determined as shown in enclosed **Appendix-I**.

3.12 Discounting Factor

3.12.1 Regulation 14 of the RE Regulations, 2013 specifies as under:

“ ...

(6) For the purpose of levelised tariff computation, the discount factor equivalent to weighted average cost of capital shall be considered. For determination of weighted average cost of capital, the pre-tax return on equity would be adjusted for tax at the applicable rates.

...”

3.12.2 Based on the above referred Regulation, the Discounting Factor for 35 years has been worked out for each year based on the post tax weighted average cost of capital (WACC) of each year during the life of the project and the same has been shown in enclosed **Appendix-I**.

3.13 Levelised Tariff

In light of the above discussions & computation made for Annual Fixed Charges (AFC), Annual Tariff & Discounting Factors, levelised tariff for the entire life of the project has been computed which comes out to Rs. 5.97 per unit against the proposed levelised tariff of Rs 7.23 per unit.

3.14 Date of applicability of tariff

The tariff so determined will be applicable w.e.f 20.03.2017 being the date of CoD of the project, and shall be valid for a period of 35 years from this date.

3.15 Payment of arrears

3.15.1 The difference in the project specific levelised tariff determined by this Order and the provisional tariff being paid to the Petitioner till date is hereby allowed to be recovered by the Petitioner from UPCL as arrears for the past period who shall pay the same in three equal instalments, commencing from May, 2019 in accordance with this Order.

3.16 Incentive for generation beyond normative PLF

3.16.1 As per Regulations, the tariff for generation beyond PLF of 46.90% shall be allowed to be

recovered at the project specific tariff determined by the Commission in this Order in accordance with the Regulations.

4. The Petition is disposed off accordingly.

(Subhash Kumar)
Chairman

Appendix-I

Particulars	Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Installed Capacity	MW	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Net Generation	MU	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	20.34	18.30	18.30
AFC																		
O&M Expenses	Rs. Lakh	154	187	197	209	221	233	247	261	276	291	308	326	344	364	385	407	430
Depreciation	Rs. Lakh	330	330	330	330	330	330	330	330	330	330	330	330	49	49	49	49	49
Interest on Term Loan	Rs. Lakh	475	433	391	349	307	264	220	175	130	88	46	12	0	0	0	0	0
Interest on Working Capital	Rs. Lakh	35	35	35	35	34	34	34	34	33	33	35	35	29	30	32	33	34
Return on Equity	Rs. Lakh	354	354	354	354	354	354	354	354	354	354	424	424	424	424	424	424	424
Total Fixed Cost	Rs. Lakh	1347	1339	1307	1276	1245	1215	1185	1153	1123	1096	1143	1128	847	868	890	913	938
Per Unit Tariff Components																		
PU O&M Expenses	Rs. p.u.	7.57	9.18	9.71	10.26	10.85	11.47	12.13	12.82	13.55	14.33	15.15	16.02	16.93	17.90	18.92	20.01	21.15
PU Depreciation	Rs. p.u.	16.22	16.22	16.22	16.22	16.22	16.22	16.22	16.22	16.22	16.22	16.22	16.22	2.42	2.42	2.42	2.42	2.42
PU Interest on Term Loan	Rs. p.u.	23.36	21.29	19.22	17.15	15.08	12.97	10.84	8.61	6.40	4.33	2.26	0.61	0.00	0.00	0.00	0.00	0.00
PU Interest on Working Capital	Rs. p.u.	1.70	1.74	1.72	1.70	1.69	1.68	1.66	1.65	1.64	1.64	1.71	1.72	1.45	1.50	1.55	1.61	1.67
PU Return on Equity	Rs. p.u.	17.39	17.39	17.39	17.39	17.39	17.39	17.39	17.39	17.39	17.39	20.87	20.87	20.87	20.87	20.87	20.87	20.87
Total Fixed PU Components	Rs. p.u.	66.24	65.83	64.26	62.73	61.23	59.74	58.25	56.69	55.21	53.91	56.22	55.45	41.67	42.69	43.77	44.91	46.12
Levellised Tariff																		
WACC (%)		11.87%	11.99%	12.12%	12.28%	12.45%	12.66%	12.92%	13.25%	13.65%	14.13%	14.45%	15.31%	15.69%	15.69%	15.69%	15.69%	15.69%
Discounting Factor	Rs./kWh	1.00	0.89	0.80	0.71	0.63	0.56	0.50	0.44	0.39	0.34	0.29	0.26	0.22	0.19	0.17	0.14	0.12
Discounted Tariff		6.62	6.58	6.43	6.27	6.12	5.97	5.82	5.67	5.52	5.39	5.62	5.54	4.17	4.27	4.38	4.99	5.12
Levellised Tariff	Rs./kWh	5.97																

Particulars	Unit	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Year		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Installed Capacity	MW	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Net Generation	MU	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30	18.30
AFC																			
O&M Expenses	Rs. Lakh	455	481	508	537	568	601	635	671	710	750	793	839	886	937	991	1047	1107	1171
Depreciation	Rs. Lakh	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Interest on Term Loan	Rs. Lakh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest on Working Capital	Rs. Lakh	35	37	38	40	42	43	45	47	49	51	54	56	59	62	64	68	71	74
Return on Equity	Rs. Lakh	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424
Total Fixed Cost	Rs. Lakh	964	991	1020	1051	1083	1118	1154	1192	1233	1275	1321	1368	1419	1472	1529	1589	1652	1719
Per Unit Tariff Components																			
PU O&M Expenses	Rs. p.u.	24.85	26.27	27.77	29.36	31.04	32.81	34.69	36.67	38.77	40.99	43.33	45.81	48.43	51.20	54.13	57.23	60.50	63.96
PU Depreciation	Rs. p.u.	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69
PU Interest on Term Loan	Rs. p.u.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PU Interest on Working Capital	Rs. p.u.	1.93	2.01	2.09	2.18	2.27	2.37	2.47	2.57	2.69	2.81	2.94	3.07	3.21	3.36	3.52	3.69	3.87	4.06
PU Return on Equity	Rs. p.u.	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19	23.19
Total Fixed PU Components	Rs. p.u.	52.66	54.16	55.74	57.42	59.19	61.06	63.04	65.13	67.34	69.68	72.15	74.76	77.53	80.45	83.53	86.80	90.25	93.90
Levelling Tariff																			
WACC (%)		15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%
Discounting Factor	Rs./kWh	0.11	0.09	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Discounted Tariff		5.27	5.42	5.57	5.74	5.92	6.11	6.30	6.51	6.73	6.97	7.21	7.48	7.75	8.04	8.35	8.68	9.02	9.39
Levelling Tariff	Rs./kWh																		