Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 54 of 2019

In the matter of:

Petition seeking determination of project specific tariff for 1.5 MW (2 X 750 kW) Dunao Small Hydro Power Station 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 Nonconventional and Renewable Energy Sources) Regulations, 2013.

In the matter of:

Uttarakhand Jal Vidyut Nigam Ltd. …Petitioner

AND

In the matter of:

Uttarakhand Power Corporation Ltd. …Respondent

CORAM

Shri D.P. Gairola Member (Law) - Chairman (I/c)

Shri M.K. Jain Member (Technical)

Date of Order: November 11, 2022

This Order relates to the Petition dated 18.09.2019 filed by Uttarakhand Jal Vidyut Nigam Limited (hereinafter referred to as "the Petitioner" or "the generator") seeking determination of project specific tariff for its 1.5 MW Small Hydro Power Plant on Purvi Nayar River at Dunao, Pauri 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 18.09.2019 was filed by the Petitioner under Section 62 and Section 86 of the Electricity Act, 2003 read with Regulation 2, 4, 10(3) and 13 of RE Regulations, 2013 seeking determination of project specific tariff for sale of energy generated by its 1.5 MW Dunao 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 set up Dunao SHP which was commissioned by the Petitioner on 09.07.2017 and after successful trial run of both the units, the project was declared commissioned (CoD) on 20.08.2017 (00.00 Hrs.).

1.3 The Petitioner submitted that in accordance with the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2013, Petition for determination of tariff can be filed within 18 months from the Date of Commercial Operation, and, therefore, an application for determination of project specific tariff for Dunao SHP should have been filed by 19.02.2019.

1.4 The Petitioner submitted that filing a Petition requires various internal management checks and approvals at various levels of the management. The Petitioner further submitted that it took a considerable time to the Petitioner in arranging required documents and information from site offices due to which a delay (210 days) has occurred in filing the instant Petition. The Petitioner requested to condone the delay in filing of the instant petition, and submitted that the said delay is neither intentional nor deliberate, rather it is due to gathering of various information and approvals at various management levels, considering that the Petitioner Company is a Government Company.

1.5 The Petitioner submitted that the Government of Uttarakhand (GoU) vide Order dated November 5, 2001 transferred all the hydropower assets of Uttar Pradesh Jal Vidyut Nigam Limited (UPJVNL) located in the State of Uttarakhand to UJVN Ltd. with effect from November 9, 2001. In compliance to the said Order, administrative and financial control of all hydro power plants with UPJVNL in operation or under construction was taken over by UJVN Ltd. with effect from November 9, 2001. The Petitioner submitted that GoU's Order also defines the basis of division of assets and liabilities between UPJVNL and UJVN Ltd. Further, the GoU has notified the provisional transfer scheme; vide its notification no. 70/AS I/I/2008-04 (3)/22/08 dated March 7, 2008.

1.6 The Petitioner submitted that it started construction activities at the site of Dunao SHP in the year 2007 and achieved Commercial Date of Operation (COD) of the Dunao SHP on 20.08.2017 (00.00 Hrs).

1.7 The Petitioner submitted that the Detailed Project Report (DPR) for Dunao SHP was prepared in March 2006 by the Water Resources Development Training Centre, IIT Roorkee with total project cost of Rs. 19.41 Crore including escalation and interest during construction.

1.8 The Petitioner submitted that the Board of Directors, UJVN Ltd in its 56th Meeting held on 15.09.2010, revised the total project cost as Rs. 24.91 Crore including interest during construction. The Petitioner further submitted that later on, the Board of Directors, UJVN Ltd in its 63rd Meeting held on 28.06.2012, again revised the total project cost as Rs. 31.20 Crore including interest during construction.

1.9 The Petitioner submitted that it had entered into Power Purchase Agreement with UPCL on dated 01.07.2017, for sale of energy generated from the Dunao SHP, wherein UPCL has accepted to purchase power from Dunao SHP on "Project Specific Tariff" as determined by the Commission.

1.10 The Petitioner submitted that the total project cost of Dunao SHP is Rs. 32.15 Crore after apportionment of the IDC on all the accounting heads based on their individual proportion in the total expenditure as per accounting standards.

1.11 The Petitioner submitted funding of the Dunao SHP is as follow:

Particulars	Amount (Rs. In Lakh)
Equity (39.30%)	Rs. 1263.70 Lakh
Debt (60.70%)	Rs. 1479.03 Lakh
MNRE Grant	Rs. 472.50 Lakh
Total Capital Cost	**Rs. 3215.23 Lakh**

1.12 The Petitioner submitted that it has invested Equity amounting to Rs. 1263.70 Lakh in total capital cost which includes equity investment of Rs. 779.00 Lakh from Government of Uttarakhand and rest amount has been invested from the internal resources of the Petitioner. The Petitioner submitted that the invested equity exceeds normative equity of 30% of the capital cost, therefore the actual invested equity exceeding normative equity of 30% of the capital cost may kindly be treated as loan with interest rate of SBI Base Rate plus 300 basis points.

1.13 The Petitioner submitted that it had availed loan amounting to Rs. 1479.03 Lakh from NABARD carrying interest rate of 6.5% per annum. The Petitioner further submitted that it had received and utilized grant of Rs. 472.50 Lakh from MNRE for construction of Dunao SHP, and the grant so received has been deducted from the total normative debt on the project for calculation of tariff.

1.14 The Petitioner submitted that the levelised project specific tariff of Rs. 7.35/kWh may be approved for the Dunao SHP.

1.15 The Petitioner later vide its submission dated 30.07.2020 informed that part of the grant from MNRE amounting to Rs. 52.50 Lakh have been received on 06.12.2019, i.e. after filing of the Petition and the same has been utilised for balance payment of contractual obligations. The Petitioner submitted that the additional amount of grant received from MNRE, amounting to Rs. 52.50 Lakh, be considered appropriately while approving the project specific tariff for Dunao SHP.

1.16 The AFC & levelised tariff claimed by the Petitioner is summarized in the Table below:

Table 1: AFC & Levelised Tariff Claimed (Rs. in Lakh)

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	192.91	53.00	13.38	126.70	166.79	**552.77**	6.73	8.21	1.00	8.21
2	192.91	56.03	13.26	114.23	166.79	**543.22**	6.73	8.07	0.90	7.29
3	192.91	59.23	13.16	101.76	166.79	**533.85**	6.73	7.93	0.82	6.48
4	192.91	62.62	13.06	89.29	166.79	**524.67**	6.73	7.79	0.74	5.76
5	192.91	66.20	12.98	76.82	166.79	**515.70**	6.73	7.66	0.67	5.12
6	192.91	69.99	12.91	64.35	166.79	**506.95**	6.73	7.53	0.60	4.55
7	192.91	73.99	12.84	51.88	166.79	**498.42**	6.73	7.40	0.55	4.04
8	192.91	78.22	12.79	39.42	166.79	**490.13**	6.73	7.28	0.49	3.59
9	192.91	82.70	12.75	26.95	166.79	**482.10**	6.73	7.16	0.45	3.19
10	192.91	87.43	12.73	14.48	166.79	**474.34**	6.73	7.04	0.40	2.84
11	231.50	92.43	13.61	4.12	166.79	**508.44**	6.73	7.55	0.36	2.73
12	231.50	97.72	13.79	0.00	166.79	**509.79**	6.73	7.57	0.32	2.45
13	231.50	103.30	10.99	0.00	24.93	**370.72**	6.73	5.50	0.29	1.59
14	231.50	109.21	11.30	0.00	24.93	**376.94**	6.73	5.60	0.26	1.45
15	231.50	115.46	11.63	0.00	24.93	**383.51**	6.73	5.69	0.23	1.32
16	231.50	122.07	11.98	0.00	24.93	**390.46**	6.73	5.80	0.21	1.20
17	231.50	129.05	12.34	0.00	24.93	**397.81**	6.73	5.91	0.19	1.10
18	231.50	136.43	12.73	0.00	24.93	**405.58**	6.73	6.02	0.17	1.00
19	231.50	144.23	13.14	0.00	24.93	**413.79**	6.73	6.14	0.15	0.91
20	231.50	152.48	13.57	0.00	24.93	**422.47**	6.73	6.27	0.13	0.84
21	231.50	161.20	14.02	0.00	24.93	**431.65**	6.73	6.41	0.12	0.76
22	231.50	170.43	14.51	0.00	24.93	**441.35**	6.73	6.55	0.11	0.70
23	231.50	180.17	15.02	0.00	24.93	**451.61**	6.73	6.71	0.10	0.64
24	231.50	190.48	15.55	0.00	24.93	**462.46**	6.73	6.87	0.09	0.59
25	231.50	201.38	16.12	0.00	24.93	**473.92**	6.73	7.04	0.08	0.54
26	231.50	212.89	16.73	0.00	24.93	**486.05**	6.73	7.22	0.07	0.49
27	231.50	225.07	17.36	0.00	24.93	**498.86**	6.73	7.41	0.06	0.45
28	231.50	237.95	18.04	0.00	24.93	**512.41**	6.73	7.61	0.05	0.42
29	231.50	251.56	18.75	0.00	24.93	**526.73**	6.73	7.82	0.05	0.38
30	231.50	265.95	19.50	0.00	24.93	**541.87**	6.73	8.05	0.04	0.35
31	231.50	281.16	20.30	0.00	24.93	**557.88**	6.73	8.28	0.04	0.33
32	231.50	297.24	21.14	0.00	24.93	**574.80**	6.73	8.53	0.04	0.30
33	231.50	314.24	22.03	0.00	24.93	**592.69**	6.73	8.80	0.03	0.28
34	231.50	332.22	22.97	0.00	24.93	**611.61**	6.73	9.08	0.03	0.26
35	231.50	351.22	23.96	0.00	24.93	**631.61**	6.73	9.38	0.03	0.24
Levelised Tariff (per unit)										**7.35**

1.17 The Commission vide its Order dated October 22, 2019 condoned the delay in filing of the Petition by UJVN Ltd. Further, the Commission while admitting the Petition, directed UPCL, the sole Respondent in the present matter to file its comments, if any, on the tariff Petition within one month from the date of Order with a copy to the Petitioner. The Petitioner, i.e. UJVN Ltd. was directed to file its rejoinder on the comments filed by UPCL within 15 days of receiving the same. UPCL vide its letter dated 05.12.2019 filed its comments, in response, the Petitioner vide its letter dated 30.07.2020 submitted its rejoinder on the same. The submissions of UPCL and the Petitioner have been dealt with at appropriate places in the order.

1.18 The Petition filed by the Petitioner had some deficiencies which were communicated to it vide Commission's letter dated 15.10.2019. The Petitioner submitted its reply vide letter dated 07.11.2019 and 25.11.2019. Subsequently, additional deficiencies/ shortcomings in the replies filed by the Petitioner were communicated to it from time to time.

1.19 The Commission has considered the replies/information submitted by the Petitioner as well as contentions raised by the Respondent and the same has been discussed at appropriate places in the Order alongwith the Commission's views on the same.

2. Respondent's Comments & Petitioner's Response

2.1 UPCL, the sole Respondent in the matter submitted its comments vide letter dated 05.12.2019, on the Petition filed by UJVN Ltd. for determination of project specific Tariff for its Dunao SHP.

2.2 The Respondent submitted that the Petitioner has admitted that there was a delay in filing the Petition and the Petition should have been filed by 19.02.2019. The Respondent submitted that it is denied that considerable time could have taken in arranging required documents and information, and the Petitioner has not disclosed the various steps taken and the time it took, rather has made a vague statement that internal management check and approval at various levels took 210 days, and, therefore, the delay is inordinate and is not liable to be condoned.

In this regard, the Petitioner submitted that with regard to the limitation, the Petitioner admits that there was a delay beyond limitation period in filing the Petition for determination of project specific tariff of Dunao SHP and the reasons of delay were elaborated by the Petitioner in the Petition, and the same were reiterated by the Petitioner during hearing on admissibility of the Petition on 22.10.2019 which were accepted by the Commission.

2.3 The Respondent submitted that the total project cost including escalation and interest during construction was estimated to be Rs. 19.41 Crore in the DPR which was on the higher side in comparison to the normative value per MW taken from determination of generic tariff, and IIT, Roorkee, which prepared the DPR for the project, must have considered the peculiar and specific difficulties and cost variables for the said project considering its topography and location, and any variation in cost thereafter should not be considered.

In this regard, the Petitioner submitted that the Dunao SHP has been constructed in a very remote area where economic development was being affected due to poor quality of power. The nearest 33 kV sub-station in this area is Syunsi sub-station, which is approximate 11 km from the Power-House, and for improving the stability of power in this area, the construction of this project was essential. The Petitioner further submitted that the terrain of the project site is such that the length of the Power Channel had to be increased upto 4.5 km in order to gain head, which led to the DPR cost of the project being higher side in comparison to the normative capital cost per MW. The Petitioner submitted that the prime reasons for escalation of the project cost with respect to DPR were due to variation in quantities and technical parameters unforeseen from detailed design & engineering of different components of the project due to site conditions.

2.4 The Respondent submitted that mere approval by the Board of the Petitioner does not justify the cost or the reasons for increase in the cost which is huge considering the size of the project, considering that in a span of about 4 years there has been an increase of about Rs. 5.50 Crore and then in about 21 months the cost has again increased from 24.91 Crore to 31.20 Crore. The Respondent submitted that any cost incurred due to the inefficiency and for reasons attributable to the Petitioner should not be permitted.

In this regard, the Petitioner submitted that the prime reasons for escalation of project cost in respect to DPR was due to variation in quantities as per the site conditions, increase in the cost of labour, material, escalation in cost of E&M equipment etc. The Petitioner further submitted that the provision for using the E&M Equipment of Sobla-II SHP was incorporated in the DPR prepared by WRDM, IIT Roorkee, and after detailed design & engineering it was found that the E&M

equipment of Sobla-II SHP were not technically suitable for the Project, therefore, new machines were procured as per the requirement, which had a financial impact of Rs. 1.23 Crore. The Petitioner submitted that the Board of the Petitioner company, which is being sufficiently represented by Government representatives as the Petitioner Company is a Government Company, was apprised with complete facts of price variation and all the requisite information was furnished to the Board for consideration of approval of cost. The Petitioner submitted the major reasons for variance as summarized below:

a. Higher rates of bids received as compared to the estimates.
b. Payment of price variations as per contractual provisions.
c. Cost variation due to variation in quantities after detailed design and engineering.
d. Increase in rates of different items of works.
e. Provision of new equipment/machines in place of utilizing old equipment of Sobla-II SHP.
f. Market Fluctuations.
g. Longer Construction Period without fault of UJVN Ltd.

2.5 The Respondent submitted that the interest rate at which NABARD has granted loan facility to the Petitioner is 6.50%, and the Petitioner, if required, should have made an effort for securing additional loan from NABARD rather than infusing their own equity which has resulted in claiming higher return on the normative equity. The Respondent submitted that the interest rate on the normative equity should not be permitted to be more than the interest rate on which the loan from NABARD was granted to the Petitioner.

In this regard, the Petitioner submitted that UJVN Ltd. had availed a term loan of Rs. 1479.03 Lakh from NABARD based on the DPR cost of Rs. 2490.67 Lakh approved by its BoD on 15.09.2010. Subsequently, the Board approved the revised DPR cost of Rs. 3120.02 Lakh in its meeting held on 28.06.2012, and accordingly, UJVN Ltd. submitted the revised proposal of additional term loan of Rs. 315.51 Lakh based on the revised DPR to NABARD through GoU vide its letter no. 114/GM(SHP)/UJVNL/ NABARD dated 24.01.2013, however, the approval of the same was not received from NABARD, inspite of UJVN Ltd. putting its best efforts for sanction of additional term loan.

2.6 The Respondent submitted that the levelized project specific tariff of 7.35/kWh claimed by the Petitioner is highly excessive and should not be permitted, and it is totally unviable to purchase power at this cost.

In this regard, the Petitioner submitted that it has chosen the option for Project Specific Tariff as provided in the RE Regulations and, accordingly, the Petitioner has presented its claim of tariff based on the actual capital expenditure incurred on the project.

2.7 The Respondent submitted that the Petitioner is responsible for causing immense delay in completion of the project and its commissioning thereafter and has proceeded in the matter at its leisure and kept on delaying and did not take timely and appropriate action, therefore, the Petitioner should not be allowed to take the benefit for such delays.

In this regard, the Petitioner submitted that the reasons for delay in completion of the project have been submitted for perusal of the Commission in the Petition and additional submissions made by the Petitioner from time to time.

2.8 The Respondent submitted that the original DPR was prepared by very renowned and prestigious institute, while the present Petition suggests that the initial design, assessment, technology etc. were redundant and lacked proper study of site. The Respondent submitted that such deviation from the original DPR or the studies conducted by the State for the allocation of the plant would make the whole process of envisaging the project ineffective. The Respondent further submitted that the decision of the Petitioner to not utilize the E&M from Sobla-II SHP and infact going forward with procurement and installation of new E&M equipments for Dunao SHP should be considered with greater scrutiny and if it is found that it was due to the reasons attributable to Petitioner that the decision regarding E&M equipments got delayed till the year 2011, in that case the burden of such delays should solely be borne by the

Petitioner himself.

In this regard, the Petitioner submitted that there was a provision for using the E&M Equipment of Sobla-II SHP in the DPR prepared by WRDM, IIT Roorkee, and after detailed design & engineering it was found that the E&M equipment of Sobla-II SHP was not technically suitable for the Project due to the following technical reasons:

a. Turbine of Sobla-II SHP was designed for 4.62 cumec discharge & 50 m head and was proposed to be used for Dunao SHP having discharge of 3.67 cumecs & head of 52.58 m. As per DPR maximum discharge available for Dunao SHP in the month of July to October is more than 3.4 Cumec while for the rest time period it is less than 2.0 cumec. Further the Francis turbines are designed for load variation of 60% to 115% with design discharge of 4.62 cumec supplied for Sobla-II SHP the minimum discharge for turbine shall be 4.62*60% (2.772 cumecs). From the aforesaid calculation minimum discharge requirement of the available old turbine is 2.772 cumecs while the discharge available at Dunao is less than 2.0 cumec, hence the machine may not be able to take load at the said discharge below 2.775 cumec. The machines could not have been put into operation for about 8 months and, therefore, were not found technically viable for the design parameter of this project.

b. Power evacuation system of Dunao SHP is on 3.3kV/11kV while Sobla –II SHP was 3.3kV/33kV, therefore, switchyard and other related equipment could not be used.

c. Equipment supplied was very old as it was supplied in year 1999-2000, and repair & modification cost of equipment was very high.

2.9 The Respondent submitted that MNRE had sanctioned a grant of Rs. 525.00 Lacs for the project, however, the Petitioner has mentioned that they have utilized only 472.50 Lacs out of the total sanctioned grant, and the Petitioner has not stated whether they had the full amount at their disposal nor they have disclosed that the remaining amount has been forfeited or returned. The Respondent submitted that under-utilization of the grant is totally due to reasons attributable to the Petitioner and Petitioner cannot be permitted to avail benefit of its mismanagement and inefficiencies thereby burdening the same on the consumers of the State.

In this regard, the Petitioner submitted that the remaining amount of MNRE grant of Rs. 52.50 Lakh have been received on 06.12.2019, i.e. after filing of the Petition as well as reply dated 07.11.2019 and the same has also been utilised for balance payment of contractual obligations, and submitted that the same may be adjusted while approving the project specific tariff for Dunao SHP.

2.10 The Respondent submitted that the Petitioner has mentioned the price escalation/ variation in the subsequent contract after termination of the previous ones, however, the detailed reasons and justifications for price variation/escalation are not given with the Petition. The Respondent submitted that if the earlier contractors were at fault then the financial burden of awarding the contract at the higher price should be recovered by the Petitioner from the defaulting contractors or if the delay and the termination of the contracts were due to reasons attributable to Petitioner then the Petitioner any how is not entitled to receive any increment in the price of the project, meaning thereby that in either of the situation the burden of enhanced cost cannot be permitted to be passed on to the consumers of the State.

In this regard, the Petitioner submitted that the contract was terminated by the Petitioner due to non-performance by the contractor. The contractor was solely responsible and reasons are explicitly mentioned in the termination notice, termination letter and non-performance related correspondences with the contractor. The Petitioner submitted that it had recovered the sum of penalty/liquidated damages from the contractor as per the terms of contract and as per the contract law no party can recover any sum as penalty or liquidated damages apart from the provisions of the contract.

2.11 The Respondent submitted that the Petitioner while determining the estimated tariff has not calculated the depreciation as per provisions of the Regulations and has rather taken the same on the basis of straight line method for the life of the project, whereas Regulation 17 of the RE regulations, 2013 clearly provides the manner in which depreciation shall be computed for the purpose of the tariff, and as per sub-regulation 1(c) the depreciation per annum shall be based on “differential depreciation approach” over the loan tenure and only thereafter for useful life of the project "Straight line method" has been permitted, that this miscalculation by the Petitioner is increasing the tariff by approximately 25-30 paise/unit.

In this regard, the Petitioner submitted that the Commission may take appropriate view in this regard.

2.12 The Respondent submitted that the Petitioner has not correctly calculated the discounting factor, Petitioner has wrongly taken equity as 39.30% however the same should have been adjusted to the maximum of 30% as provided in the Regulations. The Respondent further submitted that the Petitioner at one end in calculating the discounting factor has taken the weighted average interest as 7.48% (considering 6.5% interest for NABARD against loan of Rs. 1479.03 Lakh and 12.3% interest for additional equity of 299.13 Lakh) while on the other hand has considered the weightage of loan against capital as just 46% (considering loan of Rs. 1479.03 Lakh), further, the tax rate for first 10 years is taken as 18.5% and surcharge and education cess over it is not considered. The Respondent submitted that these wrong computations have inflated the discounting factor percentage and in consequence the tariff as well.

In this regard, the Petitioner submitted that it had calculated the discounting factor on the basis of actual equity invested, and the Commission may take appropriate view in this regard.

2.13 The Respondent submitted that the Petitioner has considered the interest at the rate of 12.30% for additional equity, whereas the loan from NABARD was readily available at a much lower interest rate of 6.50%, and without any reason and basis the Petitioner chose to invest its equity and thereby claiming higher rate of interest on the same and burdening the consumers of the State with the additional cost, therefore, it is evident that the act of the Petitioner is totally against prudent practices and hence the additional burden due to higher rate of interest with the interest rate of SBI base rate +300 basis points on the additional equity should not be allowed.

In this regard, the Petitioner submitted that UJVN Ltd. has availed a term loan of Rs. 1479.03 Lakh from NABARD based on the DPR cost of Rs. 2490.67 Lakh approved by BoD on 15.09.2010. Subsequently, the Board approved the revised DPR cost of Rs. 3120.02 Lakh in its meeting held on 28.06.2012, and accordingly, UJVN Ltd. submitted the revised proposal of additional term loan of Rs. 315.51 Lakh on the basis of revised DPR to NABARD through GoU vide its letter no. 114/GM(SHP)/UJVNL/ NABARD dated 24.01.2013, however, the approval of the same has not been received from NABARD, inspite of UJVN Ltd. putting its best efforts for sanction of additional term loan, and, accordingly, the deficit between the application and source of funds was met by internal resources.

2.14 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 Ist 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."

In view of the above-mentioned Regulation, since the Petitioner has opted for Project Specific Tariff for its Dunao 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 project specific tariff for the Petitioner's project.

3.2 **Design Energy**

3.2.1 The Petitioner submitted the DPR dated March 2006 for its Dunao SHP and stated that the CUF envisaged in the said DPR was considered as 52.51%.

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 DPR of the Petitioner's SHP wherein the CUF of the plant was stated as 52.51% and the Petitioner has also claimed the same CUF for its Dunao SHP. The Commission observed that as per the DPR gross energy generation of 7.27 MUs for a capacity of 1.5 MW has been shown and with forced outage of 5% considered in the said DPR, the CUF has been arrived at 52.51%. The Commission further observed that the annual projected generation was based on efficiency of the turbine and generator been taken as 90% and 93% respectively.

3.2.4 The RE Regulations, 2013 does not quantify the efficiency of turbine and generator. In this regard reliance is placed on Regulation 3(25) of UERC (Terms and Conditions for Determination of Tariff) Regulations, 2015 which 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;"

The Commission has accordingly, considered the efficiency as 95%. Hence, the same translates into an annual generation of 7.05 MU for 1.5 MW capacity (after considering forced outage of 5%) which translates to a CUF of 53.65% which is higher than the normative CUF of 40% specified in the RE Regulations, 2013. Hence, the CUF of 53.65% has been considered as the CUF for recovery of AFC of the Petitioner's plant.

3.2.5 Further, in accordance with the RE Regulations, 2013 normative auxiliary consumption including transformation losses of 1% has been reduced from the design generation of 7.05 MUs to work out the saleable energy of the said SHP which works out to 6.98 MUs against the saleable energy of 6.73 MUs considered by the Petitioner in its Tariff Petition for Dunao SHP. Approved saleable energy for 35 years is shown in **Appendix-I.**

3.3 **Capital Cost**

3.3.1 Regulation 13 of RE Regulations, 2013 stipulates that:

> ***"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 the 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 Petitioner in the effort of explaining the reasons of difference between the estimated project cost and the claimed actual cost has detailed various factors as uncontrollable, most of which actually do not contribute to the delay of the project or the cost and as such are not justified for considering the escalation of project cost. The Respondent also stated that the DPR prepared in March 2006 must have already considered the factors leading to cost overrun of the project.

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 has considered 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 increase 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.

3.3.3 The Commission vide its letter dated 15.10.2019 asked the Petitioner to submit its reply on certain deficiencies/shortcomings observed in the Petition filed before the Commission including the details with respect to LoI issued to successful bidders of Civil Works, Electro-Mechanical, Hydro-Mechanical for the project alongwith the award price and actual price paid. The Petitioner vide its reply dated 07.11.2019 and later on vide its letter no. 25.11.2019 submitted the requisite information. The aforesaid replies 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. The Commission asked the Petitioner to provide the justification for the time and cost overrun of the project which were submitted by the Petitioner alongwith other details sought from time to time. The Commission in order to establish the claims of the Petitioner and to have a more realistic approach to analyze the claimed cost, analysed the copies of the invoices submitted by the Petitioner in support of the capital cost of the project alongwith the details of Incidental Expenditure During Construction (IEDC) & Interest During Construction (IDC) and other information provided by the Petitioner.

3.3.4 The Petitioner's submissions and the Commission's views on the same are discussed in the subsequent paras.

3.3.5 The summary of invoices submitted by the Petitioner segregated into various expenses heads against the project cost approved in the DPR and final project cost approved in the 63rd BoD meeting of the Petitioner Company held on 28.06.2012 is as summarized in the Table below:

S. No.	Work Detail	DPR Cost (March 2006) (Rs. Lakh)	Revised Project Cost as approved in 63rd Board Meeting of UJVN Ltd held on 28.06.2012 (Rs. Lakh)	Cost Claimed by the Petitioner based on Actual Bills / Details of Expenses (Rs. Lakh)
1	Land	20.00	20.00	1.88
2	Civil Works	1401.94	2007.02	1828.92
3	Building	45.00	69.00	104.13
4	Power Plant & Accessories	100	403.22	403.52
5	Special Tools & Plants	25	25	14.29
6	Ordinary Tools & Plants	2.24	2.24	2.24
7	Transmission Line	0.00	20	118.13
8	Miscellaneous & Maintenance (office building, residential & other buildings, approach roads, maintenance etc.)	72.00	104.28	142.52
9	Price Variation	54.10	55.95	51.34
10	Environmental	14.00	14.00	0.00
11	Losses on Stock	4.50	6.56	0.00
	Total	**1738.78**	**2727.27**	**2666.99**

3.3.6 The Commission observed that the DPR of the project was prepared way back in March, 2006, however, the project actually got commissioned in August, 2017, i.e. almost after 11 years of the preparation of the original DPR. The Commission, considering the fact that since the works of the project took a fairly long time to complete, therefore, is of the view that the cost estimates for the project prepared way back in 2006 cannot be used as a yardstick to compare the executed cost of the project. The Petitioner submitted the chronology of events depicting the major milestones & hindrances in achieving the CoD of the Project as follows:

a. The initial contract given to M/s Devendra Associates in 2007 for the works related to construction of Powerhouse building and civil works of switchyard was scrapped due to very poor progress and non-performance by the contractor.

b. The works related to construction of power channel at Dunao SHP and Construction of head works (intake chamber & weir) & D. tank was awarded in the year 2008 and the year 2010 respectively.

c. The BoD of the Petitioner company in its 53rd board meeting held on 10.02.2010 directed that unless the grant is available no work on the project should be done, and, accordingly, a notice was issued to stop the work.

d. NABARD sanctioned Rs. 15.01 Crore for Dunao SHP on 15.04.2010.

e. After sanctioning of the grant by MNRE the BoD of the Petitioner Company in its 56th meeting accorded approval for restarting the works alongwith revised funding plan on 15.09.2010.

f. BoD of the Petitioner Company accorded approval for revised cost of the project at Rs. 2902.28 Lakh without IDC and Rs. 3120.02 Lakh with IDC in its 63rd meeting held on 28.06.2012.

g. The construction activities were hampered due to heavy and recurring rainfall in the project area during monsoon season.

h. Massive landslides at D-tank and power channel, natural calamity of June 2013 in Uttarakhand, damage to connecting routes of the project site etc. affected the progress of the project.

i. There was a delay in completion of the design of all civil structure and gates related work drawings by IIT Roorkee, and hence, no detail drawings were available at the time of award of contract. Few of the drawings were approved as late in the year 2014.

3.3.7 The Commission, in view of the immense delay in achieving the CoD of the project and repeated revision in the project cost by the Petitioner Company, is of the view that the cost approved by the BoD of the Petitioner Company in its 63rd meeting dated 28.06.2012 may be considered as the base cost for the purposes of determining the project cost of the Dunao SHP.

3.3.8 As regards the Land Cost, since the same is within the cost approved by the BoD of the Petitioner Company, hence, the Commission has allowed the same based on the actual details submitted by the Petitioner. Accordingly, the Commission has allowed Rs. 1.88 Lakh under the Land cost.

3.3.9 The Commission analysed the invoices/details submitted w.r.t. the expenditure on civil works and observed that against the cost of Rs. 2007.02 Lakh approved by the BoD of the Petitioner Company, the Petitioner had incurred actual expenditure of Rs. 1828.92 Lakh which is within the approved cost of the Petitioner's project under this head. However, the same includes works related to Powerhouse building which were executed by the Petitioner at a cost of Rs. 287.21 Lakh against Rs. 246.00 Lakh approved by its BoD, for which the Petitioner submitted that the initial contract for construction of powerhouse building & civil works of switchyard was awarded to M/s Devendra Associates in 2007, but the same was scrapped due to very poor progress and non-performance by the Contractor in 2011 and a fresh contract for this was executed at the escalated rate. The Commission finds the justification submitted by the Petitioner to be in order and has, accordingly, allowed Rs. 1828.92 Lakh under the head of Civil Works based on the actual invoices/details submitted by the Petitioner.

3.3.10 As regards works related to building, the actual cost claimed by the Petitioner is Rs. 104.13 Lakh against which the BoD of the Petitioner Company had approved Rs. 69.00 Lakh only. In this regard, the Petitioner submitted that during planning phase, type-III quarter for JE(E&M) were not taken in consideration to keep the project cost low and since Dunao SHP is located in a very secluded area where it is very difficult to find houses for rent, therefore, one type-III house for JE(E&M) was essentially required for smooth operation of the Powerhouse. The Commission found the justification submitted by the Petitioner to be in order and has, accordingly, allowed Rs. 104.13 Lakh under the head of Buildings based on the actual invoices/details submitted by the Petitioner.

3.3.11 As regards the Power Plant & Accessories, Special and Ordinary Tools & Plants the actual cost incurred by the Petitioner is almost at par with the cost approved by the BoD of the Petitioner Company and, therefore, the Commission allows Rs. 403.52 Lakh under the head Power Plant & Accessories, Rs. 14.29 under the head Special Tools & Plants, and Rs. 2.24 Lakh under the head Ordinary Tools & Plants based on the actual invoices/details submitted by the Petitioner.

3.3.12 As regards transmission line, the same was not proposed in the original DPR of the project, however, the BoD of the Petitioner Company in its 63rd meeting approved a cost of Rs. 20 Lakh for the construction of 11 kV transmission line. The Petitioner incurred an amount of Rs. 118.13 Lakh as against the cost approved by its BoD. In this regard, the Petitioner submitted that power from Dunao SHP was being evacuated through 11 kV UPCL line, which was highly unreliable and unbalanced and, therefore, the work for construction of separate 11 kV line was awarded to UPCL to bye-pass maximum transformer. The Petitioner submitted that the same was carried out for better power evacuation and disturbance free machines operations. The Petitioner submitted that the approval for the additional cost to be incurred on transmission line was accorded by the "Central Purchase Committee (CPC)" of UJVN Ltd. in the meeting held on 25.09.2017. The Commission analysed the MoM dated 25.09.2017 of the CPC of UJVN Ltd. wherein the CPC has noted as follows:

"Intermittent interruptions due to line fault causes frequent tripping of machines, which is undesirable for generators, the variation of line voltage is much more due to long length and unequal line impedance."

The CPC of the Petitioner Company approved the award of works related to construction of transmission line to EDD, UPCL, Kotdwar as a deposit work amounting to Rs. 193.50 Lakh.

The Commission in view of the submission made by the Petitioner and justification provided is of the opinion that the works related to transmission system were inevitable for consistent evacuation of power from Dunao SHP and, accordingly, allows Rs. 118.13 Lakh under the head Transmission Line based on the invoices/details submitted by the Petitioner.

3.3.13 As regards Miscellaneous and Maintenance related expenses the BoD of the Petitioner Company had approved Rs. 104.28 Lakh against which the Petitioner had incurred Rs. 142.52 Lakh. In this regard, the Petitioner submitted that the overall cost of project increased due to higher rates of bids received and additional work of Restoration work of old footpath near Powerhouse area and colony of Dunao SHP, approach road to Powerhouse, RCC gate etc. and other allied works at Dunao SHP, Pauri Garhwal. Further, the additional works of special Repair and Maintenance work of Type I, Type II residences and Transit Camp of 2X750 kW Dunao SHP also led to increase in the cost of the project. The Commission noted the submission and justification given by the Petitioner and allows Rs. 142.52 Lakh under the head Miscellaneous & Maintenance expenses based on the invoices/details submitted by the Petitioner.

3.3.14 As regards the price variation, the Petitioner submitted that Rs. 41.93 Lakh pertains to price variation on account of change in labour indexes, material indexes for iron, steel, copper bars, paint varnishes & leaquers from the base date and the date of execution of work against the said agreement and is as per the terms of the contract entered into with the contractor M/s Boom Systems Pvt. Ltd. who was awarded works related to Design, Manufacturing, Testing, Supply Transit Insurance, Packing Shipment delivery to project Site, complete Erection testing & Commissioning of Complete E&M equipment. The Commission analysed the submissions made by the Petitioner and observed that the price variation paid by the Petitioner to the Contractor was as per the terms of the Contract and, accordingly, allows the same to the Petitioner. The Petitioner further informed that balance amount of price variation pertains to other expenses and has been inadvertently categorised under this head. The Commission for the purposes of tariff determination approves Rs. 51.34 Lakh under the head price variation on the premise that ultimately all the costs under various heads shall be clubbed together and form part of the capital cost of the project.

3.3.15 As regards the expenditure under the head Environmental and Losses on Stock the BoD of the Petitioner Company had approved Rs. 14.00 Lakh and Rs. 6.56 Lakh respectively, however, the Petitioner has not claimed any amount under these heads. The Commission, accordingly, approves nil expenditure under these heads.

3.3.16 The Petitioner has submitted that expenditure amounting to Rs. 493.53 Lakh under various heads like Building, Residential Colony, electrical equipment, furniture, hydraulic works, lines cable networks etc. for the project were incurred post CoD, as some minor works were left out which were done during the shutdown period of the Powerhouse. The Commission asked the Petitioner to submit the justification in this regard, in response to which the Petitioner submitted that certain minor works of forebay, penstock pipe and other associated civil works at Dunao SHP were executed after commissioning (20.08.2017) of the Project like covering for Forebay, paint on flushing pipe, railing and other safety works, and no new agreements were executed for additional works. The Petitioner further submitted that due to the rainy season the sufficient construction materials could not be transported at the site of D-tank, therefore, the Powerhouse was commissioned by constructing a bye-pass channel in July, 2017 and from May, 2018 to July, 2018, when the Powerhouse was shut down due to low discharge in the eastern Nyar river, D-tank was constructed. Further, during operation of Powerhouse from July, 2017 to April, 2018, it was observed that escape pipe was also required to be extended by 7 m for the safety of hill. The Petitioner also submitted that if these works were executed before commissioning of the project, the commissioning of the project would certainly be delayed and, therefore, all these minor works were done when the Dunao Powerhouse was stopped due to low discharge in the Eastern Nyar river, so that the operation of Dunao SHP was not affected.

3.3.17 The Commission noted the submission of the Petitioner in this regard and is of the view that these works were essential for safely running the Powerhouse, and accordingly, the costs on account of the same has already been considered by the Commission in the cost allowed for the project under respective heads, as discussed above, based on the actual invoices/details submitted by the Petitioner

3.3.18 The Petitioner had claimed an amount of Rs. 7.69 Lakh under the head Receipt & Recoveries. The Commission sought details from the Petitioner in this regard against which the Petitioner submitted that the said amount includes recovery from the Contractor M/s Devendra Associates amounting to Rs. 6.81 Lakh, income from sale of tender forms amounting to Rs. 0.85 Lakh and miscellaneous receipts amounting to Rs. 0.04 Lakh. The Petitioner also submitted that an amount of Rs. 5.96 Lakh is pending to be recovered from the contractor M/s Devendra Chaudhary & Associates on account of non-performance of the contract.

The Petitioner later on submitted that it had forfeited EMD/Initial security of M/s Devendra Associates amounting to Rs. 4.27 Lakh and recovered an amount of Rs. 3.50 Lakh from the running bills of the Contractor on account of non-performance as per the terms of the Contract. The Commission, accordingly, has considered an amount of Rs. 13.73 Lakh (Rs. 4.27 Lakh + Rs. 3.50 Lakh + Rs. 5.96 Lakh) as recovery from the Contractor M/s Devendra Chaudhary & Associates, and Rs. 0.89 Lakh as other miscellaneous incomes. Accordingly, the Commission has considered an amount of Rs. 14.62 Lakh under the head Receipt & Recoveries for the purposes of deduction from the capital cost of the project under this head.

3.3.19 Accordingly, based on the analysis as dealt in the preceding Paras, the hard cost of the project works out to Rs. 2652.37 Lakh as against Rs. 2659.30 Lakh claimed by the Petitioner and the same is presented in the table given below:

Table 2: Hard Cost allowed by the Commission (Rs. In Lakh)

S. No.	Particulars	Amount (Rs. in Lakh)
1	Land	1.88
2	Civil Works	1828.92
3	Building	104.13
4	Power Plant & Accessories	403.52
5	Special Tools & Plants	14.29
6	Ordinary Tools & Plants	2.24
7	Transmission Line	118.13
8	Miscellaneous & Maintenance	142.52
9	Price Variation	51.34
10	Receipt & Recoveries	(-)14.62
11	Net Hard Cost Allowed	2652.37

3.3.20 The Petitioner submitted that it had incurred an amount of Rs. 209.20 Lakh as Incidental Expenditure During Construction (IEDC) as against Rs. 193.76 Lakh approved by the BoD of the Petitioner Company in its 63rd meeting. The year wise (calendar year) details of expenditure under the head IEDC as submitted by the Petitioner is summarized below:

Table 3: Year wise IEDC

Year	Amount (Rs. In Lakh)
2011	70.25
2012	8.95
2013	10.53
2014	21.59
2015	12.95
2016	18.50
2017	13.00
2018	53.42
Total	**209.20**

The Commission analysed the details and justification for time and cost-overrun incurred during the period of completion of the project. The Commission observed that delays during certain time period were well within the control of the Petitioner as summarized below:

S. No.	Particulars	Period of delay	
		From	**To**
1.	Construction of Head Works		
	Stoppage of Work by the BoD of the Petitioner Company	*08.02.2010*	*04.10.2010*
	Delay in issuing of drawings-Civil Structure	*05.02.2010*	*June, 2011*
	Delay in issuing of drawings-Under sluice gate hoist & de-silting tank	*05.02.2010*	*07.07.2012*
2.	Construction of Forebay & Laying and Commissioning of Penstock & other associated Civil Works		
	Delay in issuing of drawings-Forebay	*15.07.2011*	*05.06.2014*
	Delay on account of non-payment of bills	*09.08.2014*	*20.12.2014*
3.	Remaining work of Powerhouse building & civil works		
	Delay in issue of drawings	*01.11.2013*	*30.04.2014*
4.	Running Powerhouse		
	Minor works during shutdown, which could not be done under running Powerhouse	*21.08.2017*	*03.05.2018*

3.3.1 As can be seen from the above Table, the delays cited by the Petitioner on account of stoppage of works due to the directions of BoD from 08.02.2010 to 04.10.2010 cannot be termed as beyond the control of the Petitioner as it relates to internal management of the Petitioner Company and was not subject to external influence whatsoever. Similarly, the delays on account of issue of drawings at various occasions cited above cannot be termed as uncontrollable as these activities remain unaffected by any external influence and the Petitioner Company was solely responsible for timely completion of it. Lately, there was delay on account of non-payment of bills by the Petitioner company from 09.08.2014 to 20.12.2014 which was also well within the control of the Petitioner and cannot be allowed to be termed as an uncontrollable activity. Moreover, drawings related to construction of Forebay & Laying and commissioning of Penstock & other associated Civil Works were issued in June, 2014 which clearly depicts that the project design was not finalized till then, and without the same the activities could not be channelised towards completion of the project.

In view of the above, it can safely be concluded that the delays during the period from the beginning of the year 2010 up to the end of the year 2014 were under the control of the Petitioner, and the IEDC being a time linked factor, the amounts incurred prior to the year 2015 cannot be allowed to be passed on to the consumers in the form of tariff. Accordingly, the Commission disallows the IEDC for the period prior to Year 2015 which amounts to Rs. 111.32 Lakh.

3.3.2 Further, the Commission asked the Petitioner to submit the actual date of finalization of the work plan for Dunao SHP, i.e. period after which no major change in the design, location etc. was carried out. In response to the same, the Petitioner submitted the details as summarized below:

a. 04.05.2006: Approval of DPR, where there was a provision for Trench Weir.

b. 11.02.2008: Approval for alternative funding plan as GoU informed that the grant for the project was not available.

c. 27.07.2209: Approved L-section of project (finalized levels).

d. July, 2009: Approved the drawing of Power Channel.

e. 10.02.2010: Revised funding plan was put before the BoD in 53rd meeting but BoD stopped the work as the project was unviable until the grant is available.

f. 15.09.2010: BoD approved the revised funding plan of Rs. 2490.76 Lakh in 56th meeting with the utilization of E&M equipment of Sobla-II SHP.

g. June 2011 : Approved drawing of Diversion weir upto D-tank.

h. 07.09.2011: BoD approval in its 60th meeting for procurement of new machines for Dunao SHP.

i. 28.06.2012: BoD approved the revised project cost & Funding plan for Rs 3120.02 Lakh in 63rd meeting.

j. April 2014: Approved drawings of Power House & switchyard.

k. June 2014: Approved drawings of Forebay & Penstock and its associated structure.

As can be seen from the above details submitted by the Petitioner, the drawings related to the project were finalised as late as in June, 2014, which clearly depicts that the execution plan of the Petitioner's project was not complete until June, 2014.

3.3.3 The Commission analysed other delays and justification submitted by the Petitioner which were mainly due to heavy rains or technical reasons and is of the view that these kinds of delay are inevitable considering the location and topography of the project and can be termed as beyond the control of the Petitioner.

3.3.4 The Commission, in view of the above, allows an amount of Rs. 97.87 Lakh under the head IEDC to be part of the capital cost of the Dunao SHP. Accordingly, the net project cost approved by the Commission including IEDC works out to Rs. 2750.24 Lakh.

3.3.5 The Petitioner submitted that it had incurred an amount of Rs. 346.56 Lakh as Interest During Construction (IDC) against the IDC of Rs. 217.74 Lakh as approved by the BoD of the Petitioner in its 63rd meeting. The Petitioner submitted the bank details and supporting documents in support of the IDC claimed by it wherein the total interest charged by the financial institution (NABARD) during the period February, 2011 to August, 2017 was Rs. 346.56 Lakh. The IDC being a time linked factor, hence, following the similar approach as discussed above in the case of IEDC, the Commission is not allowing the IDC for the period of 47 months for delays occurring prior to the year 2015 as these delays were well within the control of the Petitioner.

3.3.6 The Commission, in light of the above, is not allowing IDC for a period of 47 months, i.e. from February, 2011 to December, 2014.

3.3.7 The actual IDC has been prorated in the ratio between the "actual capital cost allowed (Hard Cost)" and "the capital cost claimed by the Petitioner (Hard Cost)"

3.3.8 The Commission in view of the above allows the IDC to the Petitioner as detailed below:

Table 4: Interest During Construction allowed by the Commission (Rs. in Lakh)

Particulars	Total
Interest Booked for approx 79 months i.e. February 2011 to December 2014	346.56
Interest Cost Prorated on the allowed capital cost	332.27
Less: Average Interest for 47 Months disallowed	206.18
Net Interest Cost Allowed	**126.09**

3.3.9 In view of the above discussions, the total Capital Cost allowed to the Petitioner for Dunao SHP is as summarized below:

Table 5: Capital Cost allowed by the Commission (Rs. In Lakh)

S. No.	Particulars	Amount (Rs. In Lakh)
1	Land	1.88
2	Civil Works	1828.92
3	Building	104.13
4	Power Plant & Accessories	403.52
5	Special Tools & Plants	14.29
6	Ordinary Tools & Plants	2.24
7	Transmission Line	118.13
8	Miscellaneous & Maintenance	142.52
9	Price Variation	51.34
10	Receipt & Recoveries	(-)14.62
11	IEDC	97.87
12	IDC	126.09
Total		**2876.33**

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 Commission in this regard, had asked the Petitioner to submit full details of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. The Petitioner in this regard submitted communication dated 29.12.2010, 20.07.2017 and 28.09.2019 regarding sanctioning of the grant by the MNRE and submitted that the total amount of capital subsidy sanctioned by MNRE and received by the Petitioner for its Dunao SHP amounts to Rs. 525.00 Lakh. The Commission has considered the MNRE grant as Rs. 525.00 Lakh for the purposes of tariff determination in accordance with the Regulations.

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 Regulation24, 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 As per the Petitioner's submission, the actual equity of Rs. 1263.70 Lakh has been deployed to finance the capital cost of Dunao SHP. The Commission has worked out the capital cost of Dunao SHP as Rs. 2876.33 (including certain minor expenditure incurred post CoD). The Commission observed that the actual loan taken by the Petitioner from NABARD for Dunao SHP was Rs. 1479.03 Lakh, and, therefore, the proportion of equity in the approved cost works out to Rs. 1397.30 Lakh (Rs. 2876.33 Lakh - Rs. 1479.03 Lakh), which works out to 48.58% of the total approved capital cost of Dunao SHP. Since the equity employed is in excess of 30%, accordingly, 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.

3.5.3 Accordingly, financing of the approved capital cost has been considered to be met out from Rs. 862.90 Lakh as equity and Debt of Rs. 2013.43 Lakh.

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. 2876.33 Lakh, further reduced by 75% of the capital subsidy of Rs. 525.00 Lakh. 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 have 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. 525.00 Lakh has been considered as utilized towards pre-payment of debt in accordance with the Regulations.

3.8.4 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."

3.8.5 The Commission has worked out the rate of interest in accordance with Regulation 16(2) of RE Regulations 2013, which works out to 12.30%. As per the Petitioner's submission made in the Petition the actual rate of interest levied by its financial institution, i.e. NABARD is 6.50%. Since the normative rate of interest is higher 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 6.50% per annum, i.e. actual rate of interest in accordance with the Regulations. Further, loan repayment has been considered as annual depreciation allowed or actual repayment of the loan, whichever is higher, as per above referred Regulations.

3.8.6 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 above mentioned Regulations, the rate of interest as computed based on the aforesaid regulation works out to 12.80%, 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 of 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. 6.37 per unit against the proposed levelised tariff of Rs 7.35 per unit.

3.14 **Date of applicability of tariff**

The tariff so determined will be applicable w.e.f 20.08.2017 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 generic 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 which shall be paid in three equal monthly instalments commencing from December, 2022.

3.16 **Incentive for generation beyond normative PLF**

3.16.1 As per Regulations, the tariff for generation beyond normative PLF shall be allowed to be recovered at the project specific tariff determined by the Commission in this Order.

4. The Petition is disposed off accordingly.

(M.K. Jain) **Member (Technical)**	**(D.P. Gairola)** **Member (Law)- Chairman (I/c)**

Appendix-I

Particulars	Unit	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Installed Capacity	MW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Net Generation	MU	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98
AFC																		
O&M Expenses	Rs. Lakh	52	56	59	63	66	70	74	78	83	87	92	98	103	109	115	122	129
Depreciation	Rs. Lakh	145	145	145	145	145	145	145	145	145	145	145	145	22	22	22	22	22
Interest on Term Loan	Rs. Lakh	101	91	82	72	63	54	44	21	1	0	0	0	0	0	0	0	0
Interest on Working Capital	Rs. Lakh	12	12	12	12	12	12	12	11	11	11	13	13	10	11	11	11	12
Return on Equity	Rs. Lakh	173	173	173	173	173	173	173	173	173	173	207	207	207	207	207	207	207
Total Fixed Cost	**Rs. Lakh**	**482**	**476**	**470**	**464**	**458**	**453**	**447**	**428**	**413**	**416**	**457**	**462**	**342**	**349**	**355**	**362**	**369**
Per Unit Tariff Components																		
O&M Expenses	Rs./kWh	0.74	0.80	0.85	0.90	0.95	1.00	1.06	1.12	1.18	1.25	1.32	1.40	1.48	1.56	1.65	1.75	1.85
Depreciation	Rs./kWh	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	0.31	0.31	0.31	0.31	0.31
Interest on Term Loan	Rs./kWh	1.44	1.31	1.17	1.04	0.90	0.77	0.63	0.30	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs./kWh	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.18	0.18	0.15	0.15	0.16	0.16	0.17
Return on Equity	Rs./kWh	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.97	2.97	2.97	2.97	2.97	2.97	2.97
Total Fixed PU Components	**Rs./kWh**	**6.90**	**6.83**	**6.74**	**6.65**	**6.57**	**6.49**	**6.41**	**6.13**	**5.91**	**5.96**	**6.55**	**6.63**	**4.91**	**4.99**	**5.09**	**5.19**	**5.29**
Levellised Tariff																		
WACC (%)		8.91%	9.16%	9.43%	9.75%	10.12%	10.55%	11.06%	12.84%	15.49%	15.73%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%	15.69%
Discounting Factor	Rs./kWh	1.00	0.92	0.84	0.76	0.69	0.63	0.56	0.50	0.43	0.37	0.32	0.28	0.24	0.21	0.18	0.16	0.13
Tariff		6.90	6.83	6.74	6.65	6.57	6.49	6.41	6.13	5.91	5.96	6.55	6.63	4.91	4.99	5.09	5.19	5.29
Levellised Tariff	Rs./kWh	**6.37**																

Particulars	Unit	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
Year		**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Installed Capacity	MW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Net Generation	MU	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98
AFC																			
O&M Expenses	Rs. Lakh	136	144	152	161	170	180	190	201	213	225	238	252	266	281	297	314	332	351
Depreciation	Rs. Lakh	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
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	12	13	13	13	14	14	15	16	16	17	17	18	19	20	21	21	22	23
Return on Equity	Rs. Lakh	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
Total Fixed Cost	**Rs. Lakh**	**377**	**385**	**394**	**403**	**413**	**423**	**434**	**446**	**458**	**471**	**484**	**498**	**514**	**530**	**546**	**564**	**583**	**603**
Per Unit Tariff Components																			
O&M Expenses	Rs./kWh	1.95	2.07	2.18	2.31	2.44	2.58	2.73	2.89	3.05	3.22	3.41	3.60	3.81	4.03	4.26	4.50	4.76	5.03
Depreciation	Rs./kWh	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Interest on Term Loan	Rs./kWh	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
Interest on Working Capital	Rs./kWh	0.17	0.18	0.19	0.19	0.20	0.21	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.32	0.33
Return on Equity	Rs./kWh	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97
Total Fixed PU Components	**Rs./kWh**	**5.40**	**5.52**	**5.65**	**5.78**	**5.92**	**6.06**	**6.22**	**6.38**	**6.56**	**6.74**	**6.94**	**7.14**	**7.36**	**7.59**	**7.83**	**8.09**	**8.36**	**8.64**
Levellised 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	0.12	0.10	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
Tariff		5.40	5.52	5.65	5.78	5.92	6.06	6.22	6.38	6.56	6.74	6.94	7.14	7.36	7.59	7.83	8.09	8.36	8.64
Levellised Tariff	Rs./kWh																		