

**Before**

## **UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**In the matter of:**

Petition to determine the project specific tariff of Chamoli extension mini hydro power project of capacity 3 MW on cost plus approach.

**In the matter of:**

Uttarakhand Renewable Energy Development Agency

... Petitioner

**AND**

**In the matter of:**

Uttarakhand Power Corporation Ltd.

... Respondent

**CORAM**

**Shri Subhash Kumar      Chairman**

**Shri K.P. Singh          Member**

**Date of Hearing: November 4, 2016**

**Date of Order: November 30, 2016**

The Order relates to the Petition dated 10.10.2016 filed by Uttarakhand Renewable Energy Development Agency (hereinafter referred to as “**the Petitioner**” or “**URED A**”) for determination of project specific tariff for Chamoli extension mini hydro power project of capacity 3 MW (hereinafter referred to as “**the Project**” or “**SHP**”) on cost plus approach under prevailing provisions of UERC (Conduct of Business) Regulations, 2014; and the Commission’s Order dated 10.11.2005 to determine the project specific tariff of the project.

### **1. Background**

1.1 The Petitioner is the state nodal agency (SNA) of Ministry of New and Renewable Energy (MNRE), GoI for deployment of renewable energy and State Designated Agency (SDA) of Bureau of Energy Efficiency (BEE), GoI for implementation of various energy conservation activities and programmes in the State of Uttarakhand. The GoUK vide letter no.

1311/I/2012-03/17/2012 dated 07.11.2012 had directed UJVNL to transfer 32 Small hydro power projects as and where it is, having capacity upto 3 MW to UREDA. In consequence to the GoUK directions, UJVNL transferred 21 SHPs to UREDA. The said project is one of the 21 SHPs transferred to UREDA and the project was damaged/non-functional at the time of transfer and got further damaged in the calamity disaster occurred in June 2013.

## **2. Petitioner's submission**

- 2.1 The Petitioner submitted that it had filed a petition before the Commission for approval of the Date of Commercial Operation (COD) of the damaged/non-functional 8 SHPs on the date when the SHPs would start operating after renovation & modernization works. The Commission vide its Order dated 05.09.2016 had rejected the petition and advised the Petitioner to approach the State Government for funds to carry out the essential works to revive the projects.
- 2.2 The Petitioner further submitted that out of 21 SHPs only one SHP namely Chamoli extension of upgraded capacity 3 MW is proposed to be revived under Renovation, Up-gradation, Operation, Maintenance and Transfer (RUOMT) basis. UREDA has prepared the DPR and is in the process of inviting tender for "Renovation, Up-gradation, Operation and Maintenance and Transfer" of Chamoli extension SHP. The Petitioner submitted that the project will be allotted to the developer for a period of 30 years (including 2 years of construction period) who will charge minimum price in Rs./kWh from UREDA on per unit sale of electricity to Uttarakhand Power Corporation Limited (hereinafter referred to as "**UPCL**" or "**the Respondent**").
- 2.3 The Petitioner submitted that the Commission vide its Order dated 10.11.2005 had specified its approach to initial tariff for generating stations with capacity upto 1 MW wherein the option of getting the tariffs determined as the weighted average cost of power allocated to the State from central generating station or in accordance with the UERC (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations, 2004 without any relaxation was provided to the generators in case of Hydro generating stations with capacity upto 1 MW. The Commission also issued an Order dated 10.11.2005 for all the hydro generating stations having capacities between 1 MW to 25 MW, which was based on cost plus approach but certain norms regarding the cost elements specified in the 2004 Regulations were relaxed by the Commission.

The Petitioner submitted that the Chamoli SHP was having an installed capacity of 800 kW when it was transferred from UJVN Ltd. However, it has the potential to upgrade up to the capacity of 3 MW. The total cost of up-gradation and modernization of the project is Rs. 22.11 Crore as per cost estimates of DPR and Rs. 23.59 Crore (including IDC). The Petitioner also submitted that the up-gradation and modernization of the project to 3 MW installed capacity will facilitate UPCL in achieving their Non-Solar RPO compliance.

2.4 The Petition was heard on 04.11.2016 and the Judgment was reserved by the Commission.

### **3. Respondent's submission and Petitioner's reply**

3.1 UPCL, the Respondent, vide its submission dated 03.11.2016 submitted that the Petitioner has prayed for determining the project specific tariff of Chamoli Extension Mini Hydro Power Project of capacity 3 MW on cost plus approach, it is not understandable as to how the tariff on cost plus basis can be fixed when the Petitioner itself has stated to Renovate and Modernize/Upgrade the existing SHP having capacity of 0.8 MW, it is pertinent to mention here that the Petitioner has not filed any document to show as to how the Petitioner is entitled to enhance the capacity of the plant from 0.8 MW to 3 MW.

In reply, UREDA vide its submission dated 10.11.2016 submitted that the UREDA is the state nodal agency, MNRE, GoI for development of renewable energy projects in the State. The hydro power projects having capacity upto 25 MW are being considered as renewable energy. Further, as per letter of GoUK no. 1311 dated 07.11.2012, UREDA has been given all the hydro power projects having capacity upto 3 MW. The project is not generating power from last 18 years and if it is renovated and up-graded to generate electricity than it will not only fill the gap of deficit power in the State but will also be able to meet the non-solar RPO compliance of the Respondent to some extent.

3.2 The Respondent submitted that the Petitioner had stated that the project was commissioned in the year 1986 and does not have any PPA with UPCL neither it has any tariff fixed. The Petitioner has not shown as to how it is governed by the RE Regulations, 2013. The Respondent further submitted that the relief prayed by the Petitioner cannot be granted for consideration of the project under the purview of the Commission's Order dated 10.11.2005 as Regulation 1(3) of RE Regulations, 2008 clearly specifies that with coming into force of RE Regulations, 2008 the said Order dated 10.11.2005 stands superseded.

In reply, the Petitioner submitted that it did not seek determination of tariff under the provisions of the RE Regulations, 2013, however UREDA filed Petition to consider the project under purview of the Commission's order dated 10.11.2005 for all stations having capacity between 1 MW to 25 MW as its upgraded capacity would be 3 MW after renovation and modernization work. Further, UREDA is well aware that the Order dated 10.11.2005 of the Commission has been superseded by the UERC RE Regulations, 2008 and the said Regulations has been superseded by RE Regulations, 2013. The Petitioner had filed a petition before the Commission for the approval of COD of 8 damaged/non-functional SHPs. However, the Commission had not allowed the Petitioner to avail gross tariff of the project under RE Tariff Regulations, 2013. Hence, UREDA has filed the petition to determine the project specific tariff of the project of capacity of 3 MW in cost plus approach according to the then prevailing Commission's Order dated 10.11.2005.

- 3.3 UPCL vide Para 7 of its submission dated 03.11.2016 submitted that the Petitioner has not filed the documents of ownership, proof of approval of funds from the GoUK, that the permission allowing the Petitioner to enhance the capacity of the plant, the complete DPR and has not stated any cost benefit analysis.

In reply, the Petitioner stated that it has already submitted the document of ownership with the Petition, i.e. Letter of GoUK dated 07.11.2012 directing UJVN Ltd. to transfer 32 SHPs as and where it is, having capacity upto 3 MW to UREDA. Further, Chamoli extension SHP is proposed to be revived under RUOMT basis. The same was approved by Executive Committee of UREDA for inviting the tender for "Renovation, Up-gradation, Operation and Maintenance and Transfer" of Chamoli extension SHP. Further, DPR copy has also been submitted by the Petitioner.

#### **4. Commission's views & Decisions**

- 4.1 Taking cognizance of the submission made by the Petitioner and the Respondent as discussed above, it has been observed that the Commission's Order dated 10.11.2005 had been superseded by RE Regulations, 2008 and the same was further superseded by RE Regulations, 2010 & RE Regulations, 2013. Since the project for which petition has been filed by UREDA was commissioned in 1986, i.e. prior to issuance of the RE Regulations, 2013, hence, the same cannot be considered to be covered under these Regulations. Hence, the RE Regulations, 2013 cannot be applied for determination of tariff of the said project.

4.2 Further, the Petitioner had also filed a petition seeking approval of the 'Date of Commercial Operation' (COD) of the damaged/non-functional 8 Small Hydro Power Plants (SHPs) on the date when the SHPs would start operating after renovation & modernisation works. In this regard, the Commission vide its Order dated 05.09.2016 had held that:

*"2.5 The SHPs having capacity upto 3 MW were transferred to UREDA from UJVN Ltd. based on GoU's directions for operation & maintenance of the projects. UREDA has now proposed that the above mentioned 8 SHPs shall be allotted to the project developer who will charge minimum price for per unit sale of electricity which is not in accordance with the decision of the State Government wherein ownership and operation & maintenance of SHPs was vested by the State Government on UREDA (a State Agency). Therefore, UREDA's proposal to allocate such SHPs to other project developer appears to be unreasonable and also inconsistent with the Government's decision in the matter and hence the same cannot be accepted by the Commission. Moreover, UREDA at the time of transfer was aware of the status of the projects and it could have approached the Government for release of funds necessary for revival of these non-functional projects. Infact, the Commission has noted that three no. SHPs namely, Pandukeshwar (0.75 MW), Relagad (3 MW), Kotabag (0.2 MW) are already undergoing renovation and for the said plants UREDA has never in the past approached the Commission with such proposal. Admittedly, UREDA might be utilising its own fund or the funds granted by State/Central Government for renovation and other related expenditures of the above mentioned SHPs.*

*2.6 The Commission has vide its UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) (Second Amendment), Regulations, 2014 specified the provisions for additional capitalisation which has been incurred on account of damages caused by natural calamity. UREDA can seek funds from the State Government and carry out the work on its own and subsequently approach the Commission for appropriate adjustment in tariffs. It would also be relevant to mention that the State Government is levying Green Energy Cess under the Uttarakhand Green Energy Cess Act, 2014 and one of the objective of the Act is to promote generation of energy through renewable energy. Hence, UREDA may approach the State Government for funds to carry out the works essential to revive the projects.*

It is apparent that the Commission had already taken a view in the matter of ownership of the SHPs transferred from UJVN Ltd. which were being operated & maintained by the Petitioner. Accordingly, the Petitioner was asked to approach the State

Government for allocation of funds for carrying out proposed works in such SHPs. The Commission noted that some of the SHPs had already been financed through GoU/MNRE for the purpose of revival of such SHPs. The Petitioner has not mentioned as to why financing of the SHP namely Chamoli extension SHP could not be obtained through GoU/MNRE. The Petitioner ought to have followed similar approach for this SHP also.

4.3 Currently, the SHP is having an installed capacity of 800 kW and is covered under the Commission's Order dated 10.11.2005, i.e. based on the tariff of Central Generating Stations from which UPCL procures power. However, consequent to the RMU activity the capacity would be enhanced to 3 MW and hence, the avoided cost principle will not apply to it. It would have been covered under the then Order dated 10.11.2005 for SHPs having installed capacity above 1 MW and upto 25 MW. However, the said Order does not exist as on date. Further, as already held by the Commission in its Order dated 05.09.2016, the date of completion of RMU cannot be construed as the date of commissioning, hence, the SHP cannot be covered under RE Regulations, 2013. While framing the Regulations, the Commission did not foresee such exigencies where stranded projects were to be revived or the projects who had outlived their lives and accordingly, no provision was made in the Regulations for inclusion of the same. Accordingly, the Commission in exercise of its power vested under Regulation 50 of RE Regulations, 2013 decides to relax the Regulations to include those projects who are either stranded or have outlived their life and require RMU to revive them. The Commission would determine tariffs for such projects after the RMU activity is carried out suitably adjusting for historical costs of the project in accordance with the operational norms specified under RE Regulations, 2013.

4.4 Notwithstanding the Commission's views/discussion as above, the Commission noted that the Petition is not intended for determination of tariff to be recovered from the UPCL, however, the Petitioner has prayed only for specifying the tariff so that the process of inviting tender for "Renovation, Up-gradation, Operation and Maintenance and Transfer" of the Project can be initiated. Further, the Petitioner has requested the Commission to determine tariff based on the DPR cost which is not the actual one but is the estimate only. In accordance with the RE Regulations, the project specific tariff is to be determined based on the actual capital cost incurred. Hence, the Commission is of the view that if in the year 2005 UREDA had approached the Commission for determination of tariff for this station in

accordance with the Commission's Order dated 10.11.2005 in the matter of Approach to Determination of Tariff for Small Hydro Power Projects with Capacity upto 1 MW (including upto 5 MW SHPs vide amendment Regulation dated 18.05.2007) and New SHPs above 1 MW and upto 25 MW dated 10.11.2005, than based on the capacity of the station, the Commission would have approved the tariff on the following principles/approach:

- A. Avoided cost principle (based on the weighted average cost of power allocated to the State/UPCL from CGS stations) in accordance with the Commission's Order dated 10.11.2005 for SHPs upto 5 MW capacity; or
- B. On the parameters fixed in Order dated 10.11.2005 for SHPs having installed capacity above 1 MW and upto 25 MW under section 62(1)(a) of the Electricity Act, 2003.

The Tariff, hence, determined following the above principles/approach, as applicable, would have continued for this station. This position on applicability of tariff has also been included in 2<sup>nd</sup> proviso of sub-regulation 1 of Regulation 2 of the RE Regulation 2013 which states that:

*"Provided further that Regulations in Chapter 4 & 5, shall not be applicable for generating stations commissioned prior to coming into effect of these Regulations and their present tariffs shall continue to be applicable. ..."*

Based on the above, Indicative Tariffs on both the above principles/approach have been worked out in the following paragraphs.

#### **4.4.1 Avoided cost principle, i.e. based on the tariff of Central Generating Stations UPCL procures power-**

Since, currently the capacity of the Chamoli extension SHP is 0.80 MW and falls under the purview of the Commission's Order dated 10.11.2005 on "Approach to initial tariff for Generating Stations with capacity upto 1 MW", hence, for indicative tariff purpose avoided cost approach can also be considered. As per the Retail Tariff Order dated 05.04.2016 for FY 2016-17, the summary of estimated power purchase cost from the Central Generating Stations for FY 2016-17 is as follows:

Central Generating Stations	PP at State periphery	Total Cost	Average Rate
	MU	Rs. Crore	Rs./kWh
<b>NHPC</b>			
Salal	40.04	4.77	1.19
Tanakpur	16.17	4.94	3.05
Chamera I	86.37	15.29	1.77
Chamera II	17.75	5.32	3
Chamera III	50.05	21.71	4.34
Uri	101.18	17.09	1.69
Dhauliganga	48.51	16.43	3.39
Dulhasti	105.46	60.65	5.75
Sewa II	28.8	12.61	4.38
Uri II	56.27	24.54	4.36
Parbati III	32.38	16.3	5.03
Free Power-Tanakpur	53.48	8.69	1.62
Free Power-Dhauliganga	114.03	18.52	1.62
<b>THDC</b>			
Tehri HEP	101.25	62.03	6.13
Free Power-Tehri HEP	358.93	58.3	1.62
Koteshwar HEP	62.91	26.39	4.2
Free Power-Koteshwar HEP	139.03	22.58	1.62
<b>NTPC</b>			
Singrauli STPS	720.76	145.39	2.02
Rihand STPS			
<i>Rihand I</i>	256.73	77.08	3
<i>Rihand II</i>	232.47	68.37	2.94
<i>Rihand III</i>	267.23	73.9	2.77
Unchahar TPS			
<i>Unchahar I</i>	230.18	88.59	3.85
<i>Unchahar II</i>	107.91	41.62	3.86
<i>Unchahar III</i>	87.86	39.05	4.44
Anta CCPP	73.95	35.79	4.84
Auraiya CCPP	71.66	41.34	5.77
Dadri CCPP	109.24	52.06	4.77
Dadri (NCTPP)	47.02	25.15	5.35
Jhajjar	28.56	17.63	6.17
Kahalgaon TPS	170.17	72.62	4.27
Koldam	198.94	87.23	4.38
<b>NPCIL</b>			
Narora APP	120.39	30.47	2.53
Rajasthan APP	145.56	53.18	3.65
<b>SJVNL</b>			
Nathpa Jhakri HEP	45.66	14.47	3.17
Rampur HPS	175.89	70.36	4
<b>Total</b>	<b>4,502.79</b>	<b>1,430.46</b>	<b>3.18</b>

Accordingly, the average rate of electricity of the Central Generating station as approved by the Commission for FY 2016-17 works out to Rs. 3.18/kWh.

**4.4.2 Based on the approach specified in the Commission's Order dated 10.11.2005 for SHPs having installed capacity above 1 MW and upto 25 MW under section 62(1)(a) of the Electricity Act, 2003-**

The Commission at Para 14 of its order dated 10.11.2005 stated as follows:

*“The Commission recognises that there could be projects in which the capital cost works out higher than the stipulated ceiling of Rs. 5.5 Crore/MW or the PLF may work out to less than 45%. This approach could push up the tariffs for such projects to unacceptably high levels and such projects have, therefore, been kept outside this approach. For development of such sites the options available are:*

- i) The tariff for such projects may be determined through a transparent bidding process under section 63 of the Act.*
- ii) To meet these ceilings, Government could subsidize such projects so that such projects meet the stipulated requirements.*
- iii) Subject to prudence checks, tariff for such projects could be determined strictly in accordance with the Regulations.*
- iv) However, if the tariff determined as per above options is excessive, the present policy of the licensee purchasing power from these units ahead of merit order may need to be reviewed and suitably moderated. Alternatively, the Government could consider subsidizing the difference between the tariff for such projects and normative tariff worked out with the stipulated maximum and minimum values.”*

4.5 The Petitioner has prayed to determine the tariff considering the DPR cost of Rs. 23.59 Crore for the project. Since the project specific tariff is to be determined based on the actual capital cost and in the instant petition indicative tariff is being determined for the purpose of initiating process of inviting tender for “Renovation, Up-gradation, Operation and Maintenance and Transfer”. The Commission has considered the norms fixed in the above said order for the determination of the indicative tariff only. Details of the deciding factors for determination of the tariff are as follows:

4.5.1 **Capital Cost:** As per Para 8 of the Order dated 10.11.2005, while determining the tariff, the actual value of capital cost will be determined by the Commission based on details of each project, but subject to a maximum ceiling of Rs. 5.5 Crore/MW. In the instant petition, the Petitioner has claimed capital cost of Rs. 23.59 Crore for 3 MW and per MW capital cost works out to Rs. 7.86 Crore which exceeds the ceiling limit specified in the said Order. Therefore, considering the limit of Rs. 5.5 Crore/MW, Capital cost of Rs. 16.50 Crore has been considered for the project having an installed capacity of 3 MW.

4.5.2 **Operation & Maintenance (O&M) Expenses:** The Commission had adopted the ceiling norms of 3% of the Capital cost for O&M expenses and in addition, actual insurance expenses will be admissible subject to a ceiling of 1% of the Capital cost for the SHPs having installed capacity above 1 MW and upto 25 MW as per Order dated 10.11.2005. The same norms have been considered for determination of O&M expenses. Further, additional 1% of the Capital cost has been considered for O&M expenses. Moreover, the order is silent regarding escalation of the normative O&M expenses. Hence, as per the option mentioned at (iii) of the Para 14, of the Order dated 10.11.2005, escalation has been considered as per the prevailing Regulation 26 (c) of UERC (Terms & Condition for determination of Hydro generation Tariff) Regulation, 2004 (hereinafter referred to as "**Tariff Regulations, 2004**") which specifies as follows:

*"The base operation and maintenance expenses for the year 2003-04 shall be escalated further at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the relevant year of tariff period."*

Accordingly, escalation factor of 4% has been considered for escalation of O&M expenses.

4.5.3 **Net Saleable Energy:** As per Order dated 10.11.2005, CUF 45% has been considered for the purpose of determination of tariff. Accordingly, saleable energy has been worked out at a CUF of 45% after adjusting auxiliary consumption of 1%, Net saleable energy of 11.71 MU has been considered for the purpose of determination of tariff.

4.5.4 As the Order dated 10.11.2005 is silent on the issue of depreciation and RoE. Methodology provided for the determination of depreciation in the Tariff Regulations 2004 has been adopted to compute the depreciation. Regulation 23 (2) of Tariff Regulations, 2004 specifies as follows:

*"Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix I to these regulations."*

4.5.5 As per Regulation 24 of Tariff Regulations, 2004, in addition to allowable depreciation, generating company shall be entitled to an advance against depreciation. Accordingly, 70% of the depreciation value, i.e. 70% of Capital Cost, has been spread over in the initial 10 years and balance 20% of the depreciable value has been spread over in the balance

useful life of the asset.

4.5.6 Regulation 25 of Tariff Regulations, 2004 provides post tax return on equity @ 14% per annum. The same has been considered for the computation of RoE.

4.5.7 The Order dated 10.11.2005 as well as Tariff Regulations, 2004 are silent on the issue of the interest rate to be applied on the normative loan and working capital in the absence of the actual loans deployment. Hence, the Commission decides to apply relevant Regulations of RE Regulations 2013. Regulation 16 (2) of the RE Regulations 2013, provides as follows:

*“for the purpose of computation of generic tariff, the normative interest rate shall be considered as average State Bank of India Base Rate prevalent during the first six months of the provision 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 Base Rate prevalent during the first six months of the previous year plus 300 basis points”*

4.5.8 As discussed above, no details are available for the actual loans. Hence, SBI Base Rate prevalent during the first six month of the FY 2015-16 plus 300 basis points has been considered which works out to 12.76% p.a. The same has been considered for the computation of the interest on the normative loan.

4.5.9 In respect of Interest rate to be applicable on Working Capital, Regulation 19 (3) of RE Regulations specifies as follows:

*“Interest on Working Capital shall be at interest rate equivalent to the average State Bank of India Rate prevalent during the first six months of the provision year plus 350 basis points.”*

Accordingly, SBI Base Rate prevalent during the first six month of the FY 2015-16 plus 350 basis points has been considered. Thus, interest rate of 13.26% p.a. has been considered for the computation of the interest on working capital.

4.5.10 The Petitioner vide Para 2.11 of its petition submitted that the project will be allotted to the developer for a period of 30 years (including 2 years of construction period) who will charge minimum price in Rs./kWh from UREDA on per unit sale of electricity to UPCL. As per Tariff Regulations, life of the SHPs is 35 years. Hence, for the purpose of determination of the indicative tariff life of the project has been considered 35 years.

4.5.11 Based on the approach as discussed above and taking into consideration the norms, indicative levelised tariff works out to Rs. 2.73/kWh.

4.5.12 The Commission reiterates that the tariffs so determined above in this Order are indicative only. However, it is hereby clarified that the Petitioner is required to make a fresh petition on completion of the proposed works related to the SHP for determination of tariff in accordance with Regulations and the Commission would proceed to determine the tariff in accordance with the views expressed by the Commission in Para 4.3 above.

4.6 Ordered accordingly.

**(K.P. Singh)**  
**Member**

**(Subhash Kumar)**  
**Chairman**