

Before

**UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**Petition No. 19 of 2012**

**In the Matter of:**

Petition filed by M/s Him Urja (P) Ltd. seeking determination of tariff of Vanala SHP of 15 MW Capacity.

**AND**

**In the matter of:**

Him Urja Pvt. Ltd.

...Petitioner

**AND**

**In the matter of:**

Uttarakhand Power Corporation Ltd.

...Respondent

**CORAM**

**Shri Jag Mohan Lal Chairman**

**Shri C.S. Sharma Member**

**Shri K.P. Singh Member**

**Date of Order: April 10, 2014**

This Order relates to the Petition filed by M/s Him Urja Pvt. Ltd. (hereinafter referred to as "petitioner" or "generator" or "developer") for determination of project specific tariff in accordance with UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010 in respect of its Vanala Small Hydro Project of 15 MW Capacity (2 x 7.5 MW) for sale of power generated from its Vanala SHP to UPCL, being the sole beneficiary of the project.

# 1. Background and Procedural History

- 1.1 M/s Him Urja Pvt. Ltd. had set up 15 MW Small Hydro Project at Vanala, District Chamoli in the State of Uttarakhand which was commissioned on December 05, 2009 and it approached the Commission for determination of tariff of the aforesaid SHP vide its application dated 09.03.2010 in accordance with Regulation 33 read with Regulation 49 of UERC (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2008 and the draft NCE Regulations, 2009 which were finally notified on 06.07.2010 (hereinafter referred to as "RE Regulations, 2010". The tariffs and related norms under these Regulations were effective from 01.07.2010 for projects commissioned on or after 01.04.2009.
- 1.2 Deficiencies/shortcomings in the application filed by the Petitioner was intimated vide Commission's letter dated 08.06.2010. The replies were submitted by the Petitioner vide its letter dated 03.07.2010. However, it was observed there was no long term PPA of the Petitioner's plant with UPCL as necessitated under the prevailing Regulations.
- 1.3 In the inter-regnum, the Petitioner had filed a Special Leave Petition (SLP) before the Hon'ble Supreme Court on November 16, 2009 on the issue of taking power generated by it outside the State under Open Access which was admitted by Hon'ble Supreme Court on 07.05.2010. The Hon'ble Supreme Court vide its Order dated July 28, 2010 directed the Petitioner to generate power and provide the same to UPCL till the outcome of decision in SLP. Subsequently, UPCL continued the purchase of power from the Petitioner's SHP @ Rs 2.75/kWh in accordance UERC RE Regulations, 2008. Further, the Hon'ble Apex Court vide its Order dated May 06, 2011 directed the purchase of power in accordance with rates specified by the Commission in RE Regulations, 2010. The Petitioner withdrew the writ Petition from Hon'ble Supreme Court on July 25, 2012 and all the interim Orders issued by the Hon'ble Apex Court were, therefore, vacated.
- 1.4 Till the time, the proceedings were pending in the Hon'ble Supreme Court and in absence of any long term PPA with UPCL, the application filed by the Petitioner was

kept in abeyance. The Petitioner vide its letter dated August 16, 2012 submitted that since the interlocutory Orders passed by the Hon'ble Supreme Court have been vacated, therefore, the tariff for the Vanala SHP has to be decided by the Commission. The Commission vide its letter dated September 12, 2012 informed the Petitioner that it was required to file a fresh petition seeking determination of tariff in accordance with prevailing RE Regulations, 2010 based on the audited Capital Cost of the project. Thereafter, a Supplementary Petition was filed by the Petitioner on November 22, 2012 in continuation to the original Petition filed on March 26, 2010 with the request to allow an interim tariff of Rs. 3.50 per unit from Sept., 2012 till determination of final tariff of the SHP.

- 1.5 The Commission vide its letter dated December 04, 2012 directed UPCL to enter into a long term PPA with the developer and intimate the same to the Commission. UPCL was also directed that the Petitioner be paid at the provisional tariff of Rs 3.50/kWh only after the long term PPA has been signed till the final determination of tariff for Vanala SHP by the Commission. In compliance to the Commission's directive, the PPA was executed by UPCL with the Petitioner on December 21, 2012.
- 1.6 The Supplementary Petition filed by the Petitioner had some deficiencies which was communicated to it vide letter dated February 01, 2013. A copy of the aforesaid Supplementary Petition was also forwarded to UPCL for submission of its comments. The Petitioner submitted its reply on February 27, 2013 and UPCL submitted its comments vide letter dated March 19, 2013. Subsequently, additional deficiencies/shortcomings in the replies filed by the Petitioner were communicated to it from time to time.
- 1.7 The Commission has considered the replies/information submitted by the Petitioner and has discussed them at appropriate places in the Order alongwith the Commission's views on the same.

## **2. Petitioner's Submissions**

### **2.1 Capital Cost & Financing thereof**

The Petitioner submitted that in accordance with Regulation 29 of RE Regulations, 2010 the normative capital cost, including cost of transmission line and bays at receiver's end, for SHP Projects commissioned on or after 01.04.2009 has been fixed at Rs. 6.70 Crore per MW. The Petitioner submitted the final completion cost of the Vanala SHP as Rs. 119.34 Crore, which worked out to a capital cost of Rs. 8.03 Crore per MW as against the normative capital cost of Rs. 6.70 Crore/MW allowed under the RE Regulations, 2010. The Petitioner substantiated the capital cost of the Vanala SHP as on the date of commissioning of the project with the certificate dated January 18, 2010 issued by Chartered Accountant firm. The CA certificate shows the following details:

**Table 1: Capital Cost Claimed (Rs. Crore)**

| S. No. | Particulars                                     | Approved By IREDA      |                       | Expenses Incurred upto 05.12.2009 |
|--------|---|------------------------|-----------------------|-----------------------------------|
|        |   | Original on 05.06.2006 | Revised on 12.12.2008 |                                   |
| 1      | Land & Site Development                         | 140.00                 | 166.67                | 203.66                            |
| 2      | Building & Civil Works                          | 4919.00                | 6773.00               | 7694.22                           |
| 3      | Plant & Machinery                               | 1810.00                | 1711.24               | 1736.00                           |
| 4      | Others (including T/m Line & Misc Fixed Assets) | 409.00                 | 369.24                | 365.93                            |
| 5      | Preliminary & Pre-operative Expenses            | 208.30                 | 406.42                | 457.51                            |
| 6      | IDC   | 475.70                 | 630.55                | 1289.72                           |
| 7      | Provision for contingencies                     | 288.00                 | -                     |                                   |
| 8      | Engineering consultancy                         |                        |                       |                                   |
| 9      | Margin for Working Capital                      |                        |                       |                                   |
| 10     | Margin Money for BG/FDR if any                  |                        | 20.00                 |                                   |
|        | <b>Net Amount Spent</b>                         | <b>8,250.00</b>        | <b>10,077.12</b>      | <b>11,747.04</b>                  |
|        | Cash & Bank Balances                            |                        |                       | 2.14                              |
|        | <b>Total</b>                                    | <b>8,250.00</b>        | <b>10,077.12</b>      | <b>11,749.19</b>                  |

2.1.1 The financing of the Capital Cost was claimed as under:

**Table 2: Financing of Capital Cost Claimed (Rs. Crore)**

| S. No. | Sources of Fund                       | Approved By IREDA      |                       | Total            |
|--------|---------------------------------------|------------------------|-----------------------|------------------|
|        |                                       | Original on 05.06.2006 | Revised on 12.12.2008 |                  |
| 1      | <b><u>Promoter's Contribution</u></b> |                        |                       |                  |
|        | Fresh Equity                          |                        |                       |                  |
|        | Towards Project                       | 2,475.00               | 3,077.12              | 3,423.68         |
|        | Towards Margin Money for FDR          |                        |                       |                  |
|        | Public Issue                          |                        |                       |                  |
|        | Unsecured Loan                        |                        |                       |                  |
|        | Internal Accruals                     |                        |                       | 130.00           |
| 2      | <b><u>Term Loan</u></b>               |                        |                       |                  |
|        | i) IREDA Tern Loan                    |                        |                       |                  |
|        | Towards Project                       | 5,775.00               | 7,000.00              | 7317.61          |
|        | Towards Margin Money for FDR          |                        |                       |                  |
|        | ii) Other FI/Banks                    |                        |                       |                  |
| 3      | Subsidy/Grant, if any                 |                        |                       |                  |
| 4      | Creditors/ Exp. Payable as on date    |                        |                       | 877.90           |
|        | <b>Total</b>                          | <b>8,250.00</b>        | <b>10,077.12</b>      | <b>11,749.19</b> |

Through aforesaid Certificate it was also submitted that an expenditure of further Rs 298 Lakh was expected to be incurred to complete the pending works.

The Petitioner submitted the following reasons for claiming higher capital cost with respect to the Vanala SHP as against the benchmark cost fixed under the RE Regulations, 2010:

- (a) It had constructed the project with peaking capabilities as it was contemplating sale of power in open market where the rate of peaking power is higher. None of the other small hydro projects have peaking capabilities.
- (b) As per RE Regulations, 2010 the total cost of project works out to Rs. 100.50 Crore whereas it incurred a total cost of Rs. 119.34 Crore. Thus an additional cost of Rs. 20 Crore has been incurred. Rs. 24.22 Crore has been incurred for construction of fully gated barrage for diurnal storage of water whereas the cost of normal diversion structure like weir or trench weir is much lower at around Rs. 12.00 Crore. Accordingly, an additional cost of Rs. 12.22 Crore has been incurred on this head

itself. The Petitioner supported its claims in this regard by producing the photographs of the fully gated barrage.

(c) The Petitioner submitted that the project was ready for commissioning in July 2009 but could not be commissioned as connectivity to the Project was not made available by Uttarakhand Power Corporation Ltd. owing to dispute regarding sale of electricity and accordingly, the delay was not attributable to the petitioner. On account of this delay, the approved interest during construction for the Project shot up from Rs. 6.30 Crore to Rs. 12.90 Crore. Thus, additional cost of Rs. 6.60 Crore was incurred due to the increase in interest during construction.

(d) Therefore, the Petitioner claimed that it had incurred an additional cost on the above referred account of Rs 18.82 Crore.

## 2.2 Design Energy

In respect of determining the saleable energy required for determination of tariff, the Petitioner has submitted the generation in the 90% dependable year as calculated in DPR in accordance with Regulation 11(3)(a) which is 61.17 MUs.

## 2.3 AFC and Tariff Claimed

Based on the Capital Cost of Rs 120.50 Crore claimed by the Petitioner, it has submitted the details of financing referring to Regulation 16(2) of RE Regulations, 2010 which is given hereunder:

**Table 3: Financing Claimed (Rs. Crore)**

| Debt (70%) | Equity (30%) | Total Capital Cost |
|------------|--------------|--------------------|
| 84.50      | 36.00        | 120.50             |

The various components of Annual Fixed Charges (AFC) as claimed by the Petitioner are as follows:

### 2.3.1 Return on Equity (RoE)

The Petitioner has submitted that the computation of RoE @ 19% upto the first 10 years of the operation and @ 24% from 11th years onwards has been made by it in accordance with Regulation 19(2) of the RE Regulations, 2010.

### 2.3.2 Depreciation

The Petitioner has submitted that it has computed depreciation @ 7% upto the first 10 years of operation and remaining depreciation has been computed based on Straight Line Method in accordance with Regulation 18 of the RE Regulations, 2010.

### 2.3.3 Interest on Loan Capital

The Petitioner has submitted that interest on loan capital has been computed by it based on Regulation 17(2) of RE Regulations, 2010 considering the rate of interest @ 13.25%.

### 2.3.4 Operation & Maintenance Expenses

The Petitioner has submitted that O&M expenses have been claimed in accordance with Regulation 21 & 29 of RE Regulations, 2010, i.e. the O&M expenses for the first year of operation has been considered as @ Rs 18 Lakh/MW with an annual escalation of 5.72% for subsequent years.

### 2.3.5 Interest on Working Capital

The Petitioner has submitted that it has claimed interest on working capital in accordance with the norms specified in Regulation 20 of RE Regulations, 2010 and considering the rate of interest @ 12.75%.

Based on the above, the Petitioner has claimed the levelised tariff of Rs. 4.12/unit considering the discounting factor as the weighted average cost of capital of 14.98%. The levelised tariff claimed is given in the Table below:

**Table 4: AFC & Levellised Tariff Claimed (Rs. Crore)**

| Year | ROE  | O&M Charges | Interest on WC | Interest on Debt | Dep  | Total | Tariff (Rs./kWh) | Discount Factor (%) | Discounted Tariff |
|------|------|-------------|----------------|------------------|------|-------|------------------|---------------------|-------------------|
| 1    | 6.88 | 2.70        | 0.70           | 10.64            | 8.45 | 29.38 | 4.88             | 1.00                | 4.88              |
| 2    | 6.88 | 2.85        | 0.69           | 9.52             | 8.45 | 28.40 | 4.71             | 0.85                | 4.01              |
| 3    | 6.88 | 3.02        | 0.67           | 8.40             | 8.45 | 27.43 | 4.55             | 0.72                | 3.29              |
| 4    | 6.88 | 3.19        | 0.66           | 7.28             | 8.45 | 26.46 | 4.39             | 0.61                | 2.70              |
| 5    | 6.88 | 3.37        | 0.64           | 6.16             | 8.45 | 25.51 | 4.23             | 0.52                | 2.21              |
| 6    | 6.88 | 3.57        | 0.63           | 5.04             | 8.45 | 24.57 | 4.08             | 0.44                | 1.81              |
| 7    | 6.88 | 3.77        | 0.61           | 3.92             | 8.45 | 23.64 | 3.92             | 0.38                | 1.48              |
| 8    | 6.88 | 3.99        | 0.60           | 2.80             | 8.45 | 22.72 | 3.77             | 0.32                | 1.21              |
| 9    | 6.88 | 4.21        | 0.59           | 1.68             | 8.45 | 21.82 | 3.62             | 0.27                | 0.99              |
| 10   | 6.88 | 4.45        | 0.58           | 0.56             | 8.45 | 20.93 | 3.47             | 0.23                | 0.81              |
| 11   | 8.69 | 4.71        | 0.46           |                  | 0.97 | 14.82 | 2.46             | 0.20                | 0.49              |
| 12   | 8.69 | 4.98        | 0.47           |                  | 0.97 | 15.11 | 2.51             | 0.17                | 0.42              |
| 13   | 8.69 | 5.26        | 0.48           |                  | 0.97 | 15.41 | 2.56             | 0.14                | 0.37              |
| 14   | 8.69 | 5.56        | 0.50           |                  | 0.97 | 15.72 | 2.61             | 0.12                | 0.32              |
| 15   | 8.69 | 5.88        | 0.52           |                  | 0.97 | 16.06 | 2.67             | 0.10                | 0.28              |
| 16   | 8.69 | 6.22        | 0.53           |                  | 0.97 | 16.41 | 3.32             | 0.09                | 0.29              |
| 17   | 8.69 | 6.57        | 0.55           |                  | 0.97 | 16.79 | 3.40             | 0.07                | 0.25              |
| 18   | 8.69 | 6.95        | 0.57           |                  | 0.97 | 17.18 | 3.48             | 0.06                | 0.22              |
| 19   | 8.69 | 7.35        | 0.59           |                  | 0.97 | 17.60 | 3.56             | 0.05                | 0.19              |
| 20   | 8.69 | 7.77        | 0.61           |                  | 0.97 | 18.04 | 3.65             | 0.05                | 0.17              |
| 21   | 8.69 | 8.21        | 0.64           |                  | 0.97 | 18.51 | 3.75             | 0.04                | 0.15              |
| 22   | 8.69 | 8.68        | 0.66           |                  | 0.97 | 19.01 | 3.85             | 0.03                | 0.13              |
| 23   | 8.69 | 9.18        | 0.69           |                  | 0.97 | 19.53 | 3.95             | 0.03                | 0.11              |
| 24   | 8.69 | 9.70        | 0.72           |                  | 0.97 | 20.08 | 4.06             | 0.02                | 0.10              |
| 25   | 8.69 | 10.26       | 0.74           |                  | 0.97 | 20.66 | 4.18             | 0.02                | 0.09              |
| 26   | 8.69 | 10.85       | 0.77           |                  | 0.97 | 21.28 | 4.31             | 0.02                | 0.07              |
| 27   | 8.69 | 11.47       | 0.81           |                  | 0.97 | 21.93 | 4.44             | 0.01                | 0.07              |
| 28   | 8.69 | 12.12       | 0.84           |                  | 0.97 | 22.62 | 4.58             | 0.01                | 0.06              |
| 29   | 8.69 | 12.82       | 0.88           |                  | 0.97 | 23.35 | 4.73             | 0.01                | 0.05              |
| 30   | 8.69 | 13.55       | 0.92           |                  | 0.97 | 24.13 | 4.88             | 0.01                | 0.04              |
| 31   | 8.69 | 14.32       | 0.96           |                  | 0.97 | 24.94 | 5.05             | 0.01                | 0.04              |
| 32   | 8.69 | 15.14       | 1.00           |                  | 0.97 | 25.80 | 5.22             | 0.01                | 0.03              |
| 33   | 8.69 | 16.01       | 1.04           |                  | 0.97 | 26.71 | 5.41             | 0.01                | 0.03              |
| 34   | 8.69 | 16.93       | 1.09           |                  | 0.97 | 27.68 | 5.60             | 0.00                | 0.03              |
| 35   | 8.69 | 17.89       | 1.14           |                  | 0.97 | 28.70 | 5.81             | 0.00                | 0.02              |
|      |      |             |                |                  |      |       |                  | 6.65                | 27.39             |



## 2.4 Cost of Transmission Line

The Petitioner has submitted that it has constructed a 66 kV transmission line having a total length of 11 km, however as per RE Regulations, 2010, the cost specified is only upto 33 kV line for 10 km length. It has submitted that the additional charges for 66 kV line may be considered

## 2.5 Payment on Account of Line Losses

The Petitioner submitted that the UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010, Removal of Difficulty (First) Order, 2010 specifies that the losses incurred upto interconnection point shall be borne by the beneficiary. Accordingly, the Petitioner submitted that the line losses may also be paid to it in accordance with the losses as determined by the Commission vide Order dated March 13, 2012 under the UERC (Terms and Conditions of Intra State Open Access) Regulations, 2010.

# 3. Commission's Approach & Analysis

## 3.1 Statutory Requirements

3.1.1 The Commission had specified the RE Regulations, 2010 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 11 of RE Regulations, 2010, 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 1 & 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 or one month after the date of issuance of these Regulations, whichever is later. The option once exercised shall not be allowed to be changed during the validity period of the PPA."*

Further, sub-Regulation (2) of Regulation 14 of RE Regulations, 2010 stipulates that:

*"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 of the generating station, with duly audited and certified copies of accounts by the statutory auditors within 18 months from the CoD."*

In view of the above referred regulations it is apparent that the Petitioner had opted for "Project Specific Tariff" which is in accordance with the sub-Regulation (2) of Regulation 11 of RE Regulations, 2010. With regard to the filing of the Petition after passage of 18 months time line as required under the RE Regulations, 2010, it may be taken note that the Petitioner had filed a Petition dated 09.03.2010 seeking determination of tariff of its Vanala SHP. Subsequently, its Special Leave Petition (SLP) filed before the Hon'ble Supreme Court on November 16, 2009 on the issue of taking power generated by it outside the State under Open Access was admitted by the Hon'ble apex Court in May' 2010. The Hon'ble Supreme Court vide its Order dated July 28, 2010 directed the Petitioner to generate power and provide the same to UPCL till the decision in SLP. Subsequently, UPCL continued the purchase of power from the Petitioner's SHP @ Rs 2.75/kWh in accordance UERC Regulations, 2008. Further, the Hon'ble Apex Court vide its Order dated May 06, 2011 directed the purchase of power in accordance with rates specified by the

Commission in Renewable Regulations, 2010. The Petitioner withdrew the writ Petition from Hon'ble Supreme Court on July 25, 2012 and all the interim Orders issued by the Hon'ble Apex Court were, therefore, vacated. The Petition dated 09.03.2010 filed by the Petitioner was kept in abeyance by the Commission till the final decision of the Hon'ble Supreme Court. Thereafter, the generator approached the Commission for determination of tariff of its Vanala SHP, vide the Supplementary Petition dated November 22, 2012 which was admitted by the Commission on December 03, 2012.

### 3.2 Design Energy

3.2.1 UPCL in its comments submitted that the calculations of the PLF should be considered as they have significant impact on tariff calculations. As per the calculation submitted by the Petitioner, the PLF of the plant is 46.55% which is 1% higher than the normative PLF allowed in the Regulations.

3.2.2 Regulation 11(3) of RE Regulations, 2010 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 had examined the DPR of the Petitioner SHP's which contains the projected generation for 90% dependable year as well as 50% dependable year as 61.17 MUs and 80.54 MUs respectively. The RE Regulations, 2010 does not specify whether the design PLF would be based on 90% dependable year or 50% dependable year. In this regard reliance is placed on Regulation 3(25) of UERC (Terms and Conditions for Determination of Tariff) Regulations, 2011 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;”*

Accordingly, the Commission has relied upon the generation in the 90% dependable year as calculated in DPR which is 61.17 MUs which has also been claimed by the Petitioner and which is in accordance with the Regulations. This in turns translates to a CUF of 46.55% which is higher than the normative CUF of 45% specified in the RE Regulations, 2010. Hence, the same has been considered as the CUF for recovery of AFC of the Petitioner's plant.

3.2.4 Further, in accordance with the RE Regulations, 2010 normative auxiliary consumption including transformation losses of 1%, has been reduced from the design generation of 61.17 MUs to work out the saleable energy of the said SHP which works out to 60.56 MUs as against the Petitioner's claim of 60.25 MUs.

3.2.5 Para 4.2 of the Implementation Agreement dated 11.06.2004 executed between GoU and the Petitioner requires that a royalty of 18% of net wheeled energy or deliverable energy shall be charged beyond the 15th year of CoD in all cases of sale of power. Hence, saleable energy for the purpose of computation of tariff has been further reduced by 18% w.e.f. 16th year onwards. Approved saleable energy for 35 years is shown in **Appendix-I**.

### 3.3 Capital Cost

3.3.1 Regulation 14 of RE Regulations, 2010 stipulates that:

***"14. 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 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 with application for determination of tariff duly validated projected annual data 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 include the proposed tariff calculated 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 its supplementary Petition dated November 22, 2012 had not submitted the break-up of Capital Cost as required under the RE Regulations, 2010. The Petitioner was required to submit the detailed justification/ information

with regard to cost over-runs in the project vis-a-vis the approved cost, reasons/justifications for delay in commissioning of the project, details & amount of subsidy received if any, details in respect of evacuation infrastructure etc.

3.3.2.1 The Petitioner submitted that at the time of preparation of DPR only preliminary design of the project components was done and it was not possible to account for all the parameters of the project at the time of preparation of DPR particularly the geological behavior, river behavior, flash flood, landslides etc. The Petitioner also submitted that geological surprises do occur in the Himalayas and this factum was duly recognized by the Government of India. The Petitioner has relied upon the Hydro Power Policy of the Government of India 1998 & 2008, and National Electricity Plan January 2012 of CEA which recognize the problem of geological surprises, flash floods, landslides, difficult inaccessible terrain etc. for the hydro power projects. The Petitioner also relied upon the CEA Hydro Development 12th Plan for FY 2012-17 where the normal time of completion of hydro power projects has been envisaged as 10 years or more. The Petitioner also referred to Chapter-2 of the Best Practices in Planning & Appraisal of Hydro Electric Projects of CEA which contains provision for revising the cost where it was clearly mentioned that cost escalation due to increase in cost of raw materials, due to inadequate provisions/new items and change in quantities/scope/design parameters was allowed.

3.3.2.2 The Petitioner also enclosed the details of 42 projects being monitored by CEA which suggested that in almost all projects, cost had been revised by CEA and the average time of completion of the projects was 9.9 years from the date of according techno-economic approval of the project. Further, the Petitioner submitted that Implementation Agreement was signed in 2004 for about 35 small hydro projects in Uttarakhand, and till date only 8 or 9 projects have been commissioned where most of the projects have taken about 4 years to complete.

3.3.2.3 The Petitioner had submitted that there were many factors which in spite of best assessments were subject to geological conditions that existed at the site at the time of the actual execution of the project was done. The Petitioner also submitted that

during the course of excavation of the river bed it was found that firm foundation was not available at the stipulated depth. Hence, additional excavation and filling with concrete was done. Similarly, rocky strata for the power house was not available and the Petitioner had to create many additional retaining walls to support the loose strata found at the weir, channel and power house to support the crumbling mass of the hills.

3.3.2.4 The Petitioner also submitted that the project was constructed during the period when the cost of the steel was at its peak. The steel was purchased at the rate of Rs. 35,000 per tonne to Rs. 54,000 per tonne. Hence, the average cost of purchase of steel was Rs. 43,000 per tonne as against the cost of Rs. 32,000 per tonne envisaged in the DPR, meaning thereby an increase of more than 34% in the cost of steel, which comprised almost 40% of the total cost of the Project. The Petitioner in its additional submission in support of the cost overrun in its project submitted that the cost as per DPR prepared in 2004 was based on the price level of June 2003. The Petitioner submitted the comparatives of rates adopted in the DPR and prevailing rates in 2007-08 for cement, steel, labour, etc. which varied from 21% to 117%. The Petitioner also submitted that the application for loan to IREDA was based on the cost as per UERC NCE Regulation 2005 of Rs.5.50 Crore per MW, as IREDA was accepting cost as per the regulation. However, the actual cost of the project increased during construction as raw material cost abnormally increased and also due to the increase in quantities due to unforeseen circumstances like geological surprises geological, which was subsequently increased to Rs.100.77 Crore.

3.3.2.5 The Petitioner also submitted that the Vanala Project was a peaking station. The Petitioner was contemplating sale of power in open market where the rate of peaking power is higher. The storage for the Project was created by making a regular gated barrage having storage height of 4 meters as against trench type weir and that the cost of the barrage was much higher than trench weir. Further, to create additional storage water conductor system of steel pipe was provided.

3.3.2.6 The Petitioner informed that the Implementation Agreement of the project was signed on June 11, 2004 and revised IA was signed on April 15, 2006. The forest

land case was approved on June 25, 2005. It also submitted that it tried to acquire private land also but encountered resistance from villagers and a complaint was filed against it by one of the villagers. The villagers did not agree to sell their land. In anticipation of the approval of land case the first contract was awarded on June 17, 2005. The site was mobilized by the contractor but the works could not be started even on the forest land because of resistance from the villagers. As the works could not be carried on and the equipment was lying idle at the site, therefore, it had to pay idling charges of Rs. 44 lakhs to the contractor from Sept. 2005 to Sept. 2006. It acquired some land during 2006. However it could start work on the power house site after acquisition of land in May 2007 after executing agreement with villagers of Jakhani but many pockets remained to be acquired thus hampering the access and work which continued till 2009. The piece of land falling in the RCC box channel could not be acquired till Oct., 2008 and hence, the work of construction of the channel could not start till that time as the approach was blocked. The Petitioner also submitted that works of the project was interrupted on many occasions by the villagers. This has been substantiated by the Petitioner with the various agreements executed with the villagers to wriggle out of the situation and also the complaints filed from time to time.

3.3.2.7 The Petitioner submitted that it had set an ambitious target of completing the project in record time of 18 months in the DPR. However, ground realities should not be ignored. It started construction of the project in Feb 2007 and completed in June 2009, i.e. in just 28 months. However, it is a matter of record that none of the project in Uttarakhand has been completed in a period of less than 36 months. While comparing the completion time of the project the type and size of project components may be of great importance. The project being constructed on dam toe or canal based could be constructed in short period as compared to project having long and large water conductor system. The Petitioner also submitted that it had encountered two flash floods during the course of construction of the project resulting in loss of material and equipment as well as redoing the works. Most of



the losses occurred in the form of landslips which was not included in the insurance policy.

- 3.3.2.8 The Petitioner further submitted that the date of starting the construction of the project was February 2007 and the projected date of completion of project was March 2009. The project was ready for trial runs in May 2009, but could not be commissioned as connectivity to the Project was not made available by UPCL owing to dispute regarding sale of electricity. On account of this delay the interest during construction for the Project increased from Rs. 6.30 Crore to Rs. 12.90 Crore, which further added to the increased capital cost of the Project. The Petitioner, however, submitted that no other project was constructed in such a short time.
- 3.3.2.9 Accordingly, the Petitioner submitted that there was no time overrun for the project and even if any delay occurred it was not attributable to it but was due to force majeure conditions as unhindered possession of the entire site was available to us only after Oct. 2008.
- 3.3.2.10 The Petitioner also submitted that from commissioning of the project till June, 2010 it has incurred expenses to the extent of Rs. 658.34 Lakh out of which a sum of Rs. 205.72 Lakh had been recovered from UPCL. Therefore, it requested the Commission that the difference between the above amounting to Rs.452.62 Lakh be allowed to be capitalized as one time exception.
- 3.3.3 Against the approved capital cost of Rs. 10077.12 Lakh approved by IREDA, the Petitioner submitted the details of Rs. 11749.19 Lakh incurred on the project as on CoD as depicted in C.A. certificate dated January 18, 2010. However, the capital cost claimed by the Petitioner and also that certified by the CA Certificate does not match with the GFA schedule in the Balance Sheet as well as the Fixed Asset Register submitted by the Petitioner. The Fixed Asset Register for FY 2009-10 shows the GFA of the Petitioner's plant as Rs. 115.61 Crore and for FY 2010-11 as Rs. 118.59 Crore. Hence, the Commission has relied on the Fixed Asset Register for validating the capital cost of the Petitioner's project. However, the Fixed Asset Register contains the final value of the asset capitalized which includes allocation

of the component of IDC and preliminary and pre-operative expenses to various block of assets. Hence, to have a like to like comparison of the actual capital expenditure and approved capital expenditure, the Commission has reduced the IDC and preliminary and pre-operative expenses from the GFA in the proportion of the value of actual asset block.

Further, in accordance with the DPR of the project, the project should have been commissioned in the month of June 2007. However, the project was commissioned on December 05, 2009, leading to a time over run of about 17 months for reasons given by the Petitioner as already discussed above.

### **3.3.4 Time-overrun**

**3.3.4.1** Before delving into the issue of cost overrun, it would not be out of place to examine the issue of time overrun, as most of the cost overruns like preliminary and pre-operative expenses and Interest during construction, etc. are due to time overrun. The Petitioner had itself submitted that it had set an ambitious target of completing the project in record time of 18 months in the DPR. The Petitioner had itself erred in this regard. It is a well recognised fact that construction of a hydro project normally takes around 3-5 years. Hence, the fact that the Petitioner could be able to commission the project in 28 months after the construction started is commendable.

**3.3.4.2** Moreover, the land acquisition was delayed because of disputes with the villagers and acquisition could be completed only by the end of 2008. It was observed that a piece of land falling in the RCC box channel was acquired from the owner vide agreement dated October 03, 2008 and the generator could complete the works by May 2009. The Petitioner also submitted the details of complaint filed against the villagers making protest against the construction of Vanala SHP. Hence, it was beyond the control of the Petitioner.

**3.3.4.3** Further, the Petitioner's project was ready for trial runs in May 2009, but could not be commissioned as connectivity to the Project was not made available by UPCL owing to dispute regarding sale of electricity. The Petitioner had submitted that

communication was made to UPCL in March, 2009 requesting connectivity. UPCL subsequently moved a petition before the Commission in May, 2009 wherein UPCL had itself stated that project was ready for commissioning. UPCL was asked by the Commission that whether the delay was within the control of the Petitioner or was attributed to UPCL. UPCL in its reply submitted that the PPA was executed with the Petitioner on December 02, 2009 and it issued connectivity to the Petitioner as per the provisions of the PPA. Accordingly, UPCL submitted that there was no delay on its part. However, it is evident that the project was not granted connectivity by UPCL pending signing the PPA, which delayed the commissioning of the Vanala SHP. Hence, the delay in commissioning of the project is considered by the Commission to be uncontrollable and the Commission would consider the elements being impacted due to time overrun accordingly.

- 3.3.5 Further, since the Petitioner has also incurred certain expenditure of Rs. 2.96 Crore in FY 2010-11 towards additional capitalisation in the project as is evident from its Fixed Asset Register, which is within the cut-off date and original scope, hence, the Commission while examining the prudence of the project cost has taken the total completed cost of Rs. 118.59 Crore, including additional capitalisation of Rs. 2.96 Crore incurred during FY 2010-11.
- 3.3.6 Since, actual expenditure incurred on completion of the project shall form the basis for determination of tariff, hence, details submitted by the Petitioner needs to be examined for prudence. Prudence check involves examination of cost over-run and time over-run and such other matters as may be considered appropriate by the Commission for determination of tariff. In accordance with the details submitted by the Petitioner it is evident that cost over-run of the project has occurred mainly due to change in the scope of work as well as due to delay in commissioning of the project. In the present case, it is observed that there has been a change in the scope of work by the Petitioner against the approved scope of work in the original DPR. The Petitioner itself in the justifications furnished by it for cost overruns in the projects has furnished that the design for barrage & settling basin, HRC & Penstock was changed to create storage for peaking power

which is usually not required in the SHPs and they are purely run of river plants. This was done by the Petitioner so that it gets attractive rates for trading power.

3.3.7 Moreover, since the Original DPR which was approved by IREDA was prepared by the Petitioner in 2004 and IREDA's approval was based on the rates specified in the UERC NCE Regulations, 2005 and the project was commissioned in the last month of 2009, hence, it would be prudent as well as realistic to consider the Revised approval of the project cost by IREDA granted in 2008 as the base cost and then apply the test of prudence to examine the factors leading to time overrun and cost overrun. Further, the Petitioner was asked to submit the reasons for increase in cost with regard to the change in requirement of material/labour and on account of the time overrun, both with regard to the original design as well as the revised design and the benefit accruing from the change in design in the format prescribed by the Commission. However, the information in the format was not submitted by the Petitioner. However, the Petitioner submitted that as there was no time overrun, it was not possible for it to calculate the quantity variation due to time overrun. The Petitioner also submitted that such information can only be furnished if the each component was maintained as independent profit centre which was not been done by it. The contracts were executed by the contractor, and hence, the information was not available.

3.3.8 In this regard, it would be relevant to refer to the judgment April 27, 2011 in Appeal No. 72/ of Hon'ble APTEL. Relevant part of the same is reproduced as under:

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

- i) due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.*
- ii) due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish,*

*beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.*

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

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

3.3.9 Hon'ble ATE has classified the delay in commissioning of the projects in three main factors:

- a. Due to factors entirely attributable to the generating company,
- b. Due to factors beyond the control of the generating company,
- c. Situation not covered by (i) & (ii) above.

Further, Hon'ble ATE has laid down the manner in which cost due to time overruns is to be allowed. Since, there has been a cost over run in the project due to time over run and also due to change in the scope of the project, the Commission has dealt with the issue in the subsequent paragraphs based on the principle laid down by Hon'ble ATE in its above referred judgment.

#### **3.3.9.1 Land Expenses & Development Expenses**

The Petitioner claimed an expenditure of Rs 203.66 Lakh on this account against the approved expenditure of Rs. 166.67 Lakh. However, against this the amount in the Fixed Asset Register is Rs. 131.12 Lakh. Further, after segregating the amount of IDC and preliminary and pre-operative expenses from the same for reasons discussed above, the Land Expenses & Development Expenses works out to Rs. 111.80 Lakh , which is lower than the amount approved by IREDA. Hence, the Commission, approves the actual cost of Land Expenses & Land Development as Rs 111.80 Lakh.

### 3.3.9.2 Building & Civil Works

The Petitioner claimed an expenditure of Rs. 7987.34 Lakh on this account against the approved expenditure of Rs. 6,773.00 Lakh. However, against this the amount in the Fixed Asset Register is Rs. 9282.13 Lakh. Further, after segregating the amount of IDC and preliminary and pre-operative expenses from the same for reasons already discussed above, the Expenses towards building and civil works works out to Rs. 7914.54 Lakh , which has exceeded the amount approved by IREDA by Rs. 1141.54 Lakh.

The Petitioner was required to submit the reasons for increase in cost quantifying them into cost and quantity variance in the format prescribed by the Commission. However, the information in the format was not submitted by the Petitioner. Infact the Petitioner submitted the following reasons for the cost overruns in the project :

- Increase in cost of materials,
- Encountered geological surprises due to non-availability of firm base for barrage floor,
- Change in design for the construction of fully gated barrage for diurnal storage of water in place of normal diversion structure like weir. The Barrage was initially planned as straight drop which was not found suitable for such large river as it could have eroded the bed; therefore sloping glacis with stilling basin had to be constructed.
- During the course of construction the firm strata was not available for the floor of the barrage, therefore, deep excavation had to be done and concrete filled up in the large excavated portion of the barrage.
- Change in design to pipe to increase the pondage of water for peaking,
- 38m long bridge was constructed to carry the pipe which was not stipulated in DPR,
- Landslip zones encountered in the alignment.
- Items like Surge tank, surge pipe and 15m high 100m length protection work of penstock included in works which was not envisaged in DPR,

- Since the Power House was located on a island in the river, the items of river protection works were either not included or were inadequately provided in the DPR,
- The excavation had to be done twice as the torrential stream filled up excavation during flash flood.

On examination of the reasons furnished by the Petitioner, it has been observed that it has changed the design to create additional pondage for peaking power station leading to increase in cost of the project. Since the Petitioner has already executed a long term Power Purchase Agreement in reference to the Vanala SHP with UPCL, hence, supplying power during peak hours becomes irrelevant. Moreover, the SHPs are construed as run of river plants. Therefore, the variation/increase in cost of the project due to change in design is solely attributable to the Petitioner and the impact of the same cannot be loaded on to the consumers.

Further, the river protection work was essential from the safety point of view and hence, the cost increase on this account may not be solely made attributable on the Petitioner even though such work was not in the scope of approved DPR. Further, there was cost escalation on account of increase in cost of material which is beyond the control of the Petitioner and hence, may not be attributed to it. Further, regarding the submission of the Petitioner that increase in cost of the barrage was due to increase in cost of materials, geological surprises, etc. appears to be uncontrollable and beyond the control of the Petitioner, hence, any cost implication on this account may not be solely allocated on the Petitioner and has to be allowed.

As already discussed in Para 3.3.7, the Petitioner was required to quantify the cost impact due to factors which were controllable and uncontrollable. However, no detail has been provided by the Petitioner in this regard and it has expressed its inability to provide the details on the ground that such details have not been maintained by it.

Hence, in accordance with the principles laid down in the Hon'ble ATE's Order referred above and in the absence of any details as already discussed above, the Commission is constrained to disallow 50% of the increased cost on account of

change in design since the same was on account of the generator's action. Balance 50% of the increased cost has been considered by the Commission as uncontrollable which were due to increase in cost of material, geological surprises etc. and were beyond the control of the generator.

Accordingly, the Commission, approves the expenses of Rs. 7343.77 Lakh, i.e. Rs. 6773 Lakh approved by IREDA and 50% of the cost overrun amount of Rs. 1141.54 Lakh towards Building and Civil Works.

#### **3.3.9.3 Plant and Machinery**

The Petitioner claimed an expenditure of Rs. 1727.97 Lakh on this account against the approved expenditure of Rs. 1711.24 Lakh. However, against this the amount in the Fixed Asset Register is Rs. 2105.94 Lakh. Further, after segregating the amount of IDC and preliminary and pre-operative expenses from the same for reasons discussed above, the capital expenditure incurred towards Plant & Machinery works out to Rs. 1795.66 Lakh, which has exceeded the amount approved by IREDA by Rs. 84.42 Lakh.

The Petitioner was required to submit the reasons for the increase in cost under this head. The reason furnished by the Petitioner for the increase was that since the machinery was delivered in 2008, the avoided cost increased. Hence, the Commission allows 50% of the increase in cost on this account considering the same to be uncontrollable and approves the actual cost of Plant & Machinery as Rs. 1753.45 Lakh.

#### **3.3.9.4 Others including Transmission Line**

The Petitioner claimed an expenditure of Rs. 206.28 Lakh on this account against the approved expenditure of Rs. 369.24 Lakh. However, against this the amount in the Fixed Asset Register is Rs. 339.54 Lakh. Further, after segregating the amount of IDC and preliminary and pre-operative expenses from the same for reasons discussed above, the capital expenditure incurred on this account works out to Rs. 289.51 Lakh, which is less than the amount approved by IREDA and accordingly, the Commission approves the capital expenditure of Rs. 289.51 Lakh under this head.



### **3.3.9.5 Preliminary & Pre-operative Expenses**

The approved Preliminary & Pre-operative Expenses was Rs 406.42 Lakh whereas the Petitioner has claimed an expenditure of Rs. 457.50 Lakh. Since the increase in Preliminary & Pre-operative expenses mainly comprises of overheads (employee and A&G expenses) and increase in these expenses can be attributed mainly to the time overrun in commissioning of the project. As already discussed above, the commissioning of the project was delayed due to reasons beyond the control of the Petitioner and accordingly, time over run in the project has been considered by the Commission to be beyond the Petitioner's control, hence, the Commission allows the actual Preliminary & Pre-operative Expenses incurred by the Petitioner.

### **3.3.9.6 Interest During Construction (IDC)**

IREDA had approved Rs. 630.55 Lakh as IDC, however, actual IDC of the project has increased to Rs 1289.72 almost by Rs 659.17 Lakh. The Petitioner had submitted that the increase in IDC was due to delay in commissioning of the project and reasons for such delay were beyond its control, hence, entire IDC should be allowed to it. As already discussed above, the Commission has already considered the time overrun in the project as uncontrollable, the Commission allows the entire IDC claimed by the Petitioner as part of the Capital Cost of the project.

### **3.3.9.7 Deposit for Project Work**

The Petitioner has included the deposits for project work as part of capital cost of the project. The approved amount of such deposits were Rs 20.00 Lakh which has subsequently increased to Rs 61.72 leading to an increase of Rs 41.72 Lakh. The Petitioner was asked to submit the reasons for including the deposit in capital costs. The Petitioner replied that the deposit is for the purposes of the project therefore it is included in the current assets and considered in the capital cost.

Regulation 16(1)(a) already reproduced above specifies the components of capital costs and deposits does not get covered under the same. Further, as per the Petitioner's own submission the same is part of the current asset and hence, can in no way be considered as a component under the Capital cost of the project.

Based on the above discussions, break-up of approved Capital Cost of the project has been summarised as under:

**Table 5: Capital Cost of Vanala SHP as approved by the Commission (Rs in Lakh)**

| S. No. | Cost component                       | DPR Cost       | Revised (IREDA) Cost | Claimed         | Actual Cost as per Fixed Asset Register | Actual Cost Less IDC & preliminary & pre-operative exp. | Cost Approved by the Commission |
|--------|--------------------------------------|----------------|----------------------|-----------------|---|---|---------------------------------|
| 1      | Land & Development expenses          | 140.00         | 166.67               | 203.66          | 131.12                                  | 111.80  | 111.80                          |
| 2      | Building & Civil Works               | 4919.00        | 6773.00              | 7987.34         | 9282.13                                 | 7914.54   | 7343.77                         |
| 3      | Plant & Machinery                    | 1810.00        | 1711.24              | 1727.97         | 2105.94                                 | 1795.66   | 1753.45                         |
| 4      | Others i/c T/m Line                  | 409.00         | 369.24               | 206.28          | 339.54                                  | 289.51  | 289.51                          |
| 5      | Preliminary & Pre-operative Expenses | 208.30         | 406.42               | 457.50          | 0.00                                    | 457.50  | 457.50                          |
| 6      | IDC                                  | 475.70         | 630.55               | 1289.72         | 0.00                                    | 1289.72   | 1289.72                         |
| 7      | Contingencies                        | 288.00         | 0.00                 | 0.00            | 0.00                                    | 0.00  | 0.00                            |
| 7      | Deposits for Project                 | 0.00           | 20.00                | 61.72           | 0.00                                    | 0.00  | 0.00                            |
|        | <b>Total</b>                         | <b>8250.00</b> | <b>10077.12</b>      | <b>11934.19</b> | <b>11858.73</b>                         | <b>11858.73</b>   | <b>11245.75</b>                 |

Further, above referred capital cost also includes amount of Rs 296.00 Lakh incurred towards additional capitalisation for completion of pending works such as construction of retaining wall to protect pipe line, back filling around the pipe line, overflow arrangement, covering of channel etc. Since the pending works has been completed during September, 2010, i.e. almost one year within the date of Commissioning of the Project hence, Rs 296.00 Lakh is being deducted from the approved Capital Cost of Rs 11,245.75 Lakh to arrive at the Capital Cost of Rs 10949.75 Lakh as on CoD, i.e. on December 05, 2009. Servicing of the amount of Rs. 296 Crore has been allowed subsequently since FY 2010-11 of the commissioning.

The Petitioner further submitted that the project had suffered losses of Rs.16.00 Crore in the last three years on account of high silt in the river. The rise of silt in the river was abnormal phenomena as even its Rajwakti Project which was running successfully for

the last 10 years was also affected. The abnormal increase in silt was beyond control of the petitioner. These losses have been financed by petitioner through various resources including equity. The petitioner had requested that the losses may be accounted for by devising suitable mechanism. In this regard, the Commission would like to mention that all the expenditure incurred towards additional capitalisation is allowed subject to prudence check, provided such expenditure is necessary for efficient operations of the project. However, the Regulations do not envisage providing for any normative expenditure like loss of profits, etc. For the same, the Petitioner is advised to take insurance cover.

### 3.4 Debt-Equity Ratio

3.4.1 Regulation 16(2)(b) of RE Regulations, 2010 specifies as under:

*“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.*

*Provided further that subsidy available from MNRE, to the extent specified under Regulation 25, 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.”*

3.4.2 The actual equity of Rs. 35.54 Crore has been deployed to finance the capital cost on CoD. The Commission has worked out the capital cost on CoD as Rs. 109.50 Crore. The proportion of equity in the approved cost works out to 32.46% which 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.

3.4.3 Accordingly, financing of the capital cost as on CoD has been considered to be met out from Rs. 32.85 Crore as equity and loan of Rs. 76.65 Crore. Similarly, debt-equity ratio of 70:30 has been considered for additional capitalisation of Rs. 2.96 Crore during FY 2010-11.

### 3.5 Depreciation

3.5.1 For the purpose of computation of depreciation, Regulation 18(1) of RE Regulations, 2010 specifies as under:

*“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 10 years of the Tariff Period shall be 7% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 11th year onwards.*

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

*(e) Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.”*

3.5.2 In accordance with the above referred Regulations, depreciation for the first 10 years of the tariff period has been computed @ 7% per annum of the approved Capital Cost of Rs 109.50 Crore and balance depreciation has been spread over the remaining useful life of the project. Since, the project has been commissioned on December 05, 2009, hence, depreciation for the first year has been charged on pro-rata basis. With regard to expenditure of Rs. 2.96 Crore incurred towards additional capitalisation during FY 2010-11, similar approach has been considered. Depreciation as approved by the Commission has been shown in enclosed **Appendix-I**.

### 3.6 Return on Equity (RoE)

With regard to computation of RoE, Regulation 19 of RE Regulation, 2010 specifies as under:

*“(1) The value base for the equity shall be as determined under Regulation 16(2).*

*(2) The Return on Equity shall be:*

*(a) Pre-tax 19% 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 and towards additional capitalisation have been computed in accordance with the Regulations. The Approved RoE is shown in enclosed Appendix-I.

### 3.7 Interest on Loan

3.7.1 The amount of Loan including normative loan has been worked out towards the approved project cost as well as additional capitalisation in accordance with Regulation 16(2) of RE Regulations, 2010 as already discussed in Para 3.4 above.

3.7.2 Further, 3rd and 4th Proviso to Regulation 16(2) of RE Regulations, 2010 specifies as under:

*“Provided further that subsidy available from MNRE, to the extent specified under Regulation 25, 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.”*

3.7.3 In this regard, it would also be relevant to refer to Regulation 25 of RE Regulations, 2010 which is reproduced as under:

***“25. Subsidy or incentive by the Central/ State Government***

*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."*

3.7.4 The Commission in this regard, had asked the Petitioner to submit 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. The Petitioner vide its reply dated February 20, 2013 submitted that it had applied with MNRE for grant of capital subsidy but no subsidy had been received by it till date as it was unable to fulfil the conditions of grant of subsidy which requires the plant to be tested at 80% of the capacity for 80 days. However, the Petitioner could not run the plant for such period due to excessive silt in the river. Therefore testing has not been done. The Petitioner further submitted that as per Policy circulated by MNRE dated 11.12.2009 the subsidy eligible for its project works out to Rs. 6.20 Crore.

3.7.5 Accordingly, from the loan amount worked out in sub-Para (1) above, the capital subsidy equal to 75% of Rs. 6.20 Crore has been considered to have been utilized towards pre-payment of debt in accordance with the Regulations.

3.7.6 However, as discussed in sub-Para 4 above, the Petitioner has submitted that it has not received any subsidy for the project. The same may be reviewed in accordance with Regulation 16(3) of RE Regulations, 2010 which is reproduced hereunder:

*"The amount of subsidy shall be considered for each renewable source as per the applicable policy of MNRE. If the amount of subsidy is 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 generator."*

3.7.7 Interest on Loan has been worked out in accordance with Regulation 17 of RE Regulations, 2010 which is reproduced hereunder:

***"17. Interest on loan capital***

*(1) The loans arrived at in the manner indicated in Regulation 16(2) shall be considered as gross normative loan for calculation for interest on loan. The normative loan*

*outstanding as on April 1st of every year shall be worked out by deducting the cumulative repayment up to March 31st of previous year from the gross normative loan.*

*(2) For the purpose of computation of tariff, the normative interest rate shall be considered as average prime lending rate (PLR) (rounded off to 25 basis points) of State Bank of India (SBI) prevalent during the previous five years immediately preceding the control period plus 150 basis points, which works out to be 13.25%.*

*(3) 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.*

*(4) Normative period of loan repayment shall be taken as 10 years."*

3.7.8 The Petitioner submitted that the rate of interest accounted for in the regulation was 3% above the base rate which worked out to 12.50% whereas it was paying interest at the rate of 14.50%. Therefore, it requested that the actual rate may be accepted for determination of tariff. However, the RE Regulations, 2010 specifies that for the purpose of computation of tariff, the normative interest rate shall be considered as 13.25%. Accordingly, the Commission has worked out the interest on loan from the date of commissioning of the project at the rate of 13.25%. Further, normative period of loan repayment has been considered as 10 years as per above referred regulations.

3.7.9 The Petitioner has, however, considered annual loan repayment equal to 1/10th of the loan amount instead of annual depreciation as stipulated in RE Regulations, 2010. On the contrary it has taken value of depreciation equal to loan repayment amount.

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

### **3.8 Operation & Maintenance (O&M) Expenses**

3.8.1 The Petitioner has projected O&M expenses by considering the actual O&M expenses for the period FY 2009-10 to FY 2012-13 and has escalated the O&M

expenses for FY 2012-13 by 5.72% to project the O&M expenses for FY 2013-14 onwards.

3.8.2 For projecting the O&M expenses, relevant provisions of RE Regulations, 2010 are as under:

***“21. Operation and Maintenance expenses***

*(1) Operation and maintenance expenses for the year of commissioning shall be determined based on normative O&M expenses for the base Year FY 2009-10 as specified under Chapter 5 for different technologies. These expenses shall be escalated/de-escalated @ 5.72% p.a. to arrive at O&M expenses during the year of Commissioning.*

*(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.”*

3.8.3 Further, Regulation 29 of RE Regulations, 2010 specifies O&M expenses @ Rs 18 Lakh/MW for the SHPs commissioned on or after April 01, 2009 with the Capacity in the range of 10 MW to 15 MW. In accordance with the above referred Regulations O&M expenses as approved by the Commission for the tariff period of the project is shown in enclosed Appendix-I.

**3.9 Interest on Working Capital**

3.9.1 Regulation 21 of RE Regulations, 2010 specifies as under:

***20. Interest on Working Capital***

*(1) The Working Capital requirement in respect of wind energy projects, small hydro power, Solar PV and Solar thermal 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;*

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

.....



*3) Interest on Working Capital shall be at interest rate equivalent to average State Bank of India PLR (rounded off to 25 basis points) of State Bank of India (SBI) prevalent during the previous five years immediately preceding the control period plus 100 basis points, which works out to be 12.75%.*

3.9.2 In accordance with the above mentioned Regulations, components of working capital for each financial year during tariff period have been computed. Further, as specified in above mentioned Regulation, the rate of interest has been considered as 12.75% p.a. for working out the interest on working capital. Interest on Working Capital (IWC) as approved by the Commission is given in enclosed Appendix-I.

3.9.3 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.

### **3.10 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.

### **3.11 Discounting Factor**

3.11.1 The Petitioner has submitted that the post Tax Return on Equity may be taken as per prevailing rate of Minimum Alternate Tax. The Petitioner itself worked out the discounting factor as 14.97%.

3.11.2 UPCL in its response had submitted that as per the Regulations, the discount factor equivalent to the weighted average cost of capital has to be considered. UPCL also submitted that the discounting factor claimed by the Petitioner does not match with the discounting factor based on the Regulations and had accordingly, requested the Commission to take note of the same.

3.11.3 Regulation 15 of the RE Regulations, 2010 specifies as under:

“ ...

*(6) For the purpose of levelled tariff computation, the discount factor equivalent to weighted average cost of capital shall be considered.*

*(7) For determination of weighted average cost of capital, the pre-tax return on equity would be adjusted for tax at the applicable rates..."*

3.11.4 Based on the above referred Regulation, the Discounting Factor for 35 years have been computed after considering the applicable rates of MAT during FY 2009-10 to FY 2013-14 and the same has been shown in enclosed Appendix-I.

### **3.12 Levelised Tariff**

In light of the above discussions & computation made for Annual Fixed Charges (AFC), Annual Tariff & Discounting Factors, levelised tariff for the entire life of the project has been computed which comes out to Rs. 4.00 per unit against the proposed levelised tariff of Rs 4.18 per unit.

### **3.13 Date of applicability of tariff**

To determine the date from which the aforesaid tariff will apply, it is necessary to look into the occurrences from the date of commissioning of the project till filing of application for determination of tariff.

The Petitioner from the date of commissioning of its SHP was exploring the option to supply power outside the State. The Petitioner filed an application with the Commission requesting permission for open access for sale of power outside the State. The Commission, after obtaining advice from the State Government decided to reject the request for open access in view of then prevailing power shortage in the State. Aggrieved by this order, petitioner filed an SLP in Hon'ble Supreme Court on 16.11.2009.

As the plant had already commenced generation, the petitioner entered into a short term PPA with UPCL on December 02, 2009 which was valid till March 31, 2010. Subsequently, another PPA was entered into with UPCL on May 15, 2010 which was to be valid till May 14, 2011. The tariffs as per both the PPAs was *"the levelised rate specified for such plant in Schedule I of UERC RE Regulations, 2008 as amended from time to time"*. It may be mentioned here that on 06.07.2010, the Commission notified another Regulation namely RE

Regulations, 2010. This regulation allowed the existing generators to also opt to be covered by these regulations. These regulations also allowed option to the generators to either go for levelled tariff or seek project specific tariff subject to certain prescribed conditions.

UPCL on July 13, 2010 issued a notice to the Petitioner requiring it to enter into a long term PPA with UPCL by 18.08.2010 failing which it would be deemed that there was no PPA between the Petitioner and UPCL and UPCL would not be bound to buy power from the Petitioner's plant on or after 19.08.2010. Since, the Petitioner had already filed a Petition in Hon'ble Supreme Court, the Hon'ble Supreme Court vide its Order dated July 28, 2010 directed UPCL to continue purchasing power from the Petitioner's plant till the decision on the writ Petition. Subsequently, UPCL vide its Office Memorandum dated 13.08.2010 ordered that in compliance of the direction of the Hon'ble Supreme Court, UPCL shall continue to purchase power from the Vanala SHP but at the old rate of Rs. 2.75 per unit as per the provisions of the RE Regulations, 2008 till the decision in the special leave petition. As a consequence of the order of Hon'ble Supreme Court, the threatened termination vide notice dated 13.07.2010 of UPCL did not materialised. The Hon'ble Supreme Court vide its Order dated May 06, 2011, however, again directed UPCL to purchase power at the rates specified in RE Regulations, 2010. The said Order is reproduced hereunder:

*"I.A. 5/10 has been filed on behalf of the petitioners in the pending writ petition, interalia, for a direction upon the respondent No. 3 to pay the applicable tariff for the power generated and supplied by the petitioners as per the Uttarakhand Electricity Regulatory Commission Regulations, 2010, (UERC Regulations, 2010) applicable to the Power Purchase Agreement (PPA) dated 15<sup>th</sup> May, 2010, entered into between the parties.*

*Having heard learned counsel for the respective parties and as an interim arrangement, we direct the respondent No. 3 to pay the tariff for the power generated by the petitioner at the rates indicated in the UERC Regulations, 2010, which came into effect on 6<sup>th</sup> July, 2010. Such payment is to be made with effect from the month of July, 2010, and will be subject to the final result in the writ petition."*

Thus, it is evident that as per direction of the Hon'ble Supreme Court, pending disposal of the writ petition the PPA signed by the Petitioner with UPCL continued to be in force. This fact is also supported by the Petitioner's letter dated May 13, 2011 wherein it

stated that clause 2.1 of the PPA dated 15.05.2010 entered into with UPCL provided that UPCL shall make the payment of electricity as per the regulation issued by the Commission from time to time. The Petitioner also mentioned that the Commission amended the RE Regulations, 2008 w.e.f 01.07.2010 and Hon'ble Supreme Court's vide its Order dated July 28, 2010 provided for continuation of the arrangement of sale of power. The Petitioner in the said letter also stated that on the date of the order of the Hon'ble Supreme Court, RE Regulations, 2008 were repealed and were substituted by RE Regulations, 2010 w.e.f. 01.07.2010 and, hence, the continuation granted by Hon'ble Supreme Court was to the effect as was existing on the date of the Order and, accordingly, it was entitled for the rate of Rs. 3.55 per unit w.e.f 01.07.2010.

In the meanwhile the Petitioner had also approached the Commission for determination of tariff of the aforesaid SHP vide its application dated 09.03.2010 in accordance with Regulation 33 read with Regulation 49 of UERC (Tariff and Other Terms for Supply of Electricity from Non-conventional and Renewable Energy Sources) Regulations, 2008 and the draft NCE Regulations, 2009 which were finally notified on 06.07.2010. Since, the Petition was filed by the Petitioner under RE Regulations, 2008, there was no provision of determination of project specific tariff in the RE Regulations, 2008. Subsequently, after notification of the RE Regulations, 2010, the Commission vide its letter dated 26.07.2010 asked the Petitioner to submit its option in terms of the provisions of the Regulations so as to enable the Commission to take appropriate view on the application filed for determination of project specific tariff. In reply, the Petitioner vide its letter dated 02.12.2010 again requested the Commission to decide the tariff on normative basis on yearly basis for two years or for such period as the Commission considers appropriate and also to make the tariff applicable from the date of application of the tariff determination. This request was not tenable as project specific tariff determination is for the project life and not for a short period.

In the inter-regnum, as already discussed, the Petitioner had filed a Special Leave Petition (SLP) before the Hon'ble Supreme Court on November 16, 2009 on the issue of taking power generated by it outside the State under Open Access which was admitted by Hon'ble Supreme Court on 07.05.2010. The Petitioner withdrew the writ Petition from

Hon'ble Supreme Court on July 25, 2012 and all the interim Orders issued by the Hon'ble Apex Court were, therefore, vacated. The Petitioner vide its letter dated August 16, 2012 submitted that since the interlocutory Orders passed by the Hon'ble Supreme Court have been vacated, therefore, the tariff for the Vanala SHP has to be decided by the Commission. The Commission vide its letter dated September 12, 2012 informed the Petitioner that it was required to file a fresh petition seeking determination of tariff in accordance with prevailing RE Regulations, 2010 based on the audited Capital Cost of the project.

Subsequently, the Petitioner approached the Commission by filing a supplementary Petition on November 22, 2012 in continuation to the original Petition filed on March 26, 2010 with the request to allow an interim tariff of Rs. 3.50 per unit from Sept., 2012 till determination of final tariff of the SHP. The Commission sent a letter dated 04.12.2012 to UPCL wherein UPCL was directed to obtain the consent of the Petitioner to enter into a long term PPA for sale of power from Vanala SHP to UPCL at the project specific tariff, which was the pre-requisite under the RE Regulations, 2010, as reproduced above and enter into a long term PPA within 3 days of the receipt of the consent from the developer. UPCL was also directed that the provisional tariff of Rs. 3.50 per unit shall be applicable for Vanala SHP only after the execution of the PPA with the developer, and the provisional tariff was applicable till the final determination of tariff by the Commission.

From the above narrative, it is concluded that power supply from this project to UPCL continued under the PPA signed on 15<sup>th</sup> May, 2010, pursuant to two directions quoted above of the Hon'ble Supreme Court till withdrawl of writ petition from Hon'ble Supreme Court on 25<sup>th</sup> July, 2012 by the Petitioner. The said PPA provided for an agreed generic tariff determined by the Commission vide 2008 regulations which were subsequently amended in July, 2010. The withdrawl of petition from Hon'ble Supreme Court and consequent vacation of interlocutory orders has a retrospective effect. The period under question will have to be viewed as if no orders of the Hon'ble Supreme Court existed. Based on this premises, while supplies upto 14.11.2011 continued to be made under PPA as its threatened termination did not materialise, from 15.05.2011 no tariff existed. This interpretation is also corroborated by the actions of UPCL who posed recoveries since July 2010 after withdrawl of petition from Hon'ble Supreme Court by the Petitioner. Having

said that the Commission is required to determine tariff from 15<sup>th</sup> May, 2011 when the PPA signed by the Petitioner with UPCL expired and power was purchased by UPCL at the rates specified in RE Regulations, 2010 in accordance with directions of the Hon'ble Supreme Court which were subsequently vacated and such vacation has retrospective effect. Accordingly, the Commission directs that the applicability of the project specific tariff to be from 15.05.2011 and since the power was supplied to UPCL from the date of commissioning of the project, the Commission holds that the generic tariff specified in RE Regulations, 2010 would be applicable for the Petitioner's SHP from 01.07.2010, i.e. the date on which Chapter IV and V of RE Regulations, 2010 became applicable till 14.05.2011.

### 3.14 Losses

3.14.1 The Petitioner submitted that the RE Regulations, 2010, Removal of Difficulty (First) Order, 2010 provides that the losses incurred in transmission upto interconnection point shall be borne by the beneficiary. The Petitioner further requested that the line losses may also be paid to it as per the losses determined by the Commission in the order dated March 13, 2012 issued under UERC (Terms and Conditions of Intra State Open Access) Regulations, 2010 which specified various charges applicable on the customers seeking open access to intra State transmission and/or distribution system, based on the category/nature of open access these customers come under in accordance with the regulations.

3.14.2 Regulation 3(1)(p) of RE Regulations, 2010 defines the inter-connection point as under:

*"Inter-connection Point" shall mean interface point of renewable energy generating facility with the transmission system or distribution system, as the case may be:*

*(i) in relation to wind energy projects and Solar Photovoltaic Projects, inter-connection point shall be line isolator on outgoing feeder on HV side of the pooling sub-station;*

*(ii) in relation to small hydro power, biomass power and non fossil fuel based cogeneration power projects and Solar Thermal Power Projects the, inter-connection point shall be line isolator on outgoing evacuation line from such generating station;"*

Thus, in accordance with the RE Regulations, 2010, inter-connection point for a SHP is the line isolator on outgoing evacuation line from such generating station.

3.14.3 Further, Regulation 41(1) of RE Regulations, 2010 specifies as under:

*“For sale to State Distribution Licensees or Local rural Grid, RE based Generating Station and Co-generating Stations shall provide meters at the point of interconnection as defined under Regulation 3(1)(p) complying with conditions of installation of meters as specified by CEA.”*

Thus, in accordance with RE Regulations, 2010 meters have to be provided at the point of interconnection and any losses beyond that will be to the account of the distribution licensee. This has been clarified in Para 5 of UERC (Tariff and Other Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Co-generating Stations) Regulations, 2010, Removal of Difficulty (First) Order, 2010 issued on October 28, 2010 which is reproduced hereunder:

*“Under the new regulations, interconnection point has been shifted from the licensee’s nearest sub-station with which the generating station is connected, to sub-station of the Generating station as is the practice with Central Sector and State Sector Generating Stations. UPCL has sought clarification regarding treatment of losses in the dedicated lines and management of voltage at the distribution end in case of long lines. In this connection it is to clarify that as per the general practice losses are borne by the beneficiaries only (whether a consumer or a licensee) and not by the generators as the same are not considered while deciding the tariffs for generating stations. Accordingly, losses in the dedicated line would have to be borne by the, distribution licensee only in case power is supplied to it by RE based generating station.”*

Hence, there is no question of providing any additional losses to the Petitioner as requested by it. The Petitioner is advised to ensure metering arrangements in accordance with the RE Regulations, 2010.

### **3.15 Payment of arrears**

3.15.1 The Petitioner has submitted that the tariff is determined based on discounted cash flows for the entire lifecycle of the project by a discounting factor determined

in accordance with the regulation. The assumption in discounting is that the amount receivable in a particular year is received in that year itself. If the amount is received in subsequent year though payable in the previous year shall reduce discounted cash flow and to equalize this discounting factor has to be applied. The Petitioner further submitted that the payment of interest equivalent to the discount factor do not effect UPCL as otherwise it would have paid the full tariff from the year one of the tariff and financial out flow would have been in the year one itself and UPCL would have utilized such funds for its own purposes for such period of time. Accordingly, the Petitioner submitted that instead of paying arrears, it may be paid an additional rate for the future generation.

3.15.2 In this regard, the Commission would like to mention that the tariff determination process was delayed as the matter was sub-judice and a long term PPA was not executed. Further, UPCL is allowed only that cost to be recovered from the consumers through tariffs which has been approved by the Commission. So far the Commission did not approve any tariffs for Vanala SHP and hence, it would be incorrect on the part of the Petitioner to mention that UPCL would have utilized such funds for its own purposes for such period of time. While determining UPCL's power purchase cost, the generic tariff as applicable to Vanala SHP was considered and was allowed as the cost to be recovered from the consumers and then loading on it the burden of payment of interest equivalent to the discount factor would be improper.

3.15.3 Accordingly, the Commission directs UPCL to pay the arrears to the Petitioner for the difference in the project specific levelised tariff determined by this Order and the generic tariff being paid to the Petitioner in six equal monthly instalments.

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

**(C.S. Sharma)**  
Member

**(Jag Mohan Lal)**  
Chairman



**Appendix-I**

| Particulars                       | Unit            | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        | 2016        | 2017        | 2018        | 2019        | 2020        | 2021        | 2022        | 2023        | 2024        | 2025        | 2026        |
|-----------------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year                              |                 | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          |
| Installed Capacity                | MW              | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          |
| Net Generation                    | MU              | 19.41       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 60.56       | 49.66       | 49.66       |
| AFC                               |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| O&M Expenses                      | Rs. Lakh        | 146         | 285         | 302         | 319         | 337         | 357         | 377         | 399         | 421         | 445         | 471         | 498         | 526         | 556         | 588         | 622         | 657         |
| Depreciation                      | Rs. Lakh        | 246         | 790         | 790         | 790         | 790         | 790         | 790         | 790         | 790         | 790         | 611         | 90          | 90          | 90          | 90          | 90          | 90          |
| Interest on Term Loan             | Rs. Lakh        | 509         | 870         | 793         | 688         | 583         | 479         | 374         | 269         | 165         | 60          | 4           | 0           | 0           | 0           | 0           | 0           | 0           |
| Interest on Working Capital       | Rs. Lakh        | 12          | 65          | 64          | 63          | 61          | 60          | 59          | 58          | 57          | 56          | 55          | 45          | 47          | 49          | 50          | 52          | 54          |
| Return on Equity                  | Rs. Lakh        | 200         | 634         | 642         | 642         | 642         | 642         | 642         | 642         | 642         | 642         | 811         | 811         | 811         | 811         | 811         | 811         | 811         |
| <b>Total Fixed Cost</b>           | <b>Rs. Lakh</b> | <b>1114</b> | <b>2644</b> | <b>2591</b> | <b>2502</b> | <b>2414</b> | <b>2327</b> | <b>2242</b> | <b>2157</b> | <b>2074</b> | <b>1993</b> | <b>1952</b> | <b>1444</b> | <b>1474</b> | <b>1506</b> | <b>1539</b> | <b>1574</b> | <b>1612</b> |
| <b>Per Unit Tariff Components</b> |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| PU O&M Expenses                   | Rs. p.u.        | 0.75        | 0.47        | 0.50        | 0.53        | 0.56        | 0.59        | 0.62        | 0.66        | 0.70        | 0.74        | 0.78        | 0.82        | 0.87        | 0.92        | 0.97        | 1.25        | 1.32        |
| PU Depreciation                   | Rs. p.u.        | 1.27        | 1.31        | 1.31        | 1.31        | 1.31        | 1.31        | 1.31        | 1.31        | 1.31        | 1.31        | 1.01        | 0.15        | 0.15        | 0.15        | 0.15        | 0.18        | 0.18        |
| PU Interest on Term Loan          | Rs. p.u.        | 2.62        | 1.44        | 1.31        | 1.14        | 0.96        | 0.79        | 0.62        | 0.44        | 0.27        | 0.10        | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| PU Interest on Working Capital    | Rs. p.u.        | 0.06        | 0.11        | 0.11        | 0.10        | 0.10        | 0.10        | 0.10        | 0.10        | 0.09        | 0.09        | 0.09        | 0.08        | 0.08        | 0.08        | 0.08        | 0.10        | 0.11        |
| PU Return on Equity               | Rs. p.u.        | 1.03        | 1.05        | 1.06        | 1.06        | 1.06        | 1.06        | 1.06        | 1.06        | 1.06        | 1.06        | 1.34        | 1.34        | 1.34        | 1.34        | 1.34        | 1.63        | 1.63        |
| <b>Total Fixed PU Components</b>  | <b>Rs. p.u.</b> | <b>5.74</b> | <b>4.37</b> | <b>4.28</b> | <b>4.13</b> | <b>3.99</b> | <b>3.84</b> | <b>3.70</b> | <b>3.56</b> | <b>3.43</b> | <b>3.29</b> | <b>3.22</b> | <b>2.38</b> | <b>2.43</b> | <b>2.49</b> | <b>2.54</b> | <b>3.17</b> | <b>3.25</b> |
| Levelling Tariff                  |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| WACC (%)                          |                 | 0.12        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.14        | 0.147       | 0.150       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       |
| Discounting Factor                | Rs./kWh         | 1.00        | 0.88        | 0.77        | 0.68        | 0.59        | 0.52        | 0.45        | 0.40        | 0.35        | 0.30        | 0.26        | 0.22        | 0.19        | 0.16        | 0.14        | 0.12        | 0.11        |
| Discounted Tariff                 |                 | 5.74        | 3.84        | 3.30        | 2.79        | 2.36        | 1.99        | 1.68        | 1.41        | 1.18        | 0.99        | 0.83        | 0.53        | 0.47        | 0.41        | 0.36        | 0.39        | 0.34        |
| <b>Levelling Tariff</b>           | <b>Rs./kWh</b>  | <b>4.00</b> |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |

| Particulars                       | Unit            | 2027        | 2028        | 2029        | 2030        | 2031        | 2032        | 2033        | 2034        | 2035        | 2036        | 2037        | 2038        | 2039        | 2040        | 2041        | 2042        | 2043        | 2044        |
|-----------------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year                              |                 | 18          | 19          | 20          | 21          | 22          | 23          | 24          | 25          | 26          | 27          | 28          | 29          | 30          | 31          | 32          | 33          | 34          | 35          |
| Installed Capacity                | MW              | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          | 15          |
| Net Generation                    | MU              | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       | 49.66       |
| <b>AFC</b>                        |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| O&M Expenses                      | Rs. Lakh        | 695         | 735         | 777         | 821         | 868         | 918         | 970         | 1026        | 1085        | 1147        | 1212        | 1282        | 1355        | 1432        | 1514        | 1601        | 1693        | 1789        |
| Depreciation                      | Rs. Lakh        | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          | 90          |
| 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        | 56          | 58          | 60          | 62          | 65          | 67          | 70          | 73          | 76          | 79          | 83          | 86          | 90          | 94          | 98          | 103         | 108         | 113         |
| Return on Equity                  | Rs. Lakh        | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         | 811         |
| <b>Total Fixed Cost</b>           | <b>Rs. Lakh</b> | <b>1651</b> | <b>1693</b> | <b>1737</b> | <b>1784</b> | <b>1834</b> | <b>1886</b> | <b>1941</b> | <b>2000</b> | <b>2061</b> | <b>2127</b> | <b>2196</b> | <b>2269</b> | <b>2346</b> | <b>2427</b> | <b>2513</b> | <b>2605</b> | <b>2701</b> | <b>2803</b> |
| <b>Per Unit Tariff Components</b> |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| PU O&M Expenses                   | Rs. Lakh        | 1.40        | 1.48        | 1.56        | 1.65        | 1.75        | 1.85        | 1.95        | 2.07        | 2.18        | 2.31        | 2.44        | 2.58        | 2.73        | 2.88        | 3.05        | 3.22        | 3.41        | 3.60        |
| PU Depreciation                   | Rs. Lakh        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        | 0.18        |
| PU Interest on Term Loan          | Rs. Lakh        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| PU Interest on Working Capital    | Rs. Lakh        | 0.11        | 0.12        | 0.12        | 0.13        | 0.13        | 0.14        | 0.14        | 0.15        | 0.15        | 0.16        | 0.17        | 0.17        | 0.18        | 0.19        | 0.20        | 0.21        | 0.22        | 0.23        |
| PU Return on Equity               | Rs. Lakh        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        | 1.63        |
| <b>Total Fixed PU Components</b>  | <b>Rs. Lakh</b> | <b>3.33</b> | <b>3.41</b> | <b>3.50</b> | <b>3.59</b> | <b>3.69</b> | <b>3.80</b> | <b>3.91</b> | <b>4.03</b> | <b>4.15</b> | <b>4.28</b> | <b>4.42</b> | <b>4.57</b> | <b>4.72</b> | <b>4.89</b> | <b>5.06</b> | <b>5.25</b> | <b>5.44</b> | <b>5.64</b> |
| <b>Levelling Tariff</b>           |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| WACC                              |                 | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       | 0.162       |
| Discounting Factor                | Rs./kWh         | 0.09        | 0.08        | 0.07        | 0.06        | 0.05        | 0.04        | 0.04        | 0.03        | 0.03        | 0.02        | 0.02        | 0.02        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        | 0.01        |
| Discounted Tariff                 |                 | 0.30        | 0.27        | 0.23        | 0.21        | 0.18        | 0.16        | 0.14        | 0.13        | 0.11        | 0.10        | 0.09        | 0.08        | 0.07        | 0.06        | 0.06        | 0.05        | 0.04        | 0.04        |
| <b>Levelling Tariff</b>           | Rs./kWh         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |