

***Summary of ARR & Tariff Filings***

Submitted by

***OHPC***

For

***FY 2016-17***

## SUMMARY OF ARR PROPOSAL OF OHPC FOR FY 2016-17

### 1. Installed Capacity

The total installed capacity of the various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) was projected at 2008.5 MW for FY 2015-16, including Orissa's share of Machhkund. The installed capacity of different generating stations as reported by OHPC for the FY 2016-17 is given in the table below. The Odisha share of Machhkund has been increased from 34.5 MW to 36 MW as the actual installed capacity of MHEP has been reported as 120 MW by the MHEP authorities.

**Table – 1**  
**Installed capacity of OHPC stations**

| Sl. No.                       | Name of the Power Station     | Installed Capacity Approved for FY 2015-16 (MW) | Installed Capacity for FY 2016-17 (MW)   |
|-------------------------------|-------------------------------|---|--|
| 1                             | Rengali (RHEP)                | 250.00  | 250.00   |
| 2                             | Upper Kolab(UKHEP)            | 320.00  | 320.00   |
| 3                             | Balimela(BHEP)                | 510.00  | 450.00 ( for R&M of one Unit )   |
| 4                             | Burla (HHEP)                  | 220.50  | 210.50 (from 16.10.2015 onwards till the approved period of shut-down of any one Unit under R&M)         |
|                               |                               |   | 200.50 (during the overlapping period of R&M of #5 & #6)   |
| 5                             | Chiplima (CHEP)               | 72.00   | 48.00 (from 15.10.2015 onwards till the approved period of shut down of Unit-3 under R&M)                |
| 6                             | Upper Indravati (UIHEP)       | 600.00  | 600.00   |
| 7                             | Machhakund (30% Orissa share) | 36.00   | 36.00  |
| Total Installed Capacity (MW) |                               | 2008.5  | <b>1974.50</b> ( during R&M of Unit-3 of CHEP, Unit-6 of HHEP )  |
|                               |                               |   | <b>1964.50</b> ( during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP )                |
|                               |                               |   | <b>1914.50</b> (during R&M of Unit-3 of CHEP, Unit-6 of HHEP & Unit-1 of BHEP                            |
|                               |                               |   | <b>1904.50</b> (during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP & Unit-1 of BHEP) |

## 2. Design Energy of OHPC Stations

The Design Energy (DE) of a Hydro Power Station is an important parameter for determination of tariff. The OHPC has appealed to the commission to reduce the Design Energy of HHEP, Burla & CHEP, Chiplima as some of the generating stations are consistently unable to generate their Annual Design Energy and consequently OHPC is unable to recover the Annual Energy Charges in full. The hydro power station wise design energy for FY 2015-16 is given in the following table.

**Table – 2**  
**Design Energy for FY 2015-16**

| Sl. No.                         | Name of the Power Station | Design Energy (DE) (in MU) | Design Energy for sale (in MU) |
|---------------------------------|---------------------------|----------------------------|--------------------------------|
| 1                               | RHEP                      | 525.00                     | 519.75                         |
| 2                               | UKHEP                     | 832.00                     | 823.68                         |
| 3                               | BHEP                      | 1183.00                    | 1171.17                        |
| 4                               | HHEP                      | 684.00                     | 677.16                         |
| 5                               | CHEP                      | 490                        | 485.10                         |
| Sub Total of Old Power Stations |                           | 3714.00                    | 3676.86                        |
| 6                               | UIHEP                     | 1962.00                    | 1942.38                        |
| <b>Total</b>                    |                           | <b>5676.00</b>             | <b>5619.24</b>                 |

Due to specific reasons not attributable to OHPC, some of the generating stations are consistently unable to generate their Annual Design Energy approved by the commission resulting in non-recovery of the Annual Energy Charges in full and substantial loss in Revenue to OHPC for year after year. During years of hydrology failure OHPC is normally put to loss due to shortfall in recovery of energy charges. In response to the OHPC claim the Commission had observed in the Tariff Order of OHPC for FY 2014-15 as follows:

**“The compensation claimed towards hydrology failure is not to be allowed in view of the Commission’s earlier orders dt.10.06.2005 & dt.23.03.2006, wherein OHPC was directed to maintain a separate fund to deposit the revenue earnings out of sale of secondary energy which shall be utilized to replenish the shortfall in revenue due to lesser generation by OHPC in years of hydrology failure to provide necessary comfort to the consumers of the state. {Para 6.5(e) of Order dt.10.06.2005}.”**

The station wise design energy proposed for FY 2016-17 is given in the following table.

**Table -3**  
**Design energy for FY 2016-17 (in MU)**

| Sl. No. | Name of the Power Station | Design Energy approved for FY2015-16 | Design Energy for sale for FY 2015-16 | Design Energy proposed for FY 2016-17 | Design Energy for sale for FY 2016-17 |
|---------|---------------------------|--------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1       | RHEP                      | 525.00                               | 519.75                                | 525.00                                | 519.75                                |
| 2       | UKHEP                     | 832.00                               | 823.68                                | 832.00                                | 823.68                                |
| 3       | BHEP                      | 1183.00                              | 1171.17                               | 1183.00                               | 1171.17                               |
| 4       | HHEP                      | 684.00                               | 677.16                                | <b>669.19</b>                         | <b>662.50</b>                         |

|  |       |                |                |                |                |
|--|-------|----------------|----------------|----------------|----------------|
| 5                                      | CHEP  | 490.00         | 485.10         | <b>474.05</b>  | <b>469.31</b>  |
| <b>Sub Total of Old Power Stations</b> |       | <b>3714.00</b> | <b>3676.86</b> | <b>3683.24</b> | <b>3646.41</b> |
| 6                                      | UIHEP | 1962.00        | 1942.38        | 1962.00        | 1942.38        |
| <b>Total</b>                           |       | <b>5676.00</b> | <b>5619.24</b> | <b>5645.24</b> | <b>5588.79</b> |

### 3. Reservoir Level and Anticipated Generation for FY 2016-17

The reservoir level of Power Stations reported by OHPC as on 24.11.15 vis-à-vis on 24.11.14 is given below

**Table – 4**  
**Reservoir level of power stations**

| Sl. No. | Reservoirs | As on 24.11.2014 | As on 24.11.2015 |
|---------|------------|------------------|------------------|
| 1.      | Rengali    | 121.88 Mt.       | 118.77Mt.        |
| 2.      | Kolab      | 856.91 Mt.       | 855.96 Mt.       |
| 3.      | Balimela   | 1514.10 Ft.      | 1500.90 Ft.      |
| 4.      | Hirakud    | 629.25Ft.        | 625.35 Ft.       |
| 5.      | Indravati  | 640.43 Mt.       | 634.93 Mt.       |

The actual generation of different Power Stations under OHPC from 01.04.2015 up to 23.11.2015 and anticipated generation up to 31.03.2016 for the FY 2015-16 prepared on the basis of the availability of water, irrigation requirement and peak load requirement of power in co-ordination with DoE, DoWR, GRIDCO and SLDC are furnished below.

**Table – 5**  
**Actual /Anticipated Energy Generation**

| Sl. No.      | Name of the power stations | Actual generation from 01.04.15 up to 23.11.15 (MU) | Anticipated generation from 24.11.15 to 31.03.16 based on DoWR & DoE Schedule | Total Anticipated generation for the FY 2015-16 based on DoWR & DoE Schedule |
|--------------|----------------------------|---|---|--|
| 1.           | RHEP                       | 545.82  | 98.16   | 643.98   |
| 2.           | UKHEP                      | 478.01  | 254.88  | 732.89   |
| 3.           | BHEP                       | 439.17  | 341.76  | 780.93   |
| 4.           | HHEP                       | 414.50  | 114.72  | 529.22   |
| 5.           | CHEP                       | 188.26  | 83.76   | 272.02   |
| 6.           | UIHEP                      | 1392.82   | 303.72  | 1696.54  |
| <b>Total</b> |                            | <b>3458.58</b>                                      | <b>1197.00</b>  | <b>4655.58</b>   |

The extra/ shortfall in generation from the design energy of the respective Power Stations shall be accounted towards the secondary energy fund as per the above mentioned Order of the Commission. The present deficit of the secondary energy fund of OHPC as a whole is about Rs 145.62Cr. The total anticipated generation of OHPC for the present FY2015-16 is 4655.58 MU which will fall short by 1020.42 MU than the approved D.E of **5676MU**. The

shortfall in generation in the present FY will give rise to further deficit in the secondary Energy Fund.

#### 4. Project Cost

The revalued cost of old power stations under OHPC is Rs.1196.80 Crs as on 01.04.1996 as per the notification no 5207 dtd. 01.04.1996 of Department of Energy, Government of Orissa. The Commission in its Order dated 23.03.2006 at clause no. 5.4 (C) had approved the same. The Commission in its order dated 23.03.2006 at clause no. 5.4 (C) has approved the same. Further, the Commission, in the order dated 20.03.2008 has approved Rs. 1195.42 Crs. as final capital cost of UIHEP for the purpose of determination of tariff. However, the Tariff of Old power stations was determined on the historical cost of old power station of OHPC for Rs. 479.80 Crores as per the Notification No. 1068 Dtd. 29.01.2003 of DoE, GoO.

The additional capitalization for an amount of Rs 4.76 Crs as per the audited account for FY 2014-15 has been considered determination of tariff for the FY 2016-17. The adjustment of cost of assets during the FY 2011-12 & FY 2012-13 on account of decapitalization of asset for an amount of Rs 7.12 Cr has been approved by the Commission in the tariff order of OHPC for the FY 2015-16. There is decapitalization of Rs 0.07 Cr in case of UKHEP & Rs0.86Cr in case of UIHEP for FY 2014-15. The Revalued cost as on 31.03.2015 is shown in the table-7 below. Hence the total decapitalisation of Power Stations during the FY 2011-12 to FY 2014-15 comes to Rs 8.06Cr which has been deducted from the original Revalued Cost as on 01.04.1996. The project cost of OHPC power stations considered for computation of ARR & tariff for the FY 2016-17 is given in the table below:

**Table-6**  
**Project Cost for tariff Calculation for FY 2016-17** (Rs. in Crs.)

| Sl. No.          | Name of the power stations | Revalued Cost as on 01.04.1996 | Asset reduction during FY 2012-13 to FY 2014-15 | Approved New additions up to 31.03.2014 | New additions for FY 2014-15(audited) | Total New Addition upto 2014-15 | Project Cost considered Tariff calculation based on revalued cost |
|------------------|----------------------------|--------------------------------|---|---|---------------------------------------|---------------------------------|---|
| 1                | 2                          | 3                              | 4   | 5                                       | 6                                     | 7=5+6                           | 8=3+7-4   |
| 1.               | RHEP                       | 259.01                         | 0.00  | 56.41                                   | 0.85                                  | 57.26                           | 316.27  |
| 2.               | UKHEP                      | 307.96                         | 0.16  | 18.51                                   | 0.37                                  | 18.88                           | 326.68  |
| 3.               | BHEP                       | 334.96                         | 0.26  | 213.56                                  | 0.86                                  | 214.42                          | 548.82  |
| 4.               | HHEP                       | 130.16                         | 6.07  | 206.61                                  | 0.30                                  | 206.91                          | 331.00  |
| 5.               | CHEP                       | 165.01                         | 0.70  | 46.17                                   | 1.19                                  | 47.36                           | 211.67  |
| <b>Sub Total</b> |                            | <b>1196.80</b>                 | <b>7.19</b>                                     | <b>541.26</b>                           | <b>3.57</b>                           | <b>544.83</b>                   | <b>1734.43</b>  |
| 6.               | UIHEP                      |                                | <b>0.86</b>                                     | 1197.36                                 | 1.19                                  | 1198.55                         | 1197.69   |
| 7                | <b>Total</b>               | <b>1196.80</b>                 | <b>8.06</b>                                     | <b>1738.62</b>                          | <b>4.76</b>                           | <b>1743.38</b>                  | <b>2932.13</b>  |

5. **Withdrawal of State Government Support in the Electricity Generation Tariff**

The OHPC has noticed that the state government has expressed willingness to do away with the financial support to OHPC through various letters from the state government from time to time. During the recent past the State Govt. has expressed severally regarding withdrawal of its supports in the matter of fixation of generation tariff of OHPC, and finally the State Govt. withdrew its support from the FY 2015-16 vide its Notification No. 5843 dtd 03.07.2015 in the Dept. of Energy, Govt. of Odisha. The Dept. of Energy, Govt. of Odisha vide Notification No. 5843 Dtd. 03.07.2015, given below had confirmed the above amendment of SRO No. 256 dated 01.04.1996 made initially through the Office Order No. 3060 Dtd. 31.03.2015 of the DoE, GoO.

Para-5 “**The consideration amount to be adjusted in favour of the State Government shall be subject to the following:-**

**Loan of Rs 683.5 crores, in the two parts:**

**Part A- Rs 39.2 crores, which will be repaid in 15years after a moratorium of 5 years. This loan will carry an interest rate of 9.8% per annum.**

**Part B- Rs 644.3 crores which will not carry any interest upto the completion of Upper Indravati H.E.P. and Potteru H.E.P.**

**Convertible Bonds worth Rs. 766.2 crores will be issued to State Government. The bonds shall not carry any interest for the first 5 years. Government allowed interest as kept in abeyance upto 2012-13 and OERC assumes extension of the same up to 2014-15. The entire amount of Rs 766.20 crore would be treated as loan and interest @7% shall be charged from financial year 2015-16.”**

The above Notification mandates its implication in the determination of ARR & tariff of OHPC Power Stations from the FY 2015-16 onwards. Following are the different tariff implications of OHPC for the FY 2016-17:

(a) Accordingly the restructured Govt. Loan in UIHEP will be as follows:

|   |          |   |
|---|----------|---|
| <b>Govt. Loan (Revised figure)</b>              | <b>=</b> | <b>Rs 522.62Cr.</b>   |
| <b>PFC Loan</b>                                 | <b>=</b> | <b>Rs 320.00 Cr. (Repaid Fully)</b>                         |
| <b>Equity (Revised figure)</b>                  | <b>=</b> | <b>Rs 298.85 Cr</b>   |
| <b><u>Normative Loan (Balancing Figure)</u></b> | <b>=</b> | <b><u>Rs 53.32 Cr</u></b>                                   |
| <b><i>Total</i></b>                             | <b>=</b> | <b><i>Rs 1194.79Crs (Approved Project Cost of OERC)</i></b> |

OHPC has considered Rs 62.50 Crs towards repayment of the UIHEP Govt. Loan in the calculation of Tariff & ARR for FY 2016-17. Loan of UIHEP is calculated as Rs21.70Cr. (i.e, 7% on average principal), which has been considered in the tariff for the FY 2016-17. The accumulated interest of Rs327.74Crs from FY 2006-07 to FY 2015-16 is proposed to be considered as Regulatory Asset.

OHPC has considered the above implications for calculation of Tariff for the FY 2016-17. OHPC pray before the Commission to recognize the restructuring of Govt. investment in UIHEP and approve the tariff for the FY 2016-17 considering the above implications.

- OHPC shall make payment to the GoO @7% interest on the Convertible Bond which shall be treated as loan from the FY 2015-16 as per the above Govt. Notification. Accordingly OHPC has considered the interest on the Convertible Bond for the FY 2015-16 & FY 2016-17 in the Tariff of OHPC for FY 2016-17.

**Table-7:**

**Power Station wise apportionment of Loan on account of Convertible Bond (Rs. Cr.)**

| <b>Name of the Power Stations</b> | <b>Revalued cost of assets as on 01.04.96 (in Crs.)</b> | <b>Unit wise percentage sharing of Revalued Cost (in %)</b> | <b>Unit wise apportionment of convertible bond cost (in Crs.)</b> |
|-----------------------------------|---|---|---|
| <b>a</b>                          | <b>b</b>  | <b>c = (b/1196.80)x100</b>                                  | <b>d = (cx766.20)/100</b>   |
| RHEP                              | 259.01  | 21.64   | 165.82  |
| UKHEP                             | 307.96  | 25.73   | 197.16  |
| BHEP                              | 334.66  | 27.96   | 214.25  |
| HHEP                              | 130.16  | 10.88   | 83.33   |
| CHEP                              | 165.01  | 13.79   | 105.64  |
| <b>Total</b>                      | <b>1196.80</b>  | <b>100</b>  | <b>766.2</b>  |

Further the Chhattisgarh State Power Distribution Company Limited (CSPDCL) is placing a plea to pay the energy charges to OHPC at the average tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and which is determined by the Commission, considering the supportive measures extended by the Govt. of Odisha. Accordingly OHPC had prayed before the Commission in the tariff submission for the FY 2015-16 to fix the tariff for CSPDCL billing as per the CERC tariff norms'2014 and had computed the tariff @ Rs1.97 paisa/unit. But the Commission approved the tariff @ Rs 1.49 paisa/unit considering the up-valued cost of HHEP and OERC (Terms and Conditions of Determination of Tariff) Regulation'2014. OHPC prays OERC to approve the tariff for energy billing to CSPDCL @ **197.46 paisa/unit for the FY 2016-17.**

**6. Determination of Annual Fixed Cost**

According to the OERC (Terms and conditions for determination of Generation Tariff) Regulations, 2014 specifies methodology for computation of tariff for supply of electricity from a hydro generating station. The tariff shall comprise capacity charge and energy charge to be shared on 50:50 basis for recovery of annual fixed cost.

The Annual Fixed Cost of a hydro generating station shall consist of the following components:

- Return on equity (ROE)
- Interest on loan capital
- Depreciation
- Operation and Maintenance expenses
- Interest on working capital

**a. Return on equity (ROE):**

According to Clause No. 4.5 & 4.6 of OERC (Terms and conditions for determination of Generation Tariff) Regulations, 2014 the Return on Equity shall be computed @16% of the equity amount. Also as per the provisions made in the said clause the income tax of the Generating Company shall be recovered from the beneficiaries (income tax on other income streams shall not be considered)

**Table – 8 Computation of RoE for different power stations of OHPC for FY 2016-17**  
(in Rs. cr.)

| Sl. No.      | Name of the Power Station | Project Cost   | Equity Capital Rate (%) | Value of Equity capital | ROE @16% proposed for 2016-17 |
|--------------|---------------------------|----------------|-------------------------|-------------------------|-------------------------------|
| 1.           | RHEP                      | 316.27         | 30                      | 94.880                  | 15.181                        |
| 2.           | UKHEP                     | 326.68         | 30                      | 98.003                  | 15.680                        |
| 3.           | BHEP                      | 548.82         | 30                      | 164.645                 | 26.343                        |
| 4.           | HHEP                      | 331.00         | 30                      | 99.301                  | 15.888                        |
| 5.           | CHEP                      | 211.67         | 30                      | 63.501                  | 10.160                        |
| 6.           | UIHEP                     | 1197.69        | 30                      | 299.720                 | 47.955                        |
| <b>Total</b> |                           | <b>2932.13</b> |                         | <b>820.051</b>          | <b>131.208</b>                |

**b. Interest on loan**

The loan liabilities on OHPC consist of state Government loan, PFC loans and Normative Loans. The State Government loan liabilities outstanding as on 01.04.1996 is given in the table below:

**Table – 9 State Govt. Loan Liabilities (Rs. In Crs)**

| Sl. No. | Description of loan        | Amount as on 01.04.1996 | Present Status  |
|---------|----------------------------|-------------------------|---|
| 1.      | 9.8% loan                  | 39.20                   | Fully Repaid  |
| 2.      | 13% loan (UIHEP)           | 497.86                  | Restructured as Rs 522.62Cr.  |
| 3.      | Interest free loan (UIHEP) | 132.14                  | Converted to perpetual loan without interest.                               |
| 4.      | 13% loan (Potteru)         | 14.30                   |   |
| 5.      | Zero Coupon Bond-I         | 383.10                  | Converted to Loan with 15years repayment period from 2015-16 & interest @7% |
| 6.      | Zero Coupon Bond-II        | 383.10                  |   |
| 7.      | Other loan                 | 0.99                    |   |

The Commission in the Tariff approval of OHPC for the FY 2015-16 has stated as follows:

“OHPC is required to make Principal repayment of Rs.30.23 Crs. against the depreciation allowed during the FY 2015-16. The Commission may consider the interest accumulated on Govt Loan and Normative loan of UIHEP in the ARR of OHPC after completion of the

Principal repayment of the Govt loan of Rs.497.86 cr. and normative loan of Rs. 78.23Cr .....”. In line with the above observations and the Commission’s letter No. DIR (T) 175-12/57 dtd.13.01.2015 to the Government, no interest on loan for UIHEP is allowed for the purpose of tariff for FY 2015-16.

Accordingly OHPC has calculated the principal repayment, interest & differential depreciation claim on State Govt. Loan on UIHEP based on the observation of the State Govt. made vide Lr. No. 4323 Dtd. 31.05.2014 and in accordance to the Govt. Notification No. 5843 Dtd. 03.07.2015 as follows:

- The State Govt. investment as loan changed from Rs 497.68Cr to Rs 522.62 Cr through the above amendment Notification.
- The repayment period is considered as 15years starting from FY 2010-11. The annual installment of repayment of UIHEP Govt. Loan has been considered as annual Depreciation @Rs34.84Cr (522.62/ 15).
- The opening balance of the loan as on 01.04.2016 will be Rs341.24Cr {522.62-(30.23x5)} considering the repayment of Govt. Loan of UIHEP @Rs30.23Cr from FY 2010-11 to FY 2015-16.
- Since the differential Depreciation of Rs34.84Cr- Rs 30.23Cr= Rs4.61Cr has not been considered in the previous Tariff orders, thus a total of Rs4.61Cr x 6= Rs27.66Cr may be approved and passed through in the ARR of FY 2016-17.
- Considering the pass through of the above differential Depreciation of Rs27.66Cr & Rs34.84Cr as normal repayment of Govt. Loan in the FY 2016-17, a total of Rs62.50Cr has to be recovered through ARR of FY 2016-17 under depreciation. **Accordingly OHPC has considered depreciation of Rs 62.50 Crs in the ARR of UIHEP for repayment of the Govt. Loan during the FY 2016-17.**
- Considering Repayment of loan of Rs 62.50Cr the closing balance will reduce to Rs 278.74 Cr as on 31.03.2017. **Accordingly, interest on Govt. Loan of UIHEP is calculated as Rs 21.699Cr. (i.e., 7% on average principal), which has been considered in the tariff for the FY 2016-17.**
- The DoE, Govt. of Odisha vide their Lr. No. 4323 Dtd. 31.05.2014 have suggested that, **“the interest accrued on reducing balance to be allowed in Tariff in suitable manner as per usual practice of recovery of Govt. loan.”** The accumulated interest up to 01.04.2016 of UIHEP Govt. Loan is computed as Rs 327.74 Crs and need to be recovered and paid to the State Govt. **Hence, the Commission may kindly designate Rs 327.74 Crs as Regulatory Asset and fix suitable installments and allow in the tariff from the FY 2016-17 onwards.**

**Thus, OHPC prays before the Commission to approve the following in respect of Govt loan of UIHEP in the Tariff for the FY 2016-17.**

**Table – 10 Restructured Govt Loan of UIHEP**

|    |   |
|----|---|
| 1. | Rs 62.50 Crs towards Loan Repayment.  |
| 2. | Rs 21.699 Crs towards Interest.   |
| 3. | Accumulated Interest of Rs 327.74 Crs as on 31.03.2016 on the UIHEP Govt. Loan as the Regulatory Asset. |

|    |   |
|----|---|
| 4. | Pass through of the 1 <sup>st</sup> Installment (to be decided by the Commission) of the above Regulatory Asset in the tariff of 2016-17. |
|----|---|

OHPC had considered the loan on the convertible bond of Rs766.2Crore apportioned to different Old power stations of OHPC as shown in the table -7 and has considered the power station wise impact of interest & principal of the convertible bond for FY 2015-16 & FY 2016-17 in the present tariff of 2016-17.

**Table - 11**  
**Repayment of Principal & Interest on Rs766.2Cr convertible bond for FY 2016-17**  
**(Rs in Crs)**

| Sl. No. | Particulars         |        |        |        |        |        |       | TOTAL   |
|---------|---------------------|--------|--------|--------|--------|--------|-------|---------|
|         |                     | RHEP   | UKHEP  | BHEP   | HHEP   | CHEP   | UIHEP |         |
| 1.      | Principal Repayment | 22.11  | 26.29  | 14.28  | 11.11  | 14.09  | 0.00  | 87.88   |
| 2.      | Interest Repayment  | 22.441 | 26.682 | 28.995 | 11.277 | 14.297 | 0.00  | 103.692 |

OHPC has fully repaid the PFC loan for Unit-3 & 4 of HHEP, Burla by FY 2015-16. The outstanding PFC Loan for Unit-7&8 of BHEP, Balimela remains 2120999.73 USD as on 01.04.2016. OHPC has calculated interest on above loan as **Rs. 0.72 Crs for the FY 2016-17. OHPC prays before the Commission for approval of the same.**

**Normative Loans** - The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% as per Clause No. 4.13 of OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014. The normative loan of BHEP, Balimela is considered @ 9.6 % for FY 2016-17 based on PFC interest rate applicable to BHEP. Similarly, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2015-16 based on PFC interest rate applicable to HHEP, Burla.

The accumulated interest calculated upto 31.03.2016 will be Rs 61.50Crore at the prevailing rate of interest of State Govt. Loan @7% as per the orders of the Commission.

**OHPC prays before the Commission to designate the accumulated interest amounting to Rs 61.50 Crs from the FY 2001-02 to FY 2015-16 on Normative Loan of Rs 53.32 Crs as Regulatory Asset and fix suitable installment as pass through in the tariff for the FY 2016-17 in order to reduce the future tariff burden.**

The interest on outstanding loans and guarantee commission payable by OHPC for the FY 2016-17 is given in the table below:-

**Table-12**

(Statement of Outstanding Loans and Interest there on)

(Rs. in Crs.)

| Sl. No. | Source of Loan  | Loan Outstanding as on 01.04.16     | Interest on Average Net Loan for the FY 2016-17 |
|---------|---|-------------------------------------|---|
| 1.      | PFC loan for Balimela #7 & #8 @9.6%   | 2120999.87USD<br>(Approx.Rs13.81Cr) | 0.72  |
| 2.      | State Govt. Loan of UIHEP @7%   | 341.24                              | 21.70   |
| 3.      | Normative loan for Unit 2 & Addl. Capitalization FY 2012-13 to FY 2014-15 of CHEP, Chiplima @ 9.8%      | 6.39                                | 0.53  |
| 4.      | Normative loan for Unit #4 & Addl. Capitalization FY 2012-13 to FY 2014-15 of Upper Kolab @ 9.8%        | 3.92                                | 0.28  |
| 5.      | Normative loan for Unit #7 & #8 & Addl. Capitalization FY 2012-13 to FY 2014-15 of Balimela @ 9.6%      | 7.12                                | 0.40  |
| 6.      | Normative loan for Addl. Capitalization FY 2012-13 to 2014-15 of HHEP @ 8.75%                           | 2.64                                | 0.20  |
| 7.      | Normative loan for Unit -1&2 R&M and Addl. Capitalization FY 2012-13 to 2014-15 of RHEP, Rengali @ 9.8% | 26.60                               | 2.42  |
| 8.      | Normative loan of UIHEP, Mukhiguda for Rs 53.32Cr @ 7%  | 53.32                               | 3.73  |
| 9.      | Normative loan for Addl. Capitalization FY 2013-14 and FY 2014-15 of UIHEP, Mukhiguda @ 7%              | 2.17                                | 0.167   |
| 10.     | Zero Coupon Bond (Convertible 7% Bond)  | 766.20                              | 103.69  |
| 11.     | GC for Unit #7 & #8 Balimela  |                                     | 0.64  |
|         | <b>Total</b>  | <b>1223.52</b>                      | <b>134.49</b>                                   |

The Power Station wise interest on loan and guarantee commission as described above is given below:

**Table-13****Interest on loan and G.C for FY 2016-17 (Rs. In Crs)**

| Sl. No. | Source of loan |      |       |       |      |      |       | TOTAL |
|---------|----------------|------|-------|-------|------|------|-------|-------|
|         |                | RHEP | UKHEP | BHEP  | HHEP | CHEP | UIHEP |       |
| 1.      | PFC loan       | -    | -     | 0.717 | -    | -    | -     | 0.717 |

|              |                         |        |        |        |        |        |        |         |
|--------------|-------------------------|--------|--------|--------|--------|--------|--------|---------|
| 2.           | <b>Normative loan</b>   | 2.428  | 0.281  | 0.398  | 0.197  | 0.530  | 3.911  | 7.744   |
| 3.           | <b>Govt. Loan</b>       | -      | -      | -      | -      | -      | 21.699 | 21.699  |
| 4.           | <b>Convertible Bond</b> | 22.441 | 26.682 | 28.995 | 11.277 | 14.297 | 0.00   | 103.692 |
| 5.           | <b>G.C.</b>             | -      | -      | 0.64   |        | -      | -      | 0.64    |
| <b>Total</b> |                         | 24.869 | 26.963 | 30.750 | 11.474 | 14.827 | 25.610 | 134.493 |

**Thus OHPC prays before the Commission to approve Rs 134.493Cr in the tariff of OHPC for the FY2016-17 for payment of Interest towards PFC, Govt. Loan, Convertible Bond and Normative Loans of the different Power Stations of OHPC as mentioned in the above table.**

**c. Depreciation**

Depreciation is the refund of capital subscribed and is a constant charge against an asset to create a fund for its replacement. It is an important component of annual fixed cost of the generating station.

CERC Tariff regulation 2014-19 has specified rates for calculation of depreciation based on the capital cost admitted by the Commission.

OHPC has computed depreciation for the FY 2016-17 @ 2.57% on the Revalued project cost as on 01.04.1996 (excluding de-capitalization) plus additional capitalization w.e.f. 01.04.1996 up to FY 2014-15. The Unit wise depreciation so calculated is compared with the Loan repayment and the amount whichever is higher is considered as depreciation for Tariff computation.

Depreciation on State Govt Loan of UIHEP is considered as shown below:

- The State Govt. investment as loan changed from Rs 497.68Cr to Rs 522.62 Crore as per the amended clause no. 5(ii) of the Govt. Notification No. 5843 dtd. 03.07.2015.
- The repayment period is considered as 15 years starting from FY 2010-11. The annual installment of repayment of UIHEP Govt. loan shall be considered as annual Depreciation @ Rs34.84Cr (522.62/ 15) from FY 2010-11. But, from the FY 2010-11 to FY 2015-16 the actual depreciation @ Rs 30.23Cr. has been allowed by the Commission on UIHEP, Govt. Loan.
- Since the differential Depreciation of Rs34.84Cr- Rs 30.23Cr= Rs4.61Cr has not been considered in the previous Tariff orders, thus a total of Rs4.61Cr x 6= Rs27.66Cr is required to be approved and passed through in the ARR of FY2016-17 for necessary payment to the Govt.
- Considering the pass through of the above differential Depreciation of Rs27.66Cr & Rs34.84Cr as normal repayment of Govt. Loan a total of Rs62.50Cr has to be recovered through ARR of FY 2016-17 under depreciation for UIHEP.
- Considering Repayment of loan of Rs62.50Cr the closing balance of UIHEP Govt. Loan will reduce to Rs 278.74 Cr as on 01.04.2017. Accordingly, Depreciation of UIHEP is considered as Rs62.50Cr for the FY 2016-17.

Depreciation on the State Govt loan of convertible bond of Rs. 766.2 Cr, In view of the Govt. Notification No. 5843 Dtd. 03.07.2015, OHPC has claimed loan repayment of convertible bond for FY 2015-16 & FY 2016-17 as depreciation for the respective power stations for the Tariff calculation of FY 2016-17, assuming 15years repayment period starting from FY 2015-16.

The comparative statement for actual repayment of loans and depreciation @2.57% for the FY 2016-17 as shown in the Table below to arrive at the depreciation amount to be claimed in the ARR & Tariff of OHPC for the FY 2016-17.

**Table -14**  
**Depreciation Claim for the FY 2016-17**

(Rs in Crs)

| Sl. No. | Power Stations | Project Cost | Loan Repayment Amount | Depreciation @ 2.57% | Depreciation Claimed | Remark                  |
|---------|----------------|--------------|-----------------------|----------------------|----------------------|-------------------------|
| 1.      | RHEP           | 316.27       | 25.76                 | 8.13                 | 25.76                | Equal to loan Repayment |
| 2.      | UKHEP          | 326.68       | 28.40                 | 8.40                 | 28.40                | Equal to loan Repayment |
| 3.      | BHEP           | 548.82       | 44.13                 | 14.10                | 44.13                | Equal to loan Repayment |
| 4.      | HHEP           | 331.00       | 11.88                 | 8.51                 | 11.88                | Equal to loan Repayment |
| 5.      | CHEP           | 211.67       | 16.06                 | 5.44                 | 16.06                | Equal to loan Repayment |
| 6.      | UIHEP          | 1197.69      | 63.04                 | 30.78                | 63.04                | Equal to loan Repayment |
| Total   |                | 2932.13      | 189.26                | 75.36                | <b>189.26</b>        |                         |

**c. Operation and Maintenance (O&M) Expenses:**

OERC in the Tariff approval of O&M Expense of OHPC for the FY 2015-16 had observed the following:

*“The Commission had calculated the O&M expenses as per the new generation tariff Regulations, 2014 and escalation @5.72% is allowed on the previous years approved O&M expenses. By applying this principle the O&M expenses comes to Rs.310.66 Cr. for FY 2015-16. It is observed from the application that approximately 20% of the total O&M expenses is spent towards repair and maintenance of OHPC Stations which comes to Rs.64.46 cr. for 2015-16 considering the Commission’s approval figure of Rs.310.66 cr. This amount is the total R&M expenses including dam maintenance share of DOWR which is supposed to be reimbursed from DOWR. The dam maintenance cost receivable from DOWR for last three years as submitted by OHPC is Rs.11.05 cr. for the FY 2011-12, Rs.11.20 cr. for FY 2012-13 and Rs.12.74 cr. for the FY 2013-14. From the above trend the Commission assumes an amount of Rs.10.00 cr. to be received from DOWR towards UIHEP for the FY 2015-16. The same amount is deducted from the approved O&M expenses of UIHEP of Rs.69.95 cr. resulting in the net O&M expenses of Rs.59.95 cr. for calculation of ARR of UIHEP for the*

*FY 2015-16. Thus the Commission after due scrutiny approves total O&M expenses at Rs.300.66 cr. for FY 2015-16 as against the proposal of Rs.322.04 cr. proposed by OHPC.”*

Accordingly OHPC for computation of O&M Expense of different power stations of OHPC for the FY 2016-17 has escalated the approved O&M expenses for FY 2015-16 @ 5.72%. The terminal liability of Rs 11.15Crs & Corporate Office Expenses apportioned to all units based on Design Energy was added to the escalated O&M expenses to achieve the final O&M Expenses.

It may be noted here that the OERC has deducted an amount of Rs10.00Crs from the O&M Expense of UIHEP, Mukhiguda towards the Dam Maintenance Expense receivable from DoWR for the FY 2015-16. Assuming the same principle OHPC has deducted Rs10.00Crs from the escalated O&M expenses of UIHEP for the FY 2016-17.

The Station-wise O&M expenses proposed by OHPC for FY 2016-17 is presented in the table below:

**Table- 15:**

**Statement of O & M Expenses for different power stations of OHPC for FY 2016-17**

**(Rs. Crs.)**

| Sl. No. | Particulars   | RHEP  | UKHE P | BHEP  | HHEP  | CHEP  | Sub Total | UIHEP | CO    | Total  |
|---------|---|-------|--------|-------|-------|-------|-----------|-------|-------|--------|
| 1       | O & M expenses for FY 2015-16 with escalation @ 5.72% over FY 2014-15               | 42.90 | 32.32  | 61.49 | 64.99 | 14.88 | 216.58    | 62.16 | 20.77 | 299.51 |
| 2       | O & M expenses for FY 2016-17 with escalation @ 5.72% over FY 2015-16               | 45.36 | 34.17  | 65.01 | 68.71 | 15.73 | 228.96    | 65.72 | 21.96 | 316.64 |
| 3       | Corporate Office expenses apportioned to different units under OHPC based on Design | 2.03  | 3.22   | 4.58  | 2.65  | 1.90  | 14.37     | 7.59  | 21.96 |        |

|  |   |       |       |       |       |       |        |          |      |          |
|--|---|-------|-------|-------|-------|-------|--------|----------|------|----------|
|  | Energy  |       |       |       |       |       |        |          |      |          |
| 4  | Total O & M Expenses for the FY 2016-17   | 47.39 | 37.38 | 69.58 | 71.35 | 17.62 | 243.33 | 73.31    |      | 316.64   |
| <b>Add: Arrear salary and terminal liabilities</b> |   |       |       |       |       |       |        |          |      |          |
| 5  | Arrear terminal liabilities of Rs.78.01 Cr as on 31/03/2009 claimed over a period of seven years starting from FY 2010-11 | 1.03  | 0.98  | 3.96  | 1.84  | 0.79  | 8.60   | 0.99     | 1.56 | 11.15    |
| 6  | Arrear terminal liabilities Corporate Office expenses apportioned to different units under OHPC based on Design Energy.   | 0.14  | 0.23  | 0.33  | 0.19  | 0.13  | 1.02   | 0.54     | 1.56 |          |
| 7  | Total Arrear Salary and Terminal Liabilities  | 1.17  | 1.21  | 4.29  | 2.03  | 0.92  | 9.62   | 1.53     |      | 11.15    |
| 8  | Less : Income to be received from DOWR towards dam maintenance of UIHEP   |       |       |       |       |       |        | (-10.00) |      | (-10.00) |
| 9  | <b>Total O&amp;M Expenses for the FY 2016-17 including terminal</b>   | 48.56 | 38.59 | 73.87 | 73.38 | 18.65 | 252.95 | 64.84    |      | 317.79   |

|                    |  |  |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|--|--|
| <b>liabilities</b> |  |  |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|--|--|

**d. Interest on Working Capital**

As per OERC Tariff Regulation 2014, the basis for calculation of working capital shall include the following:

1. Receivables equivalent to two months of fixed cost.
2. Maintenance spares @ 15% of operational and maintenance expenses
3. Operation and maintenance expenses for one month.

The rate of interest on working capital considered is the SBI base rate @ 10% as on 1<sup>st</sup> April, 2015 plus 300 basis points which turns out to be 13%. In accordance with OERC guidelines, the interest on working capital shall be payable on normative basis.

Table -17 below summarizes the station wise interest on working capital as proposed by the OHPC for FY 2016-17.

**Table- 16**  
**Interest on Working Capital (Rs. in Crs)**

| Sl. No | Description  | RHEP        | UKHEP       | BHEP        | HHEP        | CHEP        | Sub Total    | UIHEP       | Total        |
|--------|--|-------------|-------------|-------------|-------------|-------------|--------------|-------------|--------------|
| 1      | Receivables equivalent to two months of fixed cost | 19.74       | 18.88       | 30.21       | 19.57       | 10.25       | 98.63        | 34.65       | 133.29       |
| 2      | Maintenance spares @ 15% of O&M expenses           | 7.28        | 5.79        | 11.08       | 11.01       | 2.78        | 37.94        | 9.73        | 47.67        |
| 3      | O&M expenses for one month                         | 4.05        | 3.22        | 6.16        | 6.11        | 1.55        | 21.08        | 5.40        | 26.48        |
| 4      | Total working capital                              | 31.07       | 27.88       | 47.45       | 36.69       | 14.58       | 157.66       | 49.78       | 207.44       |
| 5      | Interest on working capital calculated @ 13.0%     | <b>4.04</b> | <b>3.62</b> | <b>6.17</b> | <b>4.77</b> | <b>1.89</b> | <b>20.50</b> | <b>6.47</b> | <b>26.97</b> |

**Annual Revenue Requirement (ARR) & Tariff for the FY 2016-17**

Based on the above parameters the power station wise ARR and tariff of OHPC have been calculated for the FY 2016-17 as follows:

The values of ARR along with its different components and the average tariff computed considering the Saleable Design Energy of 5588.79 MU for the FY 2016-17 is shown in the table below.

**Table-17**

**Station wise ARR and Tariff for the FY 2016-17 considering proposed saleable D.E. of 5588.79 MU**

| <b>Details expenses</b>              | <b>RHEP</b>   | <b>UKHEP</b>  | <b>BHEP</b>   | <b>HHEP</b>   | <b>CHEP</b>   | <b>Sub Total</b> | <b>UIHEP</b>  | <b>Total</b>   |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|------------------|---------------|----------------|
| Existing Saleable Design Energy (MU) | 519.75        | 823.68        | 1171.17       | 662.50        | 469.31        | 3646.41          | 1942.38       | 5588.79        |
| (Rs. in Crs.)                        |               |               |               |               |               |                  |               |                |
| Return on Equity                     | 15.181        | 15.680        | 26.343        | 15.888        | 10.160        | 83.253           | 47.955        | 131.208        |
| Interest on Loan                     | 24.87         | 26.96         | 30.75         | 11.47         | 14.83         | 108.88           | 25.61         | 134.49         |
| Depreciation                         | 25.76         | 28.40         | 44.13         | 11.88         | 16.06         | 126.22           | 63.04         | 189.26         |
| O&M Expenses                         | 48.56         | 38.59         | 73.87         | 73.38         | 18.55         | 252.95           | 64.84         | 317.79         |
| Interest on working capital          | 4.04          | 3.62          | 6.17          | 4.77          | 1.89          | 20.50            | 6.47          | 26.97          |
| <b>Total ARR</b>                     | <b>118.41</b> | <b>113.26</b> | <b>181.26</b> | <b>117.39</b> | <b>61.489</b> | <b>591.810</b>   | <b>207.91</b> | <b>799.724</b> |
| <b>Average Tariff (p/u)</b>          | <b>227.82</b> | <b>137.50</b> | <b>154.77</b> | <b>177.20</b> | <b>131.02</b> | <b>162.30</b>    | <b>107.04</b> | <b>143.09</b>  |

**7. Application Fee and Publication Expenses**

As per the OERC tariff regulation 2014, the application filing fee and the expenses incurred on publication of notices may in the discretion of the commission, be allowed to be recovered by the generating company directly from the beneficiaries. As per the Commission notification no. 1992 dated 31.08.2009 in the clause no. 17, Commission has fixed a fee of Rs. 5000/- per MW as application fee for determination of tariff of conventional fuel based plant/ hydel plants, subject to maximum limit of Rs. 25,00,000/- (Rupees Twenty five lakhs). As per above provision, the application fee and publication expenses proposed by OHPC for FY 2016-17 are given in table below.

**Table -18**  
**Application Fees and Publication Expenses**

| Sl. No.  | Application fee (lakhs) | Publication expenses (lakhs) | Total (lakhs) |
|----------|-------------------------|------------------------------|---------------|
| <b>1</b> | <b>25.00</b>            | <b>1.00</b>                  | <b>26.00</b>  |

**8. Electricity Duty on Auxiliary Consumption**

As per the agreed PPA between OHPC and GRIDCO, the taxes and duties including electricity duty (ED) on auxiliary consumption etc. payable by OHPC to the State Government and other statutory bodies shall be passed on to GRIDCO in the shape of supplementary bill raised by OHPC. GRIDCO will make payment accordingly within 30 days of receipt of bills. In pursuance of Sub-section-I of Section-3 of Orissa Electricity (Duty) Act-1961 and supersession of the notification No.1 RE(ED) 25/2005 dated the 01.06.2006 issued by Govt. of Odisha in the Department of Energy as amended from time to time, the State Govt. specified the rate for which Electricity Duty shall be levied & paid to the State Govt. on the energy consumed. Accordingly, the Rate of Electricity Duty / Unit have been revised from 20 paise per Unit to 30 paise per Unit with effect from 1<sup>st</sup> October 2015 as per the Gazette Notification No. 1387 dtd. 01.01.2015.

Relying on above procedure of reimbursement of ED from GRIDCO & present notification of State Govt., OHPC has proposed the ED on Auxiliary consumption of all Hydro Electric Projects to the tune of Rs 0.852 Cr during the FY 2016-17, as shown in the table below Commission may approve the same.

**Table-19:**

**ED on Auxiliary Consumption**

(Rs. in Crs)

| Description                 | RHEP  | UKHEP | BHEP  | HHEP  | CHEP  | Subtotal | UIHEP | Total |
|-----------------------------|-------|-------|-------|-------|-------|----------|-------|-------|
| ED on Auxiliary Consumption | 0.079 | 0.125 | 0.177 | 0.103 | 0.074 | 0.558    | 0.294 | 0.852 |

**9. License Fee for Use of Water for Generation of Electricity**

As per the gazette Notification Dt. 01.10.2010, OHPC has to pay @Rs. 0.01/KWh as Licence Fee on water used for generation of electricity from all Hydro Electric Project to the tune of Rs. 5.676 Crs. based on design energy which is to be reimbursed to OHPC by GRIDCO,

**Table – 20**

**License fee for Consumption of water for generation of electricity**

(Rs. in Crs)

| Description  | RHEP  | UKHEP | BHEP  | HHEP  | CHEP | UIHEP | Total |
|--|-------|-------|-------|-------|------|-------|-------|
| License fee for Consumption of water for generation of electricity | 0.525 | 0.832 | 1.183 | 0.684 | 0.49 | 1.962 | 5.676 |

Since, the above calculation is based on design energy of Hydro Projects, the actual generation from OHPC Power Stations may be considered for reimbursement of license fee paid to Govt. of Odisha from GRIDCO.

## 10. SLDC Charges

As per CERC (fees & charges of regional load dispatch centre and other related matters) regulations, 2010 SLDC has to levy and collect annual charges from the users towards system operation charges and market operation charges. The Commission allowed Rs. 1.80 Cr. as SLDC charges for the FY 2015-16 which is to be collected by SLDC from OHPC. OHPC proposes Rs 1.903 Cr. (escalated at 5.72% to arrive at the charges payable by SLDC) to be considered provisionally as fees and charges payable by OHPC to SLDC for the FY 2016-17.

## 11. Annual Revenue Requirement & Tariff for Machhkund H.E. (Jt.) Scheme

Machhkund Hydro Electric Project is a joint scheme of Government of Andhra Pradesh and Government of Orissa with 70% and 30% shares respectively, with option of Government of Orissa to draw an additional 20% power (105 MU) at a cost of Rs. 0.08 per unit as per the interstate supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Orissa. The proposed tariff of 47.92 Paise/Unit of Orissa drawl of Machhkund power for FY 2016-17 has been computed on cost reimbursement basis. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of design energy of Machhkund equivalent to 262.50 MU.

**Table-21**  
**Projected Tariff of Machhkund H. E. (J) Scheme For FY 2016-17**

|  |                     |
|--|---------------------|
| Installed Capacity (MW)  | 120.00 MW           |
| Odisha share as per Original Agreement (30%)                                   | 36.00 MW            |
| Energy for sharing between Andhra Pradesh & Odisha                             | 525.00 MU           |
| Expected Energy Drawl by Odisha (50%)  | 262.50 MU           |
| Energy Drawl of 30% of Odisha share  | 157.50 MU           |
| Purchase of Power up to 20% as per Supplementary Agreement                     | 105.00 MU           |
| O&M Escalation factor @ 6.64% for year for 2 years                             | 1.1372              |
|  | (Rs. in Crs)        |
| 1. O&M Exp. (Odisha share of Provisional O&M Exp. For FY 14-15)                | 10.32               |
| 2. O&M Exp for FY 2016-17 with escalation of 6.64% for 2015-16 & 2016-17       | 11.74               |
| 3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08) | 0.84                |
| 4. Total Annual Expenditure (2 +3)   | 12.58               |
| 5. Tariff (Paise/Kwh)  | <b><u>47.92</u></b> |

Note: The tariff is calculated on cost reimbursement basis. Any penalty for over drawl of power by M/s GRIDCO above 50% limit shall be paid directly to APGENCO separately by GRIDCO.

**12. Foreign Exchange Fluctuation Loss of PFC Loan of BHEP**

OHPC had availed PFC loan in USD for R&M works of Unit#7 & Unit#8 of BHEP, the principal repayment and interest payment of which started from the FY 2007-08. Due to variation in Foreign Exchange Rate, OHPC has incurred a loss of Rs 1.45 Cr. towards payment of interest and Rs 12.45 Cr. towards principal repayment on the PFC loan of BHEP form FY 2007-08 to FY 2015-16. Out of which Commission had approved Rs 4.2 Cr in the tariff order for the FY 2016-17.

**13. Reimbursement of Contribution Made to ERPC**

OHPC had claimed Rs. 1.10146 Cr towards the ERPC establishment fund and ERPC fund contribution from FY 2006-07 to FY 2013-14 in the ARR of FY 2014-15. However, the Commission only approved claim of Rs. 0.16 Cr. for the FY 2015-16. OHPC proposes the following claim towards ERPC contributions for FY 2016-17.

**Table- 22**

**Contribution made to ERPC**

| Sl.No. | Financial year                    | Particular  | Amount(in Lakhs) | Remark  |
|--------|-----------------------------------|---|------------------|---|
| 1.     | FY 2006 to FY 2013                | Contribution to ERPC Estt. Fund & ERPC Fund.            | 96.46            | OERC deferred the reimbursement claim in the Tariff order of OHPC for FY 2014-15. |
| 2.     | FY 2014-15                        | Contribution to ERPC Fund                               | 1.00             | Rs 1.00 Lakhs was not claimed in FY 2014-15.                                      |
| 3.     | FY 2016-17                        | Contribution to ERPC Estt. Fund & ERPC Fund.            | 16.00            | Claimed as reimbursement for FY 2016-17.  |
| 4.     | FY 2016-17                        | Additional Contribution to ERPC Estt. Fund & ERPC Fund. | 10.00            | Claimed as reimbursement for FY 2016-17.  |
| 4.     | Total claim of ERPC contributions |   | <b>123.46</b>    | <b>Claimed as reimbursement for FY 2016-17.</b>                                   |

**14. Reimbursement of Contribution Made to Catchment Area Treatment Plan (CATP)**

In the first meeting of High Power Committee on Catchment Area Treatment Plan on 07th August 2013, Resolution was taken by Government for the treatment of catchments of the Upper Indravati Multipurpose Project & Upper Kolab Hydro-electric Project located in the districts of Kalahandi, Koraput, Nabarangpur and Raygada on watershed basis. In the 123rd meeting of Board of Directors of OHPC held on 27th September 2014 the Board has decided to reflect Rs 2.411 Cr (Rs 0.402Cr for the year 2013-14 & Rs 2.009 Cr for year 2014-15) in the ARR of FY 2015-16. Further OHPC proposes to consider the institutional cost of Rs 1.599 Cr as reimbursement for the FY 2015-16 towards CATP contribution.

OHPC had claimed Rs. 4.01 crores from GRIDCO in the FY 2015-16, payment made till date is Rs. 2.4368 Crs. OHPC assumes that the tentative expenditure of CATP programme during the FY 2016-17 will be within the approved amount of Rs 4.01Crs. So, OHPC does not claim any further reimbursement under the head CATP for the FY 2016-17.

### **Income Tax**

Commission in tariff order FY 2015-16 had passed the income tax as a reimbursement to be recovered from the beneficiary i.e. GRIDCO. OHPC had paid Rs. 31.087 Crs towards income tax FY 2014-15. The plea from OHPC is to claim the same amount for FY 2016-17.

### **Details of Reimbursement Cost:**

Total reimbursement cost claimed for the FY 2016-17 is given in the table below.

**Table – 23**

**Details of Reimbursement Claim**

**(in Rs. Cr.)**

| <b>Component of Costs</b>                                      | <b>RHEP</b> | <b>UKHEP</b> | <b>BHEP</b> | <b>HHEP</b> | <b>CHEP</b> | <b>UIHEP</b> | <b>Total</b>   |
|--|-------------|--------------|-------------|-------------|-------------|--------------|----------------|
| (a) License fee for use of water for generation of electricity | 0.525       | 0.832        | 1.183       | 0.684       | 0.49        | 1.962        | <b>5.676</b>   |
| (b) ED on Auxiliary Consumption                                | 0.079       | 0.125        | 0.177       | 0.103       | 0.074       | 0.294        | <b>0.852</b>   |
| (c) SLDC charges   |             |              |             |             |             |              | <b>1.903</b>   |
| (d) Application fees and publication expenses                  |             |              |             |             |             |              | <b>0.26</b>    |
| (e) Fluctuation loss of PFC Loan of BHEP                       |             |              | 3.71        |             |             |              | <b>3.71</b>    |
| (f) ERPC charges (current)                                     |             |              |             |             |             |              | <b>0.26</b>    |
| (g) ERPC charges (Arrear)                                      |             |              |             |             |             |              | <b>0.9746</b>  |
| (g) Income Tax as per Audit Account of FY 2014-15              |             |              |             |             |             |              | <b>31.087</b>  |
| <b>Total</b>   |             |              |             |             |             |              | <b>44.7226</b> |

### **15. Two-Part Tariff**

As per Central Electricity Regulatory Commission (Terms and conditions of Tariff) Regulation 2014, the annual fixed cost of a power station shall be recovered through capacity charge (inclusive of incentives) and energy charge to be shared on a 50:50 basis.

- 1) The capacity charge (inclusive of incentive) payable to a hydro generating station for a calendar month shall be

Capacity charge (CC) = AFC x 0.5 x NDM/NDY x (PAFM/NAPAF) in Rupees.

Where, AFC = Annual Fixed Cost specified for the year in rupees

NAPAF= Normative Annual Plant Availability Factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

PAFM = Plant Availability Factor achieved during the month in percentage.

The PAFM shall be computed in accordance with the following formula:

$$PAFM = 10000 \times \sum_{i=1}^N DC_i / \{N \times IC \times (100 - Aux)\} \%$$

Where,

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC<sub>i</sub> = Declared Capacity (in ex-bus MW) for the i<sup>th</sup> day of the month which the station can deliver for at least (3) hours, as certified by the nodal load dispatch centre after the day is over.

- 2) The energy charge shall be payable by every beneficiary for the total energy scheduled to be supplied to the beneficiary, during the calendar month on ex-power plant basis at the computed energy charge rate.

Total energy charge payable to the generating company for a month shall be

{(Energy charge rate in Rs./ Kwh) x (Schedule energy (ex-bus)) for the month in Kwh}

- 3) Energy charge rate (ECR) in Rupees per Kwh on ex-bus plant basis for a hydro generating station shall be determined up to three decimal places based on the following formula, subject provisions in clause(6) and (7) of Schedule-22 of CERC Tariff regulations 2014.

$$ECR = AFC \times 0.5 \times 10 / \{DE \times (100 - Aux) \times 100\}$$

Where,

DE= Annual design energy specified for the hydro generating station in Mwh, subject to provisions in Clause-(6) of Schedule-22 of CERC tariff regulations 2014.

As per the CERC tariff regulation station-wise capacity charge and energy charge proposed by OHPC for the FY 2016-17 is presented in table below.

**Table-24**

**Capacity charge and energy charge of power stations**

| <b>Name of the power stations</b> | <b>Annual Fixed Cost (ARR) (Rs. in Crs)</b> | <b>Annual Capacity Charge (ACC) (Rs. in Crs)</b> | <b>Annual Energy Charge (AEC) (Rs. in Crs)</b> | <b>Salable design energy ( MU )</b> | <b>Energy Charge Rate (ECR) (in p/u)</b> |
|-----------------------------------|---|--|--|-------------------------------------|--|
| RHEP                              | 118.41                                      | 59.205   | 59.205   | 519.75                              | 113.91                                   |
| UKHEP                             | 113.26                                      | 56.630   | 56.630   | 823.68                              | 68.75                                    |
| BHEP                              | 181.26                                      | 90.630   | 90.630   | 1171.17                             | 77.38                                    |
| HHEP                              | 117.39                                      | 58.695   | 58.695   | 662.50                              | 88.60                                    |
| CHEP                              | 61.49                                       | 30.745   | 30.745   | 469.31                              | 65.51                                    |
| UIHEP                             | 207.91                                      | 103.955  | 103.955  | 1942.38                             | 53.52                                    |

**16. Normative Plant Availability Factor (NAPAF)**

Commission in the Tariff order of OHPC dated 22.03.2014 vide case no. 81/2013 has approved the NAPAF of OHPC stations for the control period from 01.04.2014 to 31.03.2019 as given in the table below.

**Table-25**

**Normative Plant Availability Factor**

| <b>Power Stations</b> | <b>HHEP</b> | <b>CHEP</b> | <b>BHEP</b> | <b>RHEP</b> | <b>UKHEP</b> | <b>UIHEP</b> |
|-----------------------|-------------|-------------|-------------|-------------|--------------|--------------|
| NAPAF (%)             | 78          | 75          | 83          | 75          | 87           | 88           |

**Renovation and Modernization of OHPC Power Plants**

17. Compliance to the queries of the OERC regarding the “Renovation and Modernization of OHPC Power Plants” vide the letter No. 1412 dated 13.11.2015 of the Secretary, OERC. The clarifications/information with reference to the letter no. 1340 dated 30.10.2015 of the Secretary, OERC regarding the complete road map, funding pattern, Plan of action, Zero date and Completion date etc. for Renovation and Modernization of OHPC Power Plants are submitted below for kind perusal of the Commission.

OERC had agreed in principle to carry out the R&M works in three plants, tender for the R&M work was floated across with complete replacement of new Turbine & Generator set along with associated auxiliaries.

Tender for R&M of Unit 3, Chiplima was awarded **M/s Voith Hydro Private Limited, India** by L1, as per the terms and conditions of the tender specification at a price of EURO 96594, USD 781708 & Rs.44.30 Crores plus taxes and duties. The revised estimated project cost of Rs. 65.67 Crores considering the price of L1 bidder and including IDC and consultancy charges was approved by Board of Directors of OHPC in their meeting held on Dt. 29.07.2015.

Tender for R&M of units 1 to 6 of BHEP, Balimela s under review, evaluation of Qualification bids (Part-I) & techno commercial bid (Part-II) have been completed. However, Board of Directors has asked the bidders to review their bids and the evaluation of those bids is under progress.

Tender for R&M of Unit 5 & 6 of HHEP, Burla was awarded to **M/s Voith Hydro Private Limited, India** by L1, as per the terms and conditions of the tender specification at a price of EURO 223730, USD 912074 & Rs.114.27 Crores plus taxes and duties. The revised estimated project cost of Rs. 158.77 Crores considering the price of L1 bidder and including IDC and consultancy charges is approved by Board of Directors OHPC in their meeting held on Dt. 29.07.2015. The contract for the project was signed between OHPC Ltd. and M/s Voith Hydro Pvt. Ltd on dated 16.10.2015 which is the Effective date of contract.

The zero date/ effective date of contract for the R&M work of Unit 3 of CHEP, Chiplima and Unit 5&6 of HHEP, Burla is **Dt. 15-10-2015 & Dt. 16-10-2015** respectively. The completion period for the R&M Projects of CHEP, HHEP have been scheduled to be completed in **20 months & 30 months** respectively from the effective date of contract.

#### **Investment and Funding Pattern**

The physical and financial profiles of the proposed R&M activities are given below, the revised figures are noted as per the tenders received.

**Table-26**  
**Estimated & Revised Project Cost**

| <b>(Rs. in Lakhs)</b>   |   |                                  |                             |
|-------------------------|---|----------------------------------|-----------------------------|
| <b>Name of the Unit</b> | <b>Name of the Project</b>  | <b>Capital cost of R &amp; M</b> | <b>Revised Capital cost</b> |
| 1                       | 2   | 3                                | 4                           |
| HHEP (Unit-5&6)         | Design, Manufacturing, supply, Erection, Testing & Commissioning of 2 sets of new Turbine & Generator . | 32596                            | 15877                       |
| BHEP (Unit-1to6)        | Design, Manufacturing, supply, Erection, Testing & Commissioning of 2 sets of new Turbine & Generator . | 66475                            | -                           |
| CHEP Unit-3             | Design, Manufacturing, supply, Erection, Testing & Commissioning of 2 sets of new Turbine & Generator.  | 9650                             | 6567                        |

The total capital cost of the RM Project is to be apportioned between debt and equity @ 70:30 ratio. The debt portion is to be funded by the external Agency viz. PFC, REC, Bank &

Financial Institution. The equity portion is to be arranged from the internal funds / reserves of OHPC, without any financial support from Govt of Odisha.

OHPC called competitive quotations of interest rate from the all enlisted banks including NABARD, REC/PFC and the offers were evaluated by the evaluation committee. The Board based on the recommendation of the 79<sup>th</sup> audit Committee approved that (i) the loan may be availed adopting the principle of multiple banking keeping in view the exposure limit of the Short listed Bank and unit wise allocation of funds, (ii) to avail loan up to Rs.200 Crores with interest as per Base Rate (at present 10.00% P.a) from PNB (iii) to avail loan up to Rs.50 Crores with interest as per Base Rate (at present 10.05% P.a) from IOB. The decision regarding the balance loan will be taken up after the price bid is opened for RMU work of BHEP, Balimela.

### Capital Maintenance of Different Power Stations

18. As per the approval of the Commission, OHPC has taken up the capital maintenance of different Units of OHPC mentioned above in co-ordination with SLDC & GRIDCO. The power station wise status of Capital Maintenance is as follows:

**Table: 27 - Capital Maintenance of Different Power Stations**

| Sl.NO | Power Station & Unit under Capital Maintenance | Zero Date (in consultation with SLDC) | Approved Period | Remarks                            |
|-------|--|---------------------------------------|-----------------|------------------------------------|
| 1.    | Unit-1 of HHEP, Burla                          | 18.4.2015                             | 153days         | Synchronized to Grid on 14.10.2015 |
| 2.    | Unit-1 UKHEP, Bariniput                        | 29.07.2015                            | 181days         | Under Capital Maintenance          |
| 3.    | Unit-3 UIHEP, Mukhiguda                        | 23.11.2015                            | 123days         | Under Capital Maintenance          |
| 4.    | Unit-2 RHEP, Rengali                           | Not yet finalized                     | 122days         |                                    |
| 5.    | Unit-3 RHEP, Rengali                           | Not yet finalized                     | 46days          |                                    |
| 6.    | Unit-2 of HHEP, Burla                          | 15.12.2015 (Tentative)                | 198days         |                                    |

### **PRAYER**

- OHPC pray before the Commission to kindly approve the following in the ARR & Tariff Order of OHPC Power Stations for the FY 2016-17:
- The ARR of Rs 799.724 Crs. at an Average tariff @ 143.09 p/u with a saleable Design Energy of 5588.79MU
- The miscellaneous reimbursement of Rs. 44.7226 Cr by OHPC from GRIDCO.

4. Design Energy of CHEP, Chplima as 474.05MU (Salable D.E = 469.31MU) considering restriction in generation by DoWR, GoO not below RL of 595.0 ft of Hirakud Reservoir.
5. Design Energy of HHEP, Burla as 669.19MU (Salable D.E = 662.50MU) which is the maximum possible generation of HHEP considering restriction in generation by DoWR, GoO not below RL of 595.0 ft.
6. The tariff for energy billing to CSPDCL at 197.46 paisa per Kwh as per CERC (Terms & Conditions of Tariff) Regulations, 2014.
7. Recognizing the following as the Regulatory Asset and taking suitable decision for realization of the same.
  - a) Accumulated interest of UIHEP Govt. Loan from 2006-07 to 2015-16 = Rs.327.74Cr.
  - b) Accumulated interest on Normative Loan of UIHEP from 2001-02 to 2015-16 = Rs.61.50Cr.
  - c) Realization of Rs. 145.6245 Crs. towards Hydrology Failure (negative fund for Secondary energy) from FY 1996-97 to FY 2014-15.

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