

*Summary of ARR & Tariff Filings*

Submitted by

*OHPC*

For

*FY 2017-18*

## SUMMARY OF ARR PROPOSAL OF OHPC FOR FY 2017-18

### 1. Installed Capacity

The total installed capacity of various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) is reduced due to repair and maintenance (R&M) work undertaken in certain units of electric plants of OHPC. The installed capacity of different generating stations as reported by OHPC for the FY 2017-18 is given in table – 1 below. The Odisha share of Machhkund is same as previous year at 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 for PAFM calculation**

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2016-17	Installed Capacity for FY 2017-18
1	Rengali (RHEP)	250.00	250.00
2	Upper Kolab(UKHEP)	320.00	320.00
3	Balimela(BHEP)	450.00 ( for R&M of one Unit )	450.00 ( form 05.08.016 due to R&M Unit-1 )
4	Burla (HHEP)	210.50 (from 16.10.2015 onwards till the approved period of shut-down of any one Unit under R&M)	210.50 (from 16.10.2015 onwards till the approved period of shut-down of Unit- 6 under R&M)
		200.50 (during the overlapping period of R&M of #5 & #6)	200.50 (from 25.10.2016 for overlapping period of R&M of #5 & #6)
5	Chiplima (CHEP)	48.00 (from 15.10.2015 onwards till the approved period of shut down of Unit-3 under R&M)	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)		<b>1974.50</b> ( during R&M of Unit-3 of CHEP, Unit-6 of HHEP)	<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>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>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)	<b>1844.5</b> (during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP & Unit-1&2 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 these generating stations are consistently unable to generate their Annual Design Energy due to restriction in generation below 595 ft RL of the Hirakud reservoir and consequently OHPC is unable to recover the Annual Energy Charges in full. The OHPC has been waiting for decisions from Department of Energy (DoE) / Department of Water Resources (DoWR) on reduction of design energy in respect of HHEP and CHEP. However, in the absence of any decision OHPC has not considered reduction in design energy of HHEP and CHEP.

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 Hon'ble OERC 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 proposed hydro power station wise design energy for FY 2017-18 is given in the following table.

**Table -2: Design energy for FY 2017-18**

(in MU)

Sl. No.	Name of the Power Station	Design Energy approved for FY2016-17	Design Energy for sale for FY 2016-17	Design Energy proposed for FY 2017-18	Design Energy for sale for FY 2017-18
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>684.00</b>	<b>677.16</b>
5	CHEP	490.00	485.10	<b>490.00</b>	<b>485.10</b>
<b>Sub Total of Old Power Stations</b>		<b>3714.00</b>	<b>3676.86</b>	<b>3714.00</b>	<b>3676.86</b>
6	UIHEP	1962.00	1942.38	1962.00	1942.38
<b>Total</b>		<b>5676.00</b>	<b>5619.24</b>	<b>5676.00</b>	<b>5619.24</b>

## 3. Reservoir Level and Anticipated Generation for FY 2017-18

The reservoir level of Power Stations reported by OHPC as on 31.10.2016 vis-à-vis on 31.10.2015 is given in table – 3 below.

**Table – 3: Reservoir level of power stations**

Sl. No.	Reservoirs	As on 31.10.2015	As on 31.10.2016
1.	Rengali	119.16 mtr.	123.00mtr.
2.	Kolab	856.02 mtr.	856.66mtr.
3.	Balimela	1501.00 ft.	1507.20 ft.
4.	Hirakud	627.27 ft.	630.06 ft.
5.	Indravati	635.25 mtr.	639.32 mtr.

The actual generation of different Power Stations under OHPC from 01.04.2016 up to 31.10.2016 and anticipated generation up to 31.03.2017 for the FY 2016-17 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 – 4:Actual /Anticipated Energy Generation**

Sl. No.	Name of the power stations	Actual generation from 01.04.16 up to 31.10.16 (in MU)	Anticipated generation from 01.11.16 to 31.03.17 based on DoWR& DoE Schedule (in MU)	Total Anticipated generation for the FY 2016-17 based on DoWR& DoE Schedule (in MU)
1.	RHEP	484.99	188	672.99
2.	UKHEP	392.615	261	653.615
3.	BHEP	533.95	450	983.951
4.	HHEP	425.921	153	578.921
5.	CHEP	136.253	101	237.253
6.	UIHEP	980.682	686	1666.682
<b>Total</b>		<b>2954.414</b>	<b>1839</b>	<b>4793.414</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 Order of the Hon'ble Commission. The present deficit of the secondary energy fund of OHPC as a whole is about **Rs207.7 Crs**. The total anticipated generation of OHPC for the present FY 2016-17 is **4793.414 MU** which will fall short by **882.58 MU** from 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. Further, Hon'ble 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 Rs19.31Crs as per the audited account for FY 2015-16 has been considered for determination of tariff for the FY 2017-18. The OHPC has made capital

maintenance of unit 1 of HHEP Burla amounting to Rs. 10.029 Cr. and civil works amounting to Rs. 6.56 Cr.

The adjustment of cost of assets during the FY 2011-12 & FY 2014-15 on account of de-capitalization of asset for an amount of Rs 7.19 Cr has been approved by Hon'ble Commission in the tariff order of OHPC. There is de-capitalization of Rs 0.84 Cr in case of old power stations of OHPC & Rs. 0.49 Cr in case of UIHEP for FY 2015-16. The Revalued cost as on 31.03.2016 is shown in the table-5 below. Hence the total decapitalisation of Power Stations during the FY 2011-12 to FY 2015-16 comes to Rs9.37 Cr 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 2017-18 is given in the table below:

**Table-5: Project Cost for tariff Calculation for FY 2017-18**

(in Rs. Cr.)

Name of the power stations	Revalued Cost as on 01.04.1996	Asset reduction during FY 2012-13 to FY 2015-16	Approved New additions up to 31.03.2015	Capitalisation of R&M works considering CWIP	New additions for FY 2015-16 (audited)	Total New Addition upto 2015-16 & CWIP of R&M works	Project Cost considered Tariff calculation based on revalued cost
1	2	3	4	5	6	7=4+5+6	8=2+7-3
RHEP	259.01	0.06	57.26	-	0.21	57.47	316.43
UKHEP	307.96	0.16	18.88	-	0.10	18.98	326.78
BHEP	334.66	0.29	214.42	-	1.08	215.50	549.88
HHEP	130.16	6.77	206.91	-	10.44	217.35	340.74
CHEP	165.01	0.75	47.36	65.67	0.51	113.54	277.80
<b>Sub Total</b>	<b>1196.80</b>	<b>8.03</b>	<b>544.83</b>	65.67	12.35	<b>622.85</b>	<b>1811.62</b>
UIHEP	<b>1194.79</b>	<b>1.35</b>	3.76	-	0.99	4.75	1198.19
<b>Total</b>	<b>2391.59</b>	<b>9.37</b>	<b>548.59</b>	<b>65.67</b>	<b>13.34</b>	<b>627.60</b>	<b>3009.81</b>

**Note:** Project cost approved for UIHEP after CoD is Rs. 1194.79 Cr.

#### 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.

In the proceedings of the meeting taken by the Chief Secretary, Government of Odisha on 18.03.2014, it was decided as follows

**Convertible Bonds worth Rs. 766.2 crores have been issued to State Government. The bonds shall not carry any interest up to FY 2014-15.**

**Part – Rs. 383.10 crores will be converted to equity from FY 2015-16**

**Part – Rs. 383.10 crores shall remain as loan which shall carry interest at the rate of 7% per annum w.e.f. 2015-16 until repayment.**

The department of energy, government of Odisha vide office order no. 3060 dtd. 31.03.2015 has amended SRO No. 256 dated 01.04.1996 as follows

Rs. 630 Crore will be apportioned to Upper Indravati H.E.P as on 01.04.1996. Out of this Rs. 132.14 Crore will be treated as interest free perpetual loan to OHPC on account of a portion out of the 50% of the expenses on Dam and Appurtenant of Rs. 232.14 Crore as on 01.04.1996. Balance Rs. 100 Crore would be treated as grant to OHPC.

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 2017-18:

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

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

OHPC has considered Rs67.11Cr towards repayment of the UIHEP Govt. Loan in the calculation of Tariff & ARR for FY 2017-18. Interest on loan of UIHEP is calculated as Rs. 19.421 Cr. (i.e, 7% on average principal), which has been considered in the tariff for the FY 2017-18. The accumulated interest of Rs. 350.57 Crs. from FY 2006-07 to FY 2016-17 is proposed to be considered as Regulatory Asset.

OHPC has considered the above implications for calculation of Tariff for the FY 2017-18. OHPC prays before the Hon'ble Commission to recognize the restructuring of Govt. investment in UIHEP and approve the tariff for the FY 2017-18 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. Accordingly, OHPC has considered the interest on the Convertible Bond for the FY 2015-16, FY 2016-17 and FY 2017-18 in the Tariff of OHPC for FY 2017-18.

**Table-6: Power Station wise apportionment of Loan on account of Convertible Bond (Rs. in 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>
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Further the Chhattisgarh State Power Distribution Company Limited (CSPDCL) is taking a plea to pay the energy charges to OHPC at the tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and which is determined by the Hon'ble Commission, considering the supportive measures extended by the Govt. of Odisha.

Accordingly, OHPC had prayed before the Hon'ble 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 Hon'ble 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. However, OHPC has computed the tariff for billing of energy to CSPDCL as per CERC (Terms and Conditions of Tariff) Regulations 2014 and prays before Hon'ble OERC to approve the tariff for energy billing to CSPDCL @ **196.78 paisa/unit for the FY 2017-18.**

#### **6. Determination of Annual Fixed Cost**

Tariff computation is done according to the OERC (Terms and conditions for determination of Generation Tariff) Regulations, 2014 that 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:

- a. Return on equity (ROE)
- b. Interest on loan capital
- c. Depreciation
- d. Operation and Maintenance expenses
- e. 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).

OHPC has considered 30% of additional capitalization in UIHEP as equity base. Further OHPC has considered equity base as 30% of the revalued cost of old power stations as on 01.04.1996 along with additional capitalization from 1996-97 to 2014-15 and audited cost for capitalization of FY 2015-16 for calculation of project cost for FY 2015-16, FY 2016-17 and FY 2017-18. 30% of this additional capitalization is considered as equity base.

Moreover OHPC has considered RoE claim for FY 2015-16 and FY 2016-17 by computing the RoE claim on upvalued project cost of the respective years and then deducting from it the RoE approved for the respective year. Computation of RoE for different power stations id shown in the table below.

**Table – 7: Computation of RoE for different power stations of OHPC for FY 2017-18**

(in Rs. cr.)

Sl. No.	Name of the Power Station	Project Cost	Equity Capital Rate (%)	Value of Equity capital	ROE @16% Proposed for 2017-18	Differential RoE for FY 2016-17 claimed in FY 2017-18	Differential RoE for FY 2015-16 claimed in FY 2017-18	Total RoE claim for FY 2017-18
1.	RHEP	316.43	30	94.928	15.188	12.433	12.432	40.053
2.	UKHEP	326.78	30	98.034	15.685	14.774	14.778	45.238
3.	BHEP	549.88	30	164.963	26.394	16.051	16.051	58.497
4.	HHEP	340.74	30	102.221	16.355	5.956	7.610	29.921
5.	CHEP	277.80	30	83.341	13.335	7.887	8.176	29.398
6.	UIHEP	1198.19	25 & 30	299.785	47.966	0.000	0.000	47.965
<b>Total</b>		<b>3009.81</b>	<b>-</b>	<b>843.272</b>	<b>134.924</b>	<b>57.102</b>	<b>59.047</b>	<b>251.072</b>

OHPC has paid tax of Rs. 40.70 Crs as income tax for FY 2015-16 and prays before the Commission to approve the amount as reimbursement from GRIDCO in line with orders of the honorable commission.

Thus, OHPC has appealed before the Commission to approve Rs. 251.072 Crs. as RoE for FY 2017-18 and reimbursement of income tax paid in FY 2015-16.

**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 – 8: 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. and interest @7% (Rs. 211.61 Crs) repaid
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	

Hon'ble Commission in the Tariff approval of OHPC for the FY 2016-17 has stated as follows:

“.....the Commission allows OHPC to make principal repayment of Rs. 30.23 Cr. against depreciation allowed during FY 2016-17. The commission may consider the interest accumulated on government loan and normative loan of UIHEP in the ARR of OHPC after completion of principal repayment of the govt. loan and normative loan as per our earlier observations.” 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 2016-17.

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 01.04.2017 will be Rs. 311.01 Cr {522.62-(30.23x7)} considering the repayment of Govt. Loan of UIHEP @Rs30.23Cr from FY 2010-11 to FY 2016-17.
- 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 7= Rs 32.27 Cr may be approved and passed through in the ARR of FY 2017-18.
- Considering the pass through of the above differential Depreciation of Rs. 32.27 Cr& Rs34.84Cr as normal repayment of Govt. Loan in the FY 2017-18, a total of Rs 67.11 Cr has to be recovered through ARR of FY 2017-18 under depreciation. **Accordingly, OHPC has considered depreciation of Rs67.11 Cr in the ARR of UIHEP for repayment of the Govt. Loan during the FY 2017-18.**
- Considering Repayment of loan of Rs67.11 Cr the closing balance will reduce to Rs243.9 Cr as on 31.03.2018. **Accordingly, interest on Govt. Loan of UIHEP is calculated as Rs19.4218 Cr. (i.e., 7% on average principal), which has been considered in the tariff for the FY 2017-18.**
- 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 01.04.2017 of UIHEP Govt. Loan is computed as Rs350.57Cr and need to be recovered and paid to the State Govt. **Hence, Hon’ble Commission may kindly designate Rs350.57 Crs as Regulatory Asset and fix suitable installments and allow in the tariff from the FY 2017-18 onwards.**
- Further as per lr. No. 2091 dtd. 11.03.2016 the Govt. of Odisha has suggested OERC to include both payment of interest & repayment of Principal in the ARR of UIHEP. The interest w.e.f FY2006-07 to FY 2016-17 may be kept as Regulatory Assets of OHPC to be paid in future tariff.

**Thus, OHPC prays before the Hon’ble Commission to approve the following in respect of Govt loan of UIHEP in the Tariff for the FY 2017-18.**

**Table –9: Restructured Govt Loan of UIHEP**

1.	Rs 67.11 Crs towards Loan Repayment.
2.	Rs 19.42Crs towards Interest.
3.	Declare the accumulated Interest of Rs 350.57 Crs as on 31.03.2017 on the UIHEP Govt. Loan as the Regulatory Asset.
4.	Pass through of the 1 <sup>st</sup> Installment (to be decided by the Hon’ble Commission) of the above Regulatory Asset in the tariff of 2017-18.

OHPC had considered the loan on the convertible bond of Rs766.2Crore apportioned to different Old power stations of OHPC as shown in table – 10 below based on revalued cost as on 01.04.1996 and has considered the power station wise impact of interest & principal of the convertible bond for FY 2015-16 to FY 2017-18 in the present tariff of FY 2017-18.

**Table: 10:Apportionment of convertible bond cost**

Name of the Power Stations	Revalued cost of assets as on 01.04.96 (in Crs.)	Unit wise percentage sharing of Revalued Cost (in %)	Unit wise apportionment of convertible bond cost (in Crs.)
a	b	c =(b/1196.80)x100	d = (cx766.20)/100
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>

Thus, OHPC prays before the Hon'ble Commission to approve the following in respect of Govt loan of convertible bond in the Tariff for the FY 2017-18.

**Table – 11: Repayment of Principal & Interest on Rs766.2Cr convertible bond**

(Rs. In Crs.)

Sl. No.	Particulars	<i>Repayment of Principal &amp; Interest on Rs766.2Cr convertible bond form FY 2015-16 to FY 2017-18</i>						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	Principal Repayment	33.164	39.432	42.850	16.666	21.128	Nil	153.24
2.	Interest Repayment	33.661	40.023	43.493	16.916	21.445	Nil	155.538

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, Balimelawas 2120999.73 USD as on 01.04.2016 and was repaid during FY 2016-17. So there is no liability towards repayment of interest and principal on PFC loan.

OPHC has incurred loss of Rs. 19.55 Cr due to fluctuation in exchange dollar-rupee exchange rate. Out of Rs. 19.55 Cr, Rs. 5.65 Cr is pending. OHPC prays to the Commission to approve 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 2017-18 based on PFC interest rate applicable to BHEP. Similarly, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2017-18 based on PFC interest rate applicable to HHEP, Burla.

The accumulated interest on UIHEP normative loan calculated upto 31.03.2016 will be Rs 65.24 Crore at the prevailing rate of interest of State Govt. Loan @7% as per the orders of Hon'ble Commission.

**OHPC prays before the Hon'ble Commission to designate the accumulated interest amounting to Rs65.24Crs from the FY 2001-02 to FY 2016-17 on Normative Loan of Rs 53.32 Crs as**

**Regulatory Asset and fix suitable installment as pass through in the tariff for the FY 2017-18 in order to reduce the future tariff burden.**

The interest on outstanding loans payable by OHPC for the FY 2017-18 is given in table –12below:-

**Table-12: (Statement of Outstanding Loans and Interest there on)**

**(Rs. in Crs.)**

<b>Sl. No.</b>	<b>Source of Loan</b>	<b>Loan Outstanding as on 01.04.17</b>	<b>Interest on Average Net Loan for the FY 2017-18</b>
1.	State Govt. Loan of UIHEP @7%	311.01	19.42
2.	Normative loan for R&M of Unit 2, CHEP, Chiplima.	1.79	0.11
3.	Normative Loan for R&M of Unit-3, CHEP, Chiplima @10%.	45.97	4.37
4.	Normative loan for Addl. Capitalization FY 2012-13 to FY 2015-16 of CHEP, Chiplima @ 9.8%	2.05	0.17
5.	Normative loan for Unit #4 & Addl. Capitalization FY 2012-13 to FY 2015-16 of Upper Kolab @ 9.8%	1.88	0.15
6.	Normative loan for Addl. Capitalization FY 2012-13 to FY 2015-16 of Balimela @ 9.6%	1.92	0.16
7.	Normative loan for Addl. Capitalization FY 2012-13 to 2015-16 of HHEP @ 8.75%	9.18	0.71
8.	Normative loan for Addl. Capitalization FY 2013-14 to 2015-16 of RHEP, Rengali @ 9.8%	0.97	0.08
9.	Normative loan for Addl. Capitalization FY 2013-14 and FY 2015-16 of UIHEP, Mukhiguda @ 7%	2.44	0.18
10.	Normative loan of UIHEP, Mukhiguda for Rs 53.32Cr @ 7%	53.32	3.73
11.	Normative loan for Unit -1&2 R&M, Rengali	22.12	2.0
12.	Zero Coupon Bond (Convertible 7% Bond)	766.20	155.539
	<b>Total</b>	<b>1218.84</b>	<b>186.61</b>

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

**Table-13: Interest on loan of different power house of OHPC**

Sl. No.	Source of loan	Interest on loan for FY 2017-18						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	Normative loan	2.082	0.151	0.159	0.706	0.276	3.909	7.282
2.	Loan of R&M CHEP(#3)	-	-	-	-	4.367	-	4.367
3.	Govt. Loan	-	-	-	-	-	19.422	19.422
4.	Convertible Bond for FY 2017-18	10.45	12.42	13.50	5.250	6.66	-	48.271
5.	Convertible Bond for FY 2015-16 & FY 2016-17	23.21	27.60	30.00	11.666	14.79	-	107.268
<b>Total</b>		<b>35.744</b>	<b>40.174</b>	<b>43.652</b>	<b>17.622</b>	<b>26.088</b>	<b>23.331</b>	<b>186.610</b>

(Rs. Cr.)

**Thus OHPC prays before the Hon'ble Commission to approve Rs 186.610Crs in the tariff of OHPC for the FY 2017-18 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.

Honorable Commission at clause no. 4.21 of OERC (Terms and Conditions for determination of generation tariff) Regulations, 2014 has specified for OHPC as follows:

**“Provided that for existing plants of OHPC as per the direction of the High Court of Orissa, depreciation will be calculated at pre-1992 norms notified by Government of India on the book value of the assets.”**

OHPC has computed depreciation for the FY 2017-18 @ 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 2015-16. 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 2016-17 the actual depreciation @ Rs 30.23Cr. has been allowed by Hon'ble 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 7= Rs32.27 Cr is required to be approved and passed through in the ARR of FY2017-18 for necessary payment to the Govt.
- Considering the pass through of the above differential Depreciation of Rs32.27 Cr & Rs34.84Cr as normal repayment of Govt. Loan, a total of Rs. 67.11 Cr has to be recovered through ARR of FY 2017-18 under depreciation for UIHEP.
- Considering Repayment of loan of Rs67.11 Cr the closing balance of UIHEP Govt. Loan will reduce to Rs243.9 Cr as on 01.04.2018. Accordingly, Depreciation of UIHEP is considered as Rs67.11 Cr for the FY 2017-18.

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 to FY 2017-18 as depreciation for the respective power stations for the Tariff calculation of FY 2017-18, assuming 15years repayment period starting from FY 2015-16.

OHPC has calculated the normative loan repayment of different power stations of OHPC as per the terms approved by Honorable OERC.

The comparative statement for actual repayment of loans and depreciation @2.57% for the FY 2017-18 as shown in the Table – 14 below to arrive at the depreciation amount to be claimed in the ARR & Tariff of OHPC for the FY 2017-18.

**Table -14:Depreciation Claim for the FY 2017-18**

(Rs in Crs)

Sl. No.	Power Stations	Project Cost	Loan Repayment Amount	Depreciation @ 2.57%	Depreciation Claimed	Remark
1.	RHEP	316.43	36.84	8.13	36.84	Equal to loan Repayment
2.	UKHEP	326.78	40.11	8.40	40.11	Equal to loan Repayment
3.	BHEP	549.88	43.38	14.13	43.38	Equal to loan Repayment
4.	HHEP	340.74	18.90	8.76	18.90	Equal to loan Repayment
5.	CHEP	277.80	27.77	6.63	27.77	Equal to loan Repayment
6.	UIHEP	1198.19	67.77	30.79	67.77	Equal to loan Repayment
Total		3009.81	234.78	75.65	<b>234.78</b>	

**OHPC parys before Commission to approve Rs. 234.78 Cr towards depreciation for FY 2017-18.**

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

O & M Expenses has been calculated as per the Generation Tariff Regulations, 2014 and escalated @ 5.72 % om previous years approved O&M expenses. On this principle O&M expenses for FY 2016-17 comes to Rs. 316.64 Cr. It has been decided in the tariff Order for FY 2015-16 that the Department of Water Resource share of dam maintenance receivable by OHPC is to be deducted from total O&M expenses of OHPC. Accordingly, Rs. 12.43 Crore has been deducted from approved O&M expenses of UIHEP of Rs. 74.84 Cr. in FY 2016-17. Thus the Commission approved total O&M Expenses at Rs. 315.36 Cr. Subsequently, OHPC has escalated O&M expenses for FY 2016-17 @5.72% to arrive at O&M expenses of different power stations of OHPC for FY 2017-18.

Hon'ble Commission has deducted Rs. 12.43 Crs from O&M expenses of UIHEP Makhiguda on account of dam maintenance expenses receivable from DoWR for the FY 201617. Assuming the same principle OHPC has deducted Rs. 10.97 Cr. from the escalated O&M expenses of UIHEP for FY 2017-18.

Arrear terminal liability of Rs. 78.01 Cr. up to FY 2016-17 has been approved by Commission, consequently, OHPC has not considered arrear terminal liability in O&M expenses of FY 2017-18.

The Station-wise O&M expenses proposed by OHPC for FY 2017-18 is presented in the table – 15 below:

**Table- 15: Statement of O & M Expenses for different power stations of OHPC for FY 2017-18**  
(Rs.in Cr.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	<b>O &amp; M expenses for FY 2016-17 Approved by OERC.</b>	45.36	34.17	65.01	68.71	15.73	228.98	65.72	21.96	316.66
2	<b>O &amp; M expenses for FY 2017-18 with escalation @ 5.72% over FY 2016-17</b>	47.95	36.12	68.73	72.64	16.63	242.08	69.48	23.22	334.77
3	Corporate Office expenses apportioned to different units under OHPC based on Design Energy	2.15	3.40	4.84	2.80	2.00	15.19	8.03	23.22	
4	<b>Total O &amp; M Expenses for the FY 2017-18</b>	<b>50.10</b>	<b>39.53</b>	<b>73.57</b>	<b>75.44</b>	<b>18.63</b>	<b>257.27</b>	<b>77.50</b>		<b>334.77</b>
<b>Less: Amount Received from DoWR.</b>										
5	Less : Income to be received from DOWR towards							<b>(-10.97)</b>		<b>(-10.97)</b>

	dam maintenance of UIHEP								
6	<b>Total O&amp;M Expenses for the FY 2017-18.</b>	<b>50.10</b>	<b>39.53</b>	<b>73.57</b>	<b>75.44</b>	<b>18.63</b>	<b>257.27</b>	<b>66.53</b>	<b>323.80</b>

**OHPC prays before the Commission to approve Rs. 323.80 Cr towards O&M expenses for FY 2017-18.**

**e. 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 MCLR<sup>1</sup> @ 9.2% as on 1<sup>st</sup> April, 2016 plus 300 basis points which turns out to be 12.2%. In accordance with OERC guidelines, the interest on working capital shall be payable on normative basis.

Table -16 below summarizes the station wise interest on working capital as proposed by the OHPC for FY 2017-18.

**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	27.93	28.27	37.63	24.50	17.42	135.76	35.30	171.06
2	Maintenance spares @ 15% of O&M expenses	7.52	5.93	11.04	11.32	2.80	38.59	9.98	48.57
3	O&M expenses for one month	4.18	3.29	6.13	6.29	1.55	21.44	5.54	26.98
4	Total working capital	39.62	37.49	54.80	42.10	21.77	195.79	50.83	246.61
5	Interest on working capital calculated @ 12.20%	<b>4.834</b>	<b>4.574</b>	<b>6.685</b>	<b>5.137</b>	<b>2.656</b>	<b>23.886</b>	<b>6.201</b>	<b>30.087</b>

OHPC has prayed before the Commission to approve Rs. 30.087 Cr. towards interest on working capital for FY 2017-18.

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

<sup>1</sup> Marginal Cost of Funds based Lending Rate (MCLR)

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 5619.24 MU for the FY 2017-18 is shown in the table – 17 below.

**Table-17: Station wise ARR and Tariff for the FY 2017-18 considering saleable D.E. of 5619.24 MU**

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
<b>(Rs. in Crs.)</b>								
Return on Equity	40.053	45.238	58.497	29.921	29.398	203.107	47.965	251.072
Interest on Loan	35.744	40.174	43.652	17.622	26.088	163.279	23.331	186.610
Depreciation	36.845	40.115	43.383	18.898	27.769	167.010	67.775	234.784
O&M Expenses	50.102	39.528	73.567	75.438	18.634	257.269	66.534	323.803
Interest on working capital	4.834	4.574	6.685	5.137	2.656	23.886	6.201	30.087
<b>Total ARR</b>	<b>167.578</b>	<b>169.629</b>	<b>225.784</b>	<b>147.015</b>	<b>104.545</b>	<b>814.551</b>	<b>211.805</b>	<b>1026.356</b>
Average Tariff (p/u)	<b>322.42</b>	<b>205.94</b>	<b>192.79</b>	<b>217.11</b>	<b>215.51</b>	<b>221.53</b>	<b>109.04</b>	<b>182.65</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). Further, the OHPC has incurred Rs. 0.83896 lakhs as against approved Rs. 1 lakh for publication expenses in FY 2016-17. As per above provision, the application fee and publication expenses proposed by OHPC for FY 2017-18 are given in table – 18 below.

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

Sl. No.	Application fee (lakhs)	Publication expenses (lakhs)	Total (lakhs)
1	25.00	1.00	26.00

#### 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. The Rate



of Electricity Duty / Unit have been revised from 20 paisa per Unit to 30 paisa per Unit with effect from 1<sup>st</sup> October 2015 as per the Gazette Notification No. 1387 dtd. 01.01.2015.

OHPC has proposed the ED on Auxiliary consumption of all Hydro Electric Projects to the tune of Rs 0.852 Cr during the FY 2017-18, as shown in the table – 19 below. Hon’ble 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 OERC (fees & charges of state 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. Hon’ble Commission allowed Rs. 1.53Cr. as SLDC charges for the FY2016-17 which is to be collected by SLDC from OHPC. Since OHPC has not received ARR, fees and charges of SLDC for FY 2017-18, OHPC has escalated previous year’s fees and charges @5.72%. Accordingly, OHPC proposes Rs1.62Cr.as fees and charges payable by OHPC to SLDC for the FY 2017-18.

**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 55.068 Paisa/Unit of Orissa drawl of Machhkund power for FY 2017-18 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 2017-18**

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% per year for 2 years	1.1372
	<b>(Rs. in Crs)</b>
1. O&M Exp. (Odisha share of Provisional O&M Exp. For FY 15-16)	11.973
2. O&M Exp for FY 2017-18 with escalation of 6.64% for 2016-17 & 2017-18	13.6156
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	14.4556
5. Tariff (Paise/Kwh)	<b>55.068</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 total loss of Rs. 19.55 Cr (a loss of Rs1.96 Cr. towards payment of interest and Rs17.59 Cr. towards principal repayment) on the PFC loan of BHEP from FY 2007-08 to FY 2016-17. Out of Rs. 19.55 Cr., Commission had approved Rs13.9 Cr for FY 2014-15, 2015-16 and 2016-17. Commission may approve the balance Rs. 5.65 Cr. to be reimbursed from GRIDCO in FY 2017-18.

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

OHPC has paid Rs. 15 lakhs towards contribution to ERPC establishment fund and Rs. 1 lakh towards contribution to ERPC fund. Assuming the same claim of ERPC, OHPC has claimed Rs. 16 lakh as a pass through in the tariff for FY 2017-18 to be reimbursed from GRIDCO.

**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 and the same was approved by the Commission. OHPC assumes that the tentative expenditure of CATP programme during the FY 2017-18 will be within the approved amount of Rs 4.01Cr. So, OHPC does not claim any further reimbursement under the head CATP for the FY 2017-18.

#### 15. Income Tax

OHPC has paid Rs. 40.704 Cr. on operational income of Rs. 117.61 Cr. which is a core business. Thus OHPC prays before the Commission to allow the same to be reimbursed from GRIDCO in the Tariff of OHPC for FY 2016-17 towards income tax as per the audited accounts of FY 2014-15.

#### Details of Reimbursement Cost:

Total reimbursement cost claimed for the FY 2017-18 is given in the table – 22 below.

**Table – 22: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>1.62</b>
(d) Application fees and publication expenses							<b>0.26</b>
(e) Fluctuation loss of PFC Loan of BHEP			5.65				<b>5.65</b>
(f) ERPC charges							<b>0.16</b>
(g) Income Tax as per Audit Account of FY 2015-16							<b>40.704</b>
<b>Total</b>							<b>54.922</b>

OHPC prays before the Commission to approve total reimbursement of RS. 54.922 Crs. Proposed by OHPC. The above expenditure may be included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing for FY 2017-18.

#### 16. Two-Part Tariff

As per clause 4.36 to 4.4 of the OERC (Terms and conditions for determination of Generation Tariff) Regulation 2014, the annual fixed cost of a power station shall be recovered on monthly basis through capacity charge (inclusive of incentives) and energy charge to be shared on 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:

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

i=1

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 to provisions in clause(4.41) of OERC (Terms and Conditions for determination of Generation 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.

Accordingly, annual capacity charges, annual energy charges and energy charge rate of different power stations of OHPC for FY 2017-18 is shown below.

**Table-23: Capacity charge and energy charge of OHPC power stations**

Name of the power stations	Annual Fixed Cost (ARR) (Rs. in Crs)	Annual Capacity Charge (ACC) (Rs. in Crs)	Annual Energy Charge (AEC) (Rs. in Crs)	Salable design energy ( MU )	Energy Charge Rate (ECR) (in p/u)
RHEP	167.578	83.789	83.789	519.75	161.210
UKHEP	169.629	84.814	84.814	823.68	102.970
BHEP	225.784	112.892	112.892	1171.17	96.393
HHEP	147.015	73.508	73.508	677.16	108.553
CHEP	104.545	52.272	52.272	485.10	107.756
UIHEP	211.805	105.903	105.903	1942.38	54.522

#### 17. Normative Plant Availability Factor (NAPAF)

Hon'ble 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-24: Normative Plant Availability Factor**

Power Stations	HHEP	CHEP	BHEP	RHEP	UKHEP	UIHEP
NAPAF (%)	78	75	83	75	87	88

#### 18. Renovation and Modernization (R&M) of OHPC Power Plants

Hon'ble OERC had agreed in principle to carry out the R&M works in three plants vide order dated 31.03.2014. Subsequently tender for the R&M work was floated by OHPC.

Tender for R&M of Unit 3, Chiplima 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 96594, USD 781708 & Rs.44.30 Crores plus taxes and duties prevailing on the base date for evaluation, i.e. 29.07.2014. OHPC has considered revised estimated project cost of Rs. 65.67 Crores considering the price of L1 bidder and including IDC and consultancy charges as was approved by Board of Directors of OHPC in their meeting held on Dt. 29.07.2015.

M/s Bharat Heavy Electrical Limited was found to be successful bidder for R&M of BHEP Balimela. OHPC has considered revised estimated project cost of Rs. 382.91 Crores considering the price of L1 bidder and including IDC and consultancy charges as was approved by the board of governors in meeting dtd. 31.05.2016.

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 prevailing on 29.07.2014. OHPC has considered revised estimated project cost of Rs. 158.77 Crores considering the L1 price and including IDC and consulting charges as approved by the Board of Directors in meeting dtd. 29.07.2015. R,M& U work of unit – 6 of HHEP Burla has started from 16.10.2015 and that of unit – 5 of HHEP Burla has started on 25.10.2016. Since Unit No. 5 & 6 of HHEP are scheduled to be commissioned during April 2018 & February 2018 respectively, the capitalization of R&M expenditure shall be made in the Tariff proposal for the FY 2018-19.

Based upon the outcome of tendering process, the project cost for R&M works of different generating units have been reduced from the estimated project cost as had been determined in the DPR stage and filed (in Case No. 62,67 & 68 of 2013) before OERC for approval. Simultaneously the working schedule and duration of shut down period of individual Units for R&M works have also been changed from the approved duration mentioned in the Order dated 31.03.2014 of the Hon'ble OERC in Case No.62,67 & 68 of OHPC.

The detailed physical and financial profile of the proposed R&M activities are as under after finalization of the contracts with successful bidders.

**Table – 25: Financial profile of proposed R&M activities**

**(Rs. in Lakhs)**

Name of the Project /Unit	Estimated Capital cost of R & M (provisionally proposed in the OERC filing)	Estimated Duration of R & M (provisionally proposed in the OERC filing)	Actual Capital cost of R & M (Derived after finalization of Tender)	Actual Duration of R & M (Derived after finalization of Tender)	Remarks
1	2	3	4	5	6
HHEP (Unit-5&6)	32596 Lakhs	30 months	15877 Lakhs	30 months	Project cost reduced by 16719 Lakhs with the same overall time period.
BHEP (Unit-1 to 6)	66475 Lakhs	54 months	38291 Lakhs	54 months	Project cost reduced by 28184 Lakhs with the same overall time period.
CHEP Unit-3	9650 Lakhs	20 months	6567 Lakhs	20 months	Project cost reduced by 3083 Lakhs with the same overall time period

A revised time schedule of the individual generating units along with reduced project cost are furnished below for kind approval of the Hon'ble OERC.

**Table – 26: Revised Time scheduled alongwith Reduced Project cost of R & M works**

Power station	Unit	Zero Date	Tentative Date of Commercial Operation	Total duration of Shut down for R&M works	Revised Capital Cost of R&M works
CHEP, Chiplima	3	15.10.2015	15.06.2017	20 months	6567 Lakhs
BHEP,	1	05.08.2016	05.02.2019	30 months	38291 Lakhs

Power station	Unit	Zero Date	Tentative Date of Commercial Operation	Total duration of Shut down for R&M works	Revised Capital Cost of R&M works
Balimela	2	*	05.02.2019	*	
	3	05.08.2018	05.02.2020	18 months	
	4	05.08.2018	05.02.2020	18 months	
	5	05.08.2019	05.02.2021	18 months	
	6	05.08.2019	05.02.2021	18 months	
HHEP, Burla	5	25.10.2016	24.04.2018	16 months	15877 Lakhs
	6	16.10.2015	16.02.2018	28 months	

\*N.B- \* The Unit-2 is required to be kept under shutdown during R&M works of Unit-1 as the Surge Tank Gate for Unit No-1 & Unit No-2 is common & the Surge tank gate is required to be lowered for safety doing work. Hence, the Zero date for R&M works of Unit-2 will be intimated after finalization of site mobilization by Contractor i.e. M/s BHEL.

#### 19. Capital Maintenance of Different Power Stations

As per the approval of Hon'ble Commission, OHPC has taken up the capital maintenance of different Units of OHPC 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	Present Status
1.	Unit-1 of HHEP, Burla	18.4.2015	153days	Synchronized to Grid on 14.10.2015 after completion of Capital Maintenance
2.	Unit-1 UKHEP, Bariniput	29.07.2015	181days	Synchronized to Grid on 13.06.2016 after completion of Capital Maintenance
3.	Unit-3 UIHEP, Mukhiguda	23.11.2015	123days	Synchronized to Grid on 01.08.2016 after completion of Capital Maintenance
4.	Unit-2 RHEP, Rengali	Not yet finalized	122days	To be taken up after due planning.
5.	Unit-3 RHEP, Rengali	04.11.2014	46days	Synchronized to Grid on 21.12.2014 after completion of Capital Maintenance
6.	Unit-2 of HHEP, Burla	22.07.2016	198days	Capital Maintenance Under Progress.

OHPC proposes to carry out capital maintenance of Unit – 4 of UKHEP at a cost of Rs. 2.9 Cr.(approx.) within a shutdown period of 185 days. Capital maintenance work of Unit – 4 of UKHEP shall be taken up tentatively from 15<sup>th</sup> March 2017 to 15<sup>th</sup> September 2017 in consultation of with OEM. The zero date for the purpose shall be determined in consultation with SLDC.

## 20. **Augmentation of Storage Capacity of the Surulikonda Barrage**

The Department of Water Resources (DoWR) has submitted a proposal to Department of Energy (DoE) and requested to intimate OHPC to contribute Rs. 24.5 Cr for augmentation of storage capacity of Surulikonda Barrage. OHPC after due consideration has requested Commission to decide whether contribution by OHPC for the purpose should be a pass through in the ARR and tariff of OHPC. If approved, OHPC proposes to recover the same amount from DoWR as reimbursement in the tariff of FY 2018-19.

### **PRAYER**

OHPC prays before the Hon'ble Commission to kindly approve the following in the ARR & Tariff Order of OHPC Power Stations for the FY 2017-18:

1. The ARR of Rs1026.356Cr. at an Average tariff @ 182.65 p/u with a saleable Design Energy of 5588.79MU
2. The miscellaneous reimbursement of Rs. 54.922 Cr by OHPC from GRIDCO.
3. The tariff for energy billing to CSPDCL at Rs. 196.78 paisa/kWh
4. Installed capacity for computation of PAFM and SLDC charges
5. Revise time schedule along with capital cost for taking up R&M works
6. Direct OPTCL to strengthen power system network for evacuation of 50% Odisha share of generation from MHEP (joint) scheme.
7. Direct appropriate authorities for optimization of hydro power generation from OHPC power stations utilizing water potential up to MDDL.
8. In principle approval for the proposed capital maintenance work of Unit – 4 of UKHEP.
9. In principle approval for augmentation of storage capacity of the Surlikonda barrage at a cost of Rs. 24.5 Crs.
10. 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 2016-17 = Rs.350.57 Cr.
  - b) Accumulated interest on Normative Loan of UIHEP from 2001-02 to 2016-17 = Rs.65.24 Cr.
  - c) Realization of Rs. 207.70Cr. towards Hydrology Failure (negative fund for Secondary energy) from FY 1996-97 to FY 2015-16.
  - d) Allowing interest on recognized regulatory assets.

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