

ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN,
UNIT – VIII, BHUBANESWAR – 751 012
*** **

Present: **Shri S.P. Nanda, Chairperson**
 Shri S.P. Swain, Member
 Shri A.K. Das, Member

Case No.52/2015

DATE OF HEARING : **04.02.2016**

DATE OF ORDER : **21.03.2016**

IN THE MATTER OF : **An application for approval of Aggregate Revenue Requirement (ARR) and Generation Tariff of OHPC Stations for the FY 2016-17 under Sections 61, 62, 64 & 86 of the Electricity Act, 2003 read with related provisions of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 and OERC (Conduct of Business) Regulations, 2004.**

ORDER

The Odisha Hydro Power Corporation (OHPC) Ltd. has filed an application before the Commission for determination of Aggregate Revenue Requirement (ARR) and fixation of Generation Tariff for its different power stations for the financial year 2016-17.

PROCEDURAL HISTORY (Para 1 to 7)

1. The OHPC Ltd. is a “Generating Company” under the meaning of Section 2 (28) of the Electricity Act, 2003 (herein after referred as ‘the Act’) delivering power to GRIDCO Ltd. for ultimate use by Distribution Utilities of the State.
2. As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, an application is to be filled by 30th November of each year to the Commission for determination of tariff, for sale of energy in the State of Odisha. Accordingly, on 30.11.2015 OHPC Ltd., as a generating company, had filed the Aggregate Revenue Requirement (ARR) and fixation of generation tariff i.e. Capacity charge and Energy Charge application in respect of each of its generating stations separately before the Commission for the FY 2016-17 in accordance with the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 notified on

10.10.2014. OHPC in its reply to the query of the Commission has also submitted its replies on 06.01.2016.

3. In compliance to the direction of Commission after due scrutiny public notice was given in leading and widely circulated newspapers and the same was also posted in the Commission's website, in order to invite objections/suggestions from the general public. The applicant was also directed to file its rejoinder to the objections/suggestions filed by the objectors. In response to the aforesaid public notice the Commission received seven objections from the following persons / organizations :

(1) Shri Prashanta Kumar Das, President, State Public Interest Protection Council, 204, Sunamoni Apartments, Telenga Bazar, Cuttack-753009, (2) Shri Ramesh Ch. Satpathy, Secretary, National Institute of Indian Labour, Plot No.302(B), Beherasahi, Nayapalli, Bhubaneswar-751012, (3) M/s. Swain & Sons Power Tech Private Limited, Swati Villa, Surya Vihar, Link Road, Cuttack-753012, (4) Shri Ananda Kumar Mohapatra, Power Analyst, S/o.- Jachindranath Mohapatra, Plot No. L-II/68, SRIT Colony, Budharaja, Ps-Ainthapali, Dist-Sambalpur-768004, (5) Shri R. P. Mahapatra, Retd. Chief Engineer & Member (Gen., OSEB, Plot No.775(Pt.), Lane-3, Jayadev Vihar, Bhubaneswar-751013 (6) Chairman-cum-Managing Director GRIDCO Limited, Janapath, Bhubaneswar-22. (7) Shri G.N. Agrawal, Convenor-cum-Gen. Secy, Sambalpur District Consumers Federation, Balaji Mandir Bhawan, Khetrajpur, Sambalpur-768003 were filed their suggestions / objections.

All but 1 & 7 of the above named objectors along with Department of Energy, Government of Odisha were present during tariff hearing. Their written submissions filed before the Commission were taken on record and was also considered. The applicant submitted its reply to issues raised by the various objectors.

4. In exercise of the power under Section 94(3) of the Electricity Act, 2003 and to protect the interest of the consumers, the Commission also appointed World Institute of Sustainable Energy (WISE), Pune as Consumer Counsel for objective analysis of the applicant's Aggregate Revenue Requirement and determination of generation tariff proposal for its different power stations for the financial year 2016-17. The Consumer Counsel presented its independent views during the hearing.

5. The date of hearing was fixed on 04.02.2016 at 11.00 AM and was communicated to the petitioner and objectors including Govt. observing due procedure.
6. In its consultative process, the Commission conducted a public hearing at its premises at Bhubaneswar on 04.02.2016 and heard the Applicant, Objectors, Consumer Counsel and the Representative of the Dept. of Energy, Government of Odisha at length.
7. The Commission also convened the State Advisory Committee (SAC) meeting on 18.02.2016 at 3.30 PM to discuss about the Aggregate Revenue Requirement (ARR) application and generation tariff proposal of the generating company for FY 2016-17. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission. All the above formed the basis for further consideration.

ARR PROPOSAL OF OHPC FOR FY 2016-17 (Para 8 to 30)

Installed Capacity

8. The total installed capacity of the various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) is projected at 2008.5 MW for FY 2015-16, including Odisha's share of Machhkund of 36 MW. The installed capacity of different generating stations as projected 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 with installed capacity of 120 MW as reported by OHPC.

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 (one unit under R & M)
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

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2015-16 (MW)	Installed Capacity for FY 2016-17 (MW)
			period of shut down of Unit-3 under R&M)
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhakund (30% Orissa share of 120 MW)	36.00	36.00
Total Installed Capacity (MW)	2008.5		1974.50 (during R&M of Unit-3 of CHEP, Unit-6 of HHEP)
			1964.50 (during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP)
			1914.50 (during R&M of Unit-3 of CHEP, Unit-6 of HHEP & Unit-1 of BHEP
			1904.50 (during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP & Unit-1 of BHEP)

Design Energy of OHPC Stations

9. The OHPC has appealed to the Commission to reduce the Design Energy of HHEP, Burla & CHEP, Chiplima, as some of the generating stations are unable to generate their Annual Design Energy approved by the Commission due to restrictions and allow more water for irrigation resulting in loss in Revenue to OHPC. Hydrology failure is also responsible for loss in OHPC. Commission had observed in the Tariff Order of OHPC for FY 2014-15 that-

“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 for FY 2016-17 as proposed by OHPC is presented in the following table.

Table -2
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	669.19	662.50
5	CHEP	490.00	485.10	474.05	469.31
Sub Total of Old Power Stations		3714.00	3676.86	3683.24	3646.41
6	UIHEP	1962.00	1942.38	1962.00	1942.38
Total		5676.00	5619.24	5645.24	5588.79

Reservoir Level and Anticipated Generation for FY 2016-17

10. 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 – 3
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 by OHPC 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 01.04.15 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

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
4.	HHEP	414.50	114.72	529.22
5.	CHEP	188.26	83.76	272.02
6.	UIHEP	1392.82	303.72	1696.54
Total		3458.58	1197.00	4655.58

11. 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 Order of the Commission. The present deficit of the secondary energy fund of OHPC as a whole is about Rs.145.62 Cr.. The total anticipated generation of OHPC for the present FY 2015-16 is 4655.58 MU which will fall short by 1020.42 MU from the approved D.E of **5676 MU**. The shortfall in generation in the present FY will give rise to further deficit in the secondary Energy Fund.

Project Cost

12. The re-valued cost of old power stations under OHPC is Rs.1196.80 Cr. as on 01.04.1996 as per the notification no 5207 dtd. 01.04.1996 of Department of Energy, Government of Orissa and approved by the Commission in its Order dated 23.03.2006 at clause no. 5.4 (C). The approved final capital cost of UIHEP as per the order of Commission dated 20.03.2008 is Rs.1195.42 Cr. However, the Tariff of Old power stations was determined on the historical cost of old power station of OHPC for Rs.479.80 Cr. as per the Notification No. 1068 Dtd. 29.01.2003 of DoE, GoO.
13. The additional capitalization for an amount of Rs.4.61 Cr. as per the audited account for FY 2014-15 has been considered for 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 de-capitalization 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 de-capitalization of Rs.0.07 Cr. in case of UKHEP & Rs.0.86 Cr. in case of UIHEP for FY 2014-15. The revalued cost as on 31.3.2015 is shown in the table-7 below. Hence the total de-capitalization of Power Stations during the FY 2011-12 to FY 2014-15 comes to Rs.8.06 Cr. which has been deducted from the original Revalued Cost as on

01.4.1996. The project cost of OHPC power stations claimed for computation of ARR & tariff for the FY 2016-17 is given in the table below:

Table-5
Proposed Project Cost for tariff Calculation for FY 2016-17

(Rs. Cr.)							
Sl. No.	Name of the power stations	Re-valued 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 for Tariff calculation based on re-valued 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
Sub Total		1196.80	7.19	541.26	3.57	544.83	1734.43
6.	UIHEP		0.86	1197.36	1.19	1198.55	1197.69
7	Total	1196.80	8.06	1738.62	4.76	1743.38	2932.13

Withdrawal of State Government Support in the Electricity Generation Tariff

14. OHPC has informed 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 and in the FY 2015-16 as per Notification No. 5843 dtd 03.7.2015 of the Dept. of Energy, Govt. of Odisha.

The Dept. of Energy, Govt. of Odisha vide Notification No. 5843 dtd. 03.7.2015, the extract which is given below had confirmed the above amendment of SRO No. 256 dated 01.04.1996 made initially through the Office Order No. 3060 dtd. 31.3.2015 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 to be 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:

Govt. Loan (Revised figure)	=	Rs 522.62Cr.
PFC Loan	=	Rs 320.00 Cr. (Repaid Fully)
Equity (Revised figure)	=	Rs 298.85 Cr
<u>Normative Loan (Balancing Figure)</u>	<u>=</u>	<u>Rs 53.32 Cr</u>
Total	=	Rs 1194.79Cr

(Approved Project Cost of OERC)

OHPC has considered Rs 62.50 Cr towards repayment of the UIHEP Govt. Loan in the calculation of Tariff & ARR for FY 2016-17. Loan of UIHEP is calculated as Rs.21.70 Cr. (i.e, 7% on average principal), which has been considered in the tariff for the FY 2016-17. The accumulated interest of Rs.327.74 Cr from FY 2006-07 to FY 2015-16 is proposed to be considered as Regulatory Asset.

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 plans to make payment to the GoO @7% interest on the Convertible Bond to 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 - 6
Power Station-wise apportionment of Loan on account of Convertible Bond
(Rs. Cr.)

Name of the Power Stations	Re-valued cost of assets as on 01.04.96 (Rs. Cr.)	Unit wise percentage sharing of Re-valued Cost (in %)	Unit wise apportionment of convertible bond cost (Rs. Cr.)
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
Total	1196.80	100	766.2

Further, the Chhattisgarh State Power Distribution Company Limited (CSPDCL) is requesting to pay the energy charges to OHPC at the average tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and as determined by the Commission, considering the supports 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 @ Rs.1.97 paisa/unit. But 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 the Commission to approve the tariff for energy billing to CSPDCL @ 197.46 paisa/unit for the FY 2016-17.

Annual Fixed Cost

15. According to the OERC (Terms and conditions for determination of Generation Tariff) Regulations, 2014 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 said regulations the Return on Equity shall be computed @16% of the equity amount with income tax passed on to the beneficiaries. (income tax on other income streams shall not be considered)

Table –7
Computation of RoE for different power stations of OHPC for FY 2016-17
(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
Total		2932.13		820.051	131.208

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. Cr.)

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 order of OHPC for the FY 2015-16 has stated as follows:

“OHPC is required to make Principal repayment of Rs.30.23 Cr. 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. 78.23 Cr. and Normative loan.” 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 with the Govt. Notification No. 5843 dtd. 03.07.2015 as follows:

- The State Govt. investment as loan changed from Rs.497.68 Cr. to Rs.522.62 Cr. through the above amendment Notification.
- The repayment period is considered as 15 years starting from FY 2010-11. The annual instalment of repayment of UIHEP Govt. Loan has been considered as annual Depreciation @ Rs.34.84 Cr (522.62/ 15).
- The opening balance of the loan as on 01.04.2016 will be Rs.341.24 Cr {522.62- (30.23x5)} considering the repayment of Govt. Loan of UIHEP @Rs.30.23 Cr from FY 2010-11 to FY 2015-16.
- Since the differential Depreciation of Rs.34.84 Cr minus Rs. 30.23 Cr = Rs.4.61 Cr has not been considered in the previous Tariff orders, a total of Rs.4.61 Cr x 6= Rs.27.66 Cr may be approved and passed through in the ARR of FY 2016-17.
- Considering the pass through of the above differential Depreciation of Rs.27.66 Cr & Rs.34.84 Cr as normal repayment of Govt. Loan in the FY 2016-17, a total of Rs.62.50 Cr has to be recovered through ARR of FY 2016-17 under depreciation. Accordingly OHPC has considered depreciation of Rs 62.50 Cr in the ARR of UIHEP for repayment of the Govt. Loan during the FY 2016-17.
- Considering Repayment of loan of Rs. 62.50 Cr 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. 21.699 Cr. (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 Cr and need to be recovered and paid to the State Govt. Hence, the Commission may kindly designate Rs.327.74 Cr as Regulatory Asset and fix suitable instalments 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 –9
Restructured Govt Loan of UIHEP

1.	Rs. 62.50 Cr towards Loan Repayment.
2.	Rs. 21.699 Cr towards Interest.
3.	Accumulated Interest of Rs. 327.74 Cr as on 31.03.2016 on the UIHEP Govt. Loan as the Regulatory Asset.
4.	Pass through of the 1 st Instalment (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 Rs.766.2 Cr. apportioned to different Old power stations of OHPC as shown in the table below based on re-valued 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 & FY 2016-17 in the present tariff of 2016-17.

Table - 10
Apportionment of convertible bond cost

Name of the Power Stations	Re-valued cost of assets as on 01.04.96 (Rs. Cr.)	Unit-wise percentage sharing of Re-valued Cost (in %)	Unit-wise apportionment of convertible bond cost (Rs. Cr.)
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
Total	1196.80	100	766.2

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

Table -11
Repayment of Principal & Interest on Rs.766.2 Cr convertible bond for FY 2016-17
(Rs. Cr.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
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 Cr 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. 61.50 Cr at the prevailing rate of interest of State Govt. Loan @7%.

OHPC prays before the Commission to designate the accumulated interest amounting to Rs. 61.50 Cr from the FY 2001-02 to FY 2015-16 on Normative Loan of Rs 53.32 Cr as Regulatory Asset and fix suitable instalment 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 (Rs. Cr.)

Sl. No.	Source of Loan	Loan Outstanding as on 01.04.16	Int. on Average Net Loan for the FY 2016-17
1.	PFC loan for Balimela #7 & #8 @9.6%	2120999.87 USD (App.Rs.13.81Cr)	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
	Total	1223.52	134.49

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. Cr.)								
Sl. No.	Source of loan	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	PFC loan	-	-	0.717	-	-	-	0.717
2.	Normative loan	2.428	0.281	0.398	0.197	0.530	3.911	7.744
3.	Govt. Loan	-	-	-	-	-	21.699	21.699
4.	Convertible Bond	22.441	26.682	28.995	11.277	14.297	0.00	103.692
5.	G.C.	-	-	0.64		-	-	0.64
	Total	24.869	26.963	30.750	11.474	14.827	25.610	134.493

Note: GC stands for Guarantee Commission

Thus OHPC prays before the Commission to approve Rs.134.493 Cr. in the tariff of OHPC for the FY 2016-17 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

OHPC has computed depreciation for the FY 2016-17 @ 2.57% on the Re-valued 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 considered as shown below:

- The State Govt. investment as loan changed from Rs.497.68 Cr. to Rs.522.62 Cr. 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 @ Rs.34.84 Cr. (522.62/ 15) from FY 2010-11. But, from the FY 2010-11 to FY 2015-16 the actual depreciation @ Rs.30.23 Cr. has been allowed by Commission on UIHEP, Govt. Loan.
- Since the differential Depreciation of Rs.34.84 Cr. minus Rs.30.23 Cr. = Rs.4.61 Cr. has not been considered in the previous Tariff orders, thus a total of Rs.4.61 Cr. x 6 = Rs.27.66 Cr. is required to be approved and passed through in the ARR of FY 2016-17 for necessary payment to the Govt.
- Considering the pass through of the above differential Depreciation of Rs.27.66 Cr. & Rs.34.84 Cr. as normal repayment of Govt. Loan a total of Rs.62.50 Cr. has to be recovered through ARR of FY 2016-17 under depreciation for UIHEP.
- Considering Repayment of loan of Rs.62.50 Cr 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 Rs.62.50 Cr 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 15 years 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. Cr)

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	189.26	

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

The Commission in the Tariff order 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 while computing 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.11.15 Cr. & 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 Commission has deducted an amount of Rs.10.00 Cr 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 Rs.10.00 Cr. 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. Cr.)

Sl. No.	Particulars	RHEP	UKHEP	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 Energy	2.03	3.22	4.58	2.65	1.90	14.37	7.59	21.96	

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
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
Add: Arrear salary and terminal liabilities										
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	Total O&M Expenses for the FY 2016-17 including terminal liabilities	48.56	38.59	73.87	73.38	18.65	252.95	64.84		317.79

e. Interest on Working Capital

As per OERC 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 1st 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-16 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. Cr.)									
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%	4.04	3.62	6.17	4.77	1.89	20.50	6.47	26.97

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 are 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

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	662.50	469.31	3646.41	1942.38	5588.79
(Rs. Cr)								
Return on Equity	15.181	15.680	26.343	15.888	10.160	83.253	47.955	131.208

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
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
Total ARR	118.41	113.26	181.26	117.39	61.489	591.810	207.91	799.724
Average Tariff (p/u)	227.82	137.50	154.77	177.20	131.02	162.30	107.04	143.09

Application Fee and Publication Expenses

16. 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)
1	25.00	1.00	26.00

Electricity Duty on Auxiliary Consumption

17. 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. The Rate of Electricity Duty / Unit have been revised from 20 paisa per Unit to 30 paisa per Unit with effect from 1st 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. The Commission may approve the same.

Table-19
ED on Auxiliary Consumption

								(Rs. Cr)
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

License Fee for Use of Water for Generation of Electricity

18. As per the gazette Notification dtd. 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 Cr. 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. Cr.)
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.

SLDC Charges

19. Commission allowed Rs.1.80 Cr. as SLDC charges for the FY 2015-16 to be paid to SLDC by 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.

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

20. 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 Paisa/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. Cr)
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)	47.92
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.	

Foreign Exchange Fluctuation Loss of PFC Loan of BHEP

21. 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 from 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.

Reimbursement of Contribution made to ERPC

22. 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		123.46	Claimed as reimbursement for FY 2016-17.

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

23. In the first meeting of High Power Committee on Catchment Area Treatment Plan on 7th 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. 0.402 Cr 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 Cr. from GRIDCO in the FY 2015-16, payment made till date is Rs.2.4368 Cr. OHPC assumes that the tentative expenditure of CATP programme during the FY 2016-17 will be within the approved amount of Rs.4.01 Cr. So, OHPC does not claim any further reimbursement under the head CATP for the FY 2016-17.

Income Tax

24. The Commission in tariff order for 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 Cr. towards income tax FY 2014-15. OHPC has claimed the same amount for FY 2016-17.

Details of Reimbursement Cost:

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

Table – 23
Details of Reimbursement Claim (Rs. Cr)

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

Two-Part Tariff

26. 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) = $AFC \times 0.5 \times NDM/NDY \times (PAFM/NAPAF)$ 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:

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

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_i = Declared Capacity (in ex-bus MW) for the ith 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.

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

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

Name of the power stations	Annual Fixed Cost (ARR) (Rs. Cr)	Annual Capacity Charge (ACC) (Rs. Cr)	Annual Energy Charge (AEC) (Rs. Cr)	Salable design energy (MU)	Energy Charge Rate (ECR) (in p/u)
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

Normative Plant Availability Factor (NAPAF)

27. The Commission in the Tariff order of OHPC dtd. 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

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

Renovation and Modernization of OHPC Power Plants

28. OHPC, on “Renovation and Modernization of OHPC Power Plants” queried by Commission vide letter No. 1412 dtd. 13.11.2015 of the Secretary, OERC submitted the following.

The Commission had agreed in principle the proposal of OHPC to carry out the R&M works in three plants. Tender was floated with provision for 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 Cr. plus taxes and duties. The revised estimated project cost of Rs. 65.67 Cr. 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 29.07.2015.

Tender for R&M of units 1 to 6 of BHEP, Balimela is 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 Cr. plus taxes and duties. The revised estimated project cost of Rs.158.77 Cr considering the price of L1 bidder and including IDC and consultancy charges is approved by Board of Directors OHPC in their meeting held on 29.07.2015. The contract for the project was signed between OHPC Ltd. and M/s. Voith Hydro Pvt. Ltd on 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 **15-10-2015 & 16-10-2015** respectively. The completion period for the R&M Projects of CHEP, HHEP have been scheduled in **20 months & 30 months** respectively from the effective date of contract.

Investment and Funding Pattern

29. The physical and financial profiles of the above proposed R&M activities as per tenders received and revised are given below:

Table-26
Estimated & Revised Project Cost

(Rs. Lakhs)			
Name of the Unit	Name of the Project	Capital cost of R & M	Revised Capital cost
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 - 1 to 6)	Design, Manufacturing, supply, Erection, Testing & Commissioning of 2 sets of new Turbine & Generator.	66475	Tendering in process
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 all the enlisted banks including NABARD, REC/PFC and the offers were evaluated by the evaluation committee. The Board based on the recommendation of the 79th 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 Cr. with interest as per Base Rate (at present 10.00% p.a) from PNB (iii) to avail loan up to Rs.50 Cr 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

30. As per the approval of 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	153 days	Synchronized to Grid on 14.10.2015
2.	Unit-1 UKHEP, Bariniput	29.07.2015	181 days	Under Capital Maintenance
3.	Unit-3 UIHEP, Mukhiguda	23.11.2015	123 days	Under Capital Maintenance
4.	Unit-2 RHEP, Rengali	Not yet finalized	122 days	
5.	Unit-3 RHEP, Rengali	Not yet finalized	46 days	
6.	Unit-2 of HHEP, Burla	15.12.2015 (Tentative)	198 days	

PRAYER

OHPC prays to approve the following in the ARR & Tariff Order of OHPC Power Stations for the FY 2016-17:

- The ARR of Rs 799.724 Cr at an Average tariff @ 143.09 p/u with a saleable Design Energy of 5588.79 MU
- The miscellaneous reimbursement of Rs. 44.7226 Cr by OHPC from GRIDCO.

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

VIEWS OF THE OBJECTORS (Para 31 to 40)

Functioning and due R&M activity of HEPs

31. One objector submitted that in spite of huge funds spend for R&M, up-gradation and modernization of OHPC power stations, the performance has not improved instead it has shown downward trend.

Hydrology failure and Silting

32. Some objectors have opined that compensation claim made by OHPC towards hydrology failure should not be allowed by the Commission. Silting of Hirakud dam reservoir needs immediate attention as it is a threat to irrigation and power generation.

Design Energy vs. Actual Generation of OHPC Stations

33. One objector submitted that the calculation of design energy should be based on design energy and not on estimated energy generation during 2016-17. The MDDL of Hirakud reservoir considered by OHPC as 595 ft in place of 590 ft which may not be

allowed. The Commission may add 32.4 MU to the data submitted by OHPC towards generation of Hirakud while determining the ARR and Tariff.

34. One of the objectors submitted that the design energy projected by OHPC in the ARR of FY 2014-15, 2015-16 and 2016-17 was at a very low level and not in accordance with CERC Regulations. Moreover, design energy calculations are not provided in the ARR application of OHPC. Necessary investigation by independent experts is required. Another submission was fixation of design energy at low level than the actual calculation which implies promotion of inefficiency and corruption in the system. The actual energy generation of OHPC power stations during the years 2008-09, 2007-08, 2006-07, 2004-05, 2003-04 and 2001-02 was more than the design energy.

O & M Expenses

35. The O&M expenditure for Machhkund HEP with proposed escalation of 6.64% for FY 2015-16 and FY 2016-17 shall not be allowed by the Commission since the tariff for this project is calculated on cost reimbursement basis. The Commission may specify norms for O&M expenses of OHPC. Another objector stated that OHPC should produce statement of expenditure made on O&M of all power stations as well as receipts from the industries availing water from reservoirs.

Development of New Hydro Projects

36. OHPC and Govt of Odisha need to initiate expeditious action for installation of new Units 5 & 6 of Hirakud HEP using upgraded technology. Another objector has submitted that OHPC should take up construction of new hydro power station with Govt of Odisha and should furnish status in this regard.

ARR Exercise

37. OHPC is investing in equity of two companies namely OTPCL and GEDCOL. Any loss incurred should not be taken into ARR of OHPC.
38. The generation tariff of OHPC stations should be determined as per the provisions under OERC (Terms and Conditions of Determination of Generation Tariff) Regulations, 2014 and not as per CERC (Terms and Conditions of Tariff) Regulations, 2014. Average Tariff proposed by OHPC at 143.09 p/u for FY 2016-17 is unusually high compared to approved tariff of previous year.

NAPAF

39. Against National benchmark of 90% NAPAF (Normative Annual Plant Availability Factor) of hydro power stations as per CERC Regulations 2009, the NAPAF of OHPC hydro stations are shown very low. This need to be investigated through independent experts.

Other Issues:

40. OHPC's claim for ERPC for FY 2016-17 shall not be allowed by the Commission. The Hirakud reservoir is managed by the Dept of Water Resources and therefore OHPC should not recover the charges for drawl of water by industries. One objector submitted that OHPC should furnish details of manpower planning at all power projects including list of engineers, their qualification and experience, at the time of hearing. The return on equity shall be post-tax basis with the recovery of income tax from the beneficiaries.

REJOINDER OF OHPC TO QUERIES RAISED DURING HEARING (Para 41 to 57)

41. The rejoinder by OHPC to the suggestions / objections raised by the objectors as well as the reply to the queries raised during the hearing are summarized below:

R&M activities of HEPs

42. OHPC has taken up the Renovation Modernization work of Unit-3 of CHEP, Chiplima amounting to Rs.65.67 Cr which is likely to be completed by 15.06.2017. OHPC has also taken up the RM&U of Unit-5 & 6 of HHEP, Burla amounting to Rs.158.77 Cr which is likely to be completed by 16.04.2018. Besides this, OHPC is also shortly finalizing the R&M bid of Unit-1 to 6 BHEP, Balimela with an estimated cost of Rs. 664.75 Cr. These R&M works of different power stations of OHPC will be completed in a phased manner between FY 2017-18 and FY 2020-21. Besides this, OHPC has taken the Capital Maintenance works of different Units of UKHEP, UIHEP, RHEP & HHEP after due approval of the Commission. Thus, OHPC has been trying its best to carry out the maintenance work of different units under Capital Maintenance/ Renovation and Modernization to increase their life, reliability & efficiency for maximum availability with prior approval of the Commission. The reason for low generation from OHPC power stations can be attributed to the hydrology failure and not to the poor R&M work. Further the water available in a

carry- over reservoir is very often carried over to the next year due to uncertainty and irregular pattern of rainfall. This affects the actual generation in a particular year.

Compensation for Hydrology failure & Silting

43. The compensation claimed by OHPC for an amount of Rs.145.62 Cr. (approximately) for the period from FY 1996-97 to FY 2014-15 is only for non recovery of Energy Charges due to non- availability of water in the reservoirs during the years of Hydrology failure and does not include any claim for shortfall in recovery of Capacity Charges. OHPC has updated the Status of Secondary Energy Fund from the FY 1996-97 to FY 2014-15 which has a deficit of Rs.145.62 Cr. approximately. OHPC has prayed the Commission to consider it as regulatory asset and requested for realization of the same. The contention of GRIDCO that OHPC is recovering the total annual fixed charges based only on availability of machines is not correct. As per the direction of the Commission the recovery of Annual Fixed Cost of OHPC comprises of Capacity Charges & Energy Charges on 50:50 basis. Accordingly 50% of the AFC is recovered through energy charges only when the design energy is achieved and sold.
44. The industries drawing water from reservoirs of hydro electric project is to enter into a supplementary agreement with OHPC. The DoWR is to issue Administrative Order to industries in this regard. In spite of such administrative order of the DoWR the industries are not signing supplementary agreement with OHPC. The matter is sub-judice before Hon'ble Orissa High Court. The compensation once received from the industries for their drawal of water from reservoirs shall be deposited in secondary energy fund which runs with a deficit of Rs.145.62 Cr. The amount so far received from some industries is kept in a separate fund since the matter is sub-judice as per the advice of CAG.
45. Regarding removal of silt & proper maintenance of reservoirs in order to increase the live storage capacity of the reservoir, the Department of Water Resources (DOWR) shall create a corpus fund, to be utilized for removal of shoals/silt etc. from the reservoirs through periodical dredging as directed by Hon'ble High Court of Odisha vide WPC No-8409 of 2012 at para 24. Accordingly, the Govt. of Odisha in the DoWR is initiating necessary action in this regard.

Design Energy vs. Actual Generation of OHPC Stations

46. The minimum water level of 595 ft. is required for creating a driving head to push water through the canal network of Hirakud reservoir against the draw down level of 590 ft. It is decided in a meeting 03.07.2012 that DoWR shall issue necessary circular/ letter to OHPC for maintaining minimum RL at 595ft. OHPC will revise the Design Energy of Hirakud and Chiplima Power House and inform accordingly to OERC. In view of the above restriction in generation from Hirakud Reservoir, OHPC has proposed a reduction of 14.81 MU from the design energy of HHEP and 15.95 MU from the design energy of CHEP, Chiplima.

As per Power Purchase Agreement of all the individual power stations of OHPC executed between GRIDCO & OHPC and duly vetted by the Commission has the following provision,

“Any statutory order issued by the Govt. of Odisha duly endorsed by the Commission shall be binding on both parties and the provisions of the PPA shall be interpreted accordingly”.

47. The design energy of a hydro electric project is a basic design criteria which is calculated prior to the project inception considering statistical data of rainfall over the catchment and gross total inflow from all source and generator-turbine capacities.

So, actual generation from a hydroelectric project depend on the rainfall pattern, availability of water in the reservoir & machines for generation, demand of the state. Further the water available in a carryover reservoir is very often carried over to the next year due to uncertainty and irregular pattern of rainfall which affects the actual generation in a particular year. Therefore there is always a mismatch between actual generation & design energy.

Anticipated Generation of FY 2015-16 & Estimated Energy Generation for FY 2016-17:

48. The actual generation of different Power Stations under OHPC from 01.04.2015 up to 18.01.2016 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 is furnished below:

Table – 28

Sl. No.	Name of the power stations	Actual generation from 01.04.15 up to 18.01.16 (MU)	Anticipated generation from 19.01.16 to 31.03.16 based on DoWR & DoE Schedule	Total Anticipated generation for the FY 2015-16 based on DoWR & DoE Schedule
1.	RHEP	564.70	60.72	625.42
2.	UKHEP	523.96	162.00	685.96
3.	BHEP	513.41	137.88	651.29
4.	HHEP	427.28	46.32	473.60
5.	CHEP	197.56	30.36	227.92
6.	UIHEP	1468.11	186.48	1654.59
Total		3695.02	623.76	4318.78

Thus in the FY 2015-16 there will be a shortfall in Generation by 1300 MU (approx.) due to the Hydrology Failure.

The rainfall during FY 2016-17 cannot be predicted at this stage and in the past OHPC has observed that, Generation beyond the Design Energy has never happened consecutively for a period of 3 years. Since the approved Design Energy of OHPC Power Stations is considered for tariff determination for the ensuing FY 2016-17 as per the Regulatory provisions, accordingly, OHPC has considered the approved D.E for all its power stations except HHEP & CHEP for the reasons cited above. Thus, OHPC have judiciously considered and submitted the Saleable Design Energy of 5588.79 MU for calculation of Tariff for the FY 2016-17.

49. OHPC had received clarification of revision of rule curve of Hirakud Reservoir vide Lr. No. 277 Dtd. 18.11.2014 from Chief Engineer & Basin Manager, Upper Mahanadi Basin, Burla for generation of electricity below 595ft. which had been submitted before the Commission. According to DoWR 0.233M.Ac.ft. of water between RL 595ft to RL 590ft can be utilized for power generation of only 31 MU only out of which HHEP will generate 14.81 MU and CHEP will generate 15.95 MU. OHPC prays before the Commission to approve the Design Energy of 669.19 MU & 474.05 MU for HHEP, Burla and CHEP, Chiplima respectively.
50. Regarding OHPC's co-ordination with DoWR for optimum generation from its Hydro Units considering all eventuality, this is to intimate that Irrigation & Flood control are the priorities of the State Govt. in the DoWR. So the hydro generation from OHPC units are always decided 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.

O&M Expenses

51. A comparative statement on Actual O&M Expenses of OHPC against the Approved O&M Expense is shown in the Table below:

Table – 29
O&M Expenses

(Rs. Cr.)			
Sl. No.	Financial Year	O&M approved in ARR	Actual O & M Expenditure
1	2010-11	208.92	212.07
2	2011-12	210.97	224.69
3	2012-13	221.18	249.95
4	2013-14	216.67	233.62
5	2014-15	294.46	254.87

Since MHEP (Jt.) Scheme is an inter-state project, OHPC has considered the O&M escalation rate of 6.64% as per CERC norms. However, the Commission may take a suitable decision on the matter while approving the Tariff of OHPC for FY 2016-17.

Development of New Hydro Projects

52. OHPC will consider for development of large hydro project only after decision on construction of multipurpose dam is taken by DoWR as it involves flood control, irrigation, submergence of villages with R&R, forest and environment issues.

Determination of ARR

53. The norms adopted by OERC in determining the ARR & Tariff of OHPC Power Stations for the FY 2015-16 have been considered by the OHPC for computation of ARR & Tariff for FY 2016-17. The effect of the State Govt. decision in Dept. of Energy vide Notification No.5843 dtd.03.07.2015 regarding principal & interest repayment on Restructured Govt. investment at UIHEP, Convertible Bond issued by OHPC for Rs.766.20 Cr. converted to loan and RoE on Rs 300 Cr relating to Old Power Stations effective from the FY 2015-16, have been considered for calculation of ARR & Tariff of OHPC Power Stations for FY 2016-17.

NAPAF

54. The statement of the objector that, “the NAPAF of OHPC power stations are shown very less, resulting less estimation of Design Energy and sale of power” is incorrect, since in case of Hydro power stations in two part tariff regime NAPAF is fixed for recovery of Capacity Charges (i.e.50% of ARR) considering the availability of the Machines but not meant for estimation of Design Energy & Sale of power.

ERPC

55. The Commission at clause no.138 of the final tariff order of OHPC for the FY 2015-16 has observed as follows:

“The Commission does not approve the reimbursement claim of OHPC for the period from FY 2006-07 to FY 2013-14 at present and only approves Rs.0.16 Cr. contribution to ERPC for the FY 2015-16.”

Thus, the Commission had not disapproved the OHPC claim of reimbursement of the contribution made to ERPC fund for the period FY 2006-07 to FY 2013-14 but had deferred the same. Further, both OHPC & GRIDCO have agreed at Clause No. 11.5.2(Levies, Taxes, Duties etc.) of the long term PPA that any payment made to the Statutory Bodies/ Authorities of Electricity shall be reimbursed by GRIDCO.

Income Tax

56. There would be heavy impact as advance tax in each quarter is to be paid irrespective of payment received from GRIDCO. The Commission may consider the suggestion and direct GRIDCO to reimburse the quarterly advance tax, on receipt of deposited challan copies from OHPC.

But at present, OHPC is getting the reimbursement of Income Tax paid in FY 2014-15 in FY 2016-17 after a gap of two years which leads to loss of interest for the above period. Further, it may be noted that OHPC is now making normal income tax payment instead of minimum alternate tax (MAT) since 2014-15.

Joint Ventures

57. OHPC has formed joint venture companies with OTPCL, BWCL, and OCPL. The details of expenditure may be collected from these companies directly. However, the Investment made by OHPC till December 2015 in these JV companies is furnished below.

OTPCl	:	Rs.114.2047 Cr.
BWCL	:	Rs.10 Cr.
OCPL	:	Rs.0.0245 Cr.

VIEWS OF CONSUMER COUNSEL (Para 58)

58. On behalf of WISE, Pune the Consumer Counsel made a presentation on the Analysis of ARR and tariff filing of OHPC for FY 2016-17. The Consumer Counsel's observations/suggestions are elaborated below.

- (i) Comparative analysis of ARR approved by the Commission for FY 2015-16 to that of the proposed ARR for FY 2016-17 reveals that the ARR is proposed to be increased by 73.20%.
- (ii) OHPC has proposed a slight reduction in Design Energy for FY 2016-17 to 5588.79 MU from approved Design Energy of 5619.24 MU for FY 2015-16. This proposal for reduction in Design Energy should be scrutinized before approval of Design Energy for FY 2016-17.
- (iii) 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. Further, RoE on equity base as calculated on the value of new capital addition only may be considered in the ARR.
- (iv) The consumer counsel noted that the OHPC has claimed interest on normative loan for its various power stations. Normative loans are notional loans and thus the consumer counsel requests the commission to defer some of the loans to reduce OHPC tariff. Designation of accumulated interest as regulatory asset and pass the same on tariff may not be allowed.
- (v) The consumer counsel requested the Commission that as per revised norms, capital cost has been considered as depreciation. The loan repayment approved by Hon Commission should be allowed as depreciation.
- (vi) The consumer counsel noted that 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 and Normative loan.
- (vii) OHPC has claimed expenses on O&M following clause no. 4.28 of the OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014.

Commission had calculated the O&M expenses as per the new generation tariff Regulations, 2014 and escalation @5.72% may be allowed on the previous years (FY 2015 -16) approved O&M expenses.

OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC)

59. The Commission convened the State Advisory Committee (SAC) meeting on 18.02.2016. The Members of SAC deliberated on different issues related to power sector and the Annual Revenue Requirement of various licensees. However, no specific view was offered relating to Annual Revenue Requirement and Tariff filing of OHPC.

VIEWS OF GOVT. OF ODISHA

60. Govt. of Odisha communicated its suggestions/views/comments on various issues involving tariff setting for the year 2016-17 including subsidy / subvention and other important matters having a direct bearing on fixation of tariff for the year 2016-17 vide their letter No.2091 dated 11.03.2016.

x x x x x x **3. *Keeping in abeyance of Up-valuation, Moratorium of Debt Service etc:***

The issue of up-valuation does not figure in case of GRIDCO which does not own any assets. However regarding the issue of up-valuation of assets pertaining to OPTCL, the Government for the time being agrees with the views of the Commission to keep in abeyance the up-valuation of assets, such a benefit cannot go indefinitely. However, considering the present difficult situation, the Govt. agrees to extend the status-quo on up-valuation till 2016-17.

As regards to assets, OHPC has considered the effect of convertible bond worth of Rs.766.20 crores in line with Deptt. of Energy, Govt. of Odisha Notification No.5843 dtd. 03.07.2015 wherein it has been mentioned to treat the entire amount of Rs.766.20 crore as loan bearing interest @7% w.e.f. 2015-16.

As stated by OHPC, they have considered the interest impact along with loan repayment for the financial year 2015-16 and 2016-17 with a repayment period of 15 years starting from the financial year 2015-16. Therefore the interest along with principal repayment of the convertible bond in respect of different old power stations as submitted by OHPC in its ARR for the FY 2016-17 should be considered.

Regarding moratorium of debt services of OHPC, it can be stated that moratorium of debt service have been allowed by Govt. for both repayment of loan and payment of interest for UIHEP Govt. Loan. The State Govt. vide notification dtd. 06.01.2010 is of the view that, the State Govt. investment actually made in Upper Indravati Project, excluding the normative equity, should yield return to the State Govt. w.e.f. FY 2010-11 after clearance of loan liabilities of PFC. However, interest @7% should be charged and paid on the investment from FY 2006-07 onwards. Further, the State Govt. vide letter no.4323 dtd.31.05.2014 has suggested Hon'ble Commission to include both payment of interest and repayment of principal in the ARR of UIHEP. In view of above, Hon'ble Commission may include both payment of interest and repayment of principal in the ARR of UIHEP. The interest w.e.f. 2006-07 to 2016-17 may be kept as Regulatory Assets of OHPC to be paid in future tariff.

x x x x x x

5. OHPC Machine Availability:

The Power Station wise status on the availability of OHPC generating units are as follows:

- (a) BHEP: All the Units are available except Unit No.1 which is under forced outage due to thrust bearing problem which will be replaced during the Renovation & Modernisation works to be taken up shortly.*
- (b) HHEP: All the Units are available except Unit No.6 which is under forced outage but now taken under R, M&U works with effect from 16.10.2015.*
- (c) CHEP: All the Units are available except Unit No.3 which has been taken under R&M from 15.10.2015.*
- (d) UKHEP: All the Units are available except Unit No.1 which is under planned outage due to Capital Maintenance work from 29.07.2015 and expected to be back into service by May 2016.*
- (e) UIHEP: All the Units are available except Unit No.3 which is under planned outage due to Capital Maintenance work from 26.11.2015 and expected to come back into service by 20.04.2016.*
- (f) RHEP: All the Units are available except Unit No.2 which is under planned outage due to Annual Maintenance work from 26.11.2015 and expected to be brought back into service by 15.03.2016.*

In view of the above, it is observed that only one number of Units at BHEP is under forced outage with will be subsequently taken under R&M work and all other Units mentioned above are under planned shut down and shall be made available as per the schedule.

x x x x x x

8. OHPC:

Energy Department is awaiting response of Water Resource Department regarding not allowing generation beyond the reservoir level of 595 ft of Hirakud Reservoir. However in the 1st meeting of the Committee held on 3.7.2012 on formulation of policy for utilization of water in the reservoir by industrial units and hydro electric project with optimum capacity, it was resolved that due to inadequate pressure in the end reaches of canal below RL 595 ft which is hampering irrigation it was declared that DoWR shall issue necessary circular/letter to OHPC maintaining minimum RL at 595 ft.

x x x x x x

COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL (Para 61 to 115)

61. The Commission has carefully examined and analysed the proposal of OHPC. The written and oral submissions of the objectors have been considered while determining the tariff. The tariff proposal of OHPC contains technical parameters such as type of hydro stations, Normative Annual Plant Availability Factor (NAPAF), potential of energy generation and financial details like loans, capital cost, calculation of depreciation, interest etc. OHPC has furnished the technical and financial details in respect of each of the old power stations as well as of UIHEP. The station-wise apportionment of capital cost in respect of all these stations has also been provided along with tariff calculations.
62. During the course of public hearing, the objectors had raised certain issues having direct impact on tariff of OHPC. Point-wise response was submitted by OHPC. Commission's analysis to the issues related to tariff of OHPC are discussed as under:
 - Power Procurement from OHPC
 - Annual Fixed Cost
 - Two-part Tariff (Capacity Charge & Energy Charge)

- Tariff for Chhatisgarh State Power Distribution Company Limited (CSPDCL)
 - Issues relating to Machhkund Hydro Electric Project
63. **The Annual Revenue Requirement of OHPC power stations for FY 2016-17 has been determined based on OERC (Terms and Conditions of Determination of Generation Tariff) Regulations, 2014.**

Power Procurement from OHPC

64. The installed capacity of various Hydro Stations owned by Orissa Hydro Power Corporation (OHPC) was 2062 MW as on 1st of April 2013 including Odisha share of Machhkund. Subsequently, for the FY 2013-14 after 15.06.2013 the installed capacity has been reduced to 2007.00 MW due to de-rating of capacity of units of HHEP, Burla from 275.5 MW to 220.5 MW in Unit No. 5 & 6 in line with Commission's order dt.26.12.2012 and 02.07.2013 passed in Case No.31/2011 & Case No.09/2013.
65. As per Commission's order at 107 to 109 in Case No.65/2014 the installed capacity of OHPC was taken as 2008.50 MW for the FY 2015-16.

OHPC has already started the R&M of Unit -3 of CHEP, Chiplima with effect from 15.10.2015 with a completion period of 20 months. Therefore, as the Installed Capacity for CHEP, Chiplima from 16.10.2015 has been considered as 48 MW as per the Clause 4.1.3 of the approved PPA executed between GRIDCO & OHPC read with Order dated 31.03.2014 in Case No. 62 of 2013 of the Commission.

OHPC has also started the RM & U of Unit – 5 & 6 of HHEP, Burla as per the Order dated 31.03.2014 in Case no. 67 of 2013 of the Commission. The Zero date of these Units of HHEP, Burla is reckoned from 16.10.2015 with a completion period of 30 months (21 months for Unit-6, 18 months for Unit-5 with some overlap period). OHPC has considered 210.5 MW as the Installed Capacity of HHEP, Burla from 16.10.2015 since Unit-6 will be under RM & U and Unit-5 will be available for generation at 10 MW out of the combined capacity of 20 MW. Subsequently Unit-5 is planned to be under RM & U from 16.10.2016. Therefore, it considers 200.5 MW as Installed Capacity during the overlapping period as per the Clause 4.1.3 of approved PPA as per Order dated 31.03.2014 in Case No. 67 of 2013 of the Commission.

66. Accordingly, the installed capacity of different generating stations of OHPC for the FY 2015-16 and the proposed capacity for FY 2016-17 as furnished in Table No.1 of this order is approved by the Commission. Installed capacity, as presented in this Table shall also be taken into consideration for computation of PAFM.
67. Auxiliary energy consumption for surface hydro electric power generating stations with static excitation system is considered at 0.5% of energy generated. Transformation loss from generation to transmission voltage is to be calculated at 0.5% of energy generated. Accordingly, energy sent out from the generating stations of OHPC is to be determined deducting 1% on gross generation. Accordingly, GRIDCO has considered 5501.66 MU of availability from OHPC hydro stations including Machhkund as per the generation plan submitted by OHPC after deduction of 16.60 MU of allocations to CSEB from Hirakud Power Station and 0.5% auxiliary consumption and 0.5% transformation loss. The Commission accepts the norms adopted by OHPC in respect of auxiliary consumption and transformation loss as they are in line with the Regulatory provisions. Also the Commission accepts the allocation of 16.60 MU to CSEB from Hirakud Power Station by OHPC.
68. OHPC has furnished an approximate monthly generation programme for its different units to GRIDCO for the FY 2016-17. GRIDCO has projected the power purchase from OHPC stations based on the latest generation plan submitted by OHPC for its different stations. The design energy of OHPC old stations as proposed by OHPC is 3646.41 MU for FY 2016-17 due to reduction of generation arising out of lower MDDL of Hirakud reservoir being maintained at 595 ft. instead of 590 ft. resulting in reduction of design energy in HHEP, Burla and CHEP, Chiplitima. The Commission does not accept the proposal for reduction in design energy proposed by OHPC for this station Burla from 684.00 MU to 669.19 MU and of Chiplitima from 490.00 MU to 474.05 MU in view of its order dtd. 30.01.2013 in Case No.121/2009. In absence of any confirmatory Govt. notification in support of reduction of MDDL from 595 ft. to 590 ft., the Commission does not recognize the decline in generation proposed by OHPC for Chiplitima and Hirakud. GRIDCO has projected 5516.30 MU of power to be purchased from OHPC during 2016-17.

Machhkund

69. This hydro power station is a joint venture of Government of Odisha and Andhra Pradesh with an installed capacity of 120 MW (i.e. 17 MW x 3 = 51 MW and 23 MW x 3 = 69 MW). Therefore, the 30% Odisha share from MHEP amounting to 36 MW has been considered for computation of total Installed Capacity of OHPC with the design energy of 525 MU. Machhkund is in operation in synchronization with Southern Grid and power from Machhkund is being availed by Odisha through radial system. The drawl of 262.50 MU (50%) is proposed by GRIDCO is based on the supplementary agreement between above parties. The Commission, therefore, approves 262.50 MU to be drawn from this station during 2016-17.
70. The Commission's approval of power to be purchased by GRIDCO for FY 2016-17 sent out from various stations of OHPC is given in the table below:-

Table - 31
Hydro Drawal and Projections for 2016-17

Sl. No.	Name of the HE Project	Design Energy (MU)	Commission's Approval for 2015-16 (MU)	Commission's Approval 2016-17 (MU)
1	Hirakud	684.00	677.16	677.16
2.	Chiplima	490.00	485.10	485.10
3.	Balimela	1183.00	1171.17	1171.17
4.	Rengali	525.00	519.75	519.75
5.	Upper Kolab	832.00	823.68	823.68
	Total (Old Stations)	3714.00	3676.86	3676.86
6.	UIHEP	1962.00	1942.38	1942.38
7.	Machhkund (Odisha Share)	262.50	262.50	262.50
	Total Hydro	5938.50	5881.74	5881.74

Thus, the Commission, for tariff purpose, approves the total saleable energy of OHPC power stations (including Machhkund share) at 5881.74 MU.

Annual Fixed Cost:

71. Annual fixed cost of OHPC stations includes interest on loan, depreciation, return on equity, O&M expenses and interest on working capital. These components in turn are again based on the total loan liabilities of OHPC, the equity components and the total fixed assets of OHPC power stations. OHPC in the ARR application has considered the effects of the Notification No. 5843 dated 03.07.2015 issued by the Department of Energy, GoO which is an amendment of SRO No. 256 dtd.01.04.1996 made initially

through the Office Order No. 3060 dtd.31.03.2015 of the DoE, GoO. In this context, the Commission vide its letter No. JD (FIN)-175/02/1131 dated 11.09.2015 had written to the Govt. seeking clarification thereon. The letter is reproduced below:

“With reference to the notification of Department of Energy on the subject cited above, I am directed to send the views and comments of the Commission on the modified provision of the transfer notification, notified in exercise of power conferred in sub-section (2), (6) & (7) of section 23 of the Reform Act, 1995 and Rule 5 of the Odisha Electricity Reform (Transfer of Undertaking, Assets, Liabilities, Proceedings and Personnel) Scheme Rules, 1996. The issues are as follows:-

1. *Consequent upon the reform in power sector in the year 1996, the assets of OSEB were revalued by Govt. of Odisha and handed over to the Utility GRIDCO & OHPC vide Govt. of Odisha notification S.R.O.257/96 dt.01.4.1996 and S.R.O. No.256/96 dt.01.4.1996 respectively. Among other terms and conditions mentioned in the Notification, Clause 6 states as follows:*

“In accordance with section 25(i) of the Orissa Electricity Reform Act, 1995 (Act 2 of 1996) the transfer of properties, interest in properties, rights and liabilities vested as above shall be provisional for a period of twelve months’ from the date of this order.”

Similarly, Section 25(i) of the Orissa Electricity Reform Act, 1995 provides the following:

“The State Govt. may provide that the transfer in terms of Schemes 23 and 24 shall be provisional for a period of twelve months from the effective date and reserves the right to alter, vary, modify or otherwise change the terms in such a manner as the state govt. may consider appropriate.”

From the above provisions in the Reform Act it is evident that any change in terms and conditions of the notification has to be done within a period of twelve months from the date of the notification. In the present case notification made on 01.04.1996 specifying terms and conditions of transfer has become final after 01.04.1997 and binding on all the parties.

2. *Thereafter, the State Government can only transfer and vest the residuary assets, liabilities from time to time in OHPC and GRIDCO as per Rule 5 (i) of Orissa Electricity Reform Act (Transfer of undertakings, assets, liabilities, proceeding and personnel) Scheme Rules, 1996. Since there is no residuary assets and liabilities at present the above rule has no application.*
3. *The modification made in Odisha Electricity Reform (Transfer of Undertaking, Assets, Liabilities, Proceedings and Personnel) Scheme Rules, 1996 by notification No. 5843 dated 03.07.2015 of Government of Odisha in Para 5 (iii) deals with convertible bonds of Rs.766.20 crores to be issued to State Government by OHPC. This bond pertains to upvalued amount allocated to OHPC in respect of old hydro stations for which the Commission had requested to the Government to keep the same in abeyance. The Commission has also communicated to the Government vide Letter No. 862 dated 12.06.2014 the impact of such upvaluation on tariff.*
4. *The Commission in its tariff order for FY 2015-16 for OHPC (Para 117) has also categorically stated that keeping in abeyance of upvaluation is a composite*

issue applicable to both OHPC and GRIDCO. It cannot be treated in isolation for OHPC only. The Commission advises the State Government to take a view on this as it would have an impact on the overall electricity tariff on the consumers of the State.

5. *In view of the statutory provision in Section 25 (i) of the Orissa Electricity Reform Act, 1995 and advice of the Commission in the Tariff Order for FY 2015-16 the State Government may clarify the matter since the same will be considered in ensuing tariff proceeding without further correspondence in this regard."*

Further, the Commission vide letter No.1621 dtd.21.12.2015 has written to the Govt. of Odisha on avoiding the effect of up-valuation of assets, moratorium of debt services etc. which is as follows:

X X X X X

3. *Keeping in abeyance of upvaluation, moratorium of Debt Service*

Govt. of Odisha extended the benefit of keeping in abeyance of upvaluation of assets and moratorium of debt services upto FY 2012-13 vide letter No. 2404 dated 21.3.2011. Thereafter, the Commission made several correspondences with the Govt. to extend the same benefit from FY 2013-14 onwards so that the effect of upvaluation will not be taken into consideration while determining the tariff. The letter No. in which Commission intimated to Govt. are furnished below:-

- (i) *Letter No.4617 dt.28.12.2012*
- (ii) *Letter No.77 dt.16.01.2014*
- (iii) *Letter No.428 dt.13.03.2014*
- (iv) *Letter No.51 dt.13.01.2015*

The State Govt. in their letter No.4323 dated 31.5.2014 sought information from the Commission on the impact of upvaluation of assets on tariff which had been kept under abeyance. The Commission in response to Govt. letter furnished the summary sheet of impact of upvaluation impact vide No.862 dt.12.6.2014. Reply from State Govt. on this issue is still awaited.

The Commission in its tariff order for FY 2015-16 for OHPC (para 117) categorically stated that keeping in abeyance of upvaluation is a composite issue applicable to both OHPC & GRIDCO. It cannot be treated in isolation for OHPC only. The Commission advised the State Govt. to take a view on this as it would have an impact on overall electricity tariff on the consumers of the State.

The State Govt. vide letter No.1808 dt.28.2.2015 (item 3) discussed the issue only in respect of OHPC. In spite of advice of the Commission mentioned in the tariff order of 2015-16 as stated above, State Govt. made Notification vide No.5843 dt.03.7.2015 withdrawing the moratorium on upvalued assets of OHPC. The Commission had sent their views and comments on the above notification vide letter No.1131 dated 11.9.2015(copy attached). The clarification to the letter of the Commission as mentioned above is still awaited. On this issue decision of the Govt. is important for the ensuing year tariff determination for FY 2016-17.

Further, it is pertinent to mention here that, OHPC has filed its ARR application for FY 2016-17 before the Commission on dt.30.11.2015 considering the effect of upvaluation of assets vide notification No.5843 dt.03.07.2015 of the State Govt. In its application OHPC has proposed a total ARR of Rs.799.72 crores at an average cost of generation 143.09 paise/unit as against OERC approval of Rs.463.98 crores at an average cost of 82.57 paise/unit approved for the FY 2015-16. OHPC has proposed an additional requirement of Rs.335.74 crores for FY 2016-17 which will have direct impact on Retail Supply Tariff of the consumers of the state. Govt. should give its views regarding this proposed rise by OHPC.

X X X X X

The Government of Odisha in its Letter No. 2091 dated 11.03.2016 has stated that the interest along with principal repayment of the convertible bond in respect of different old power stations as submitted by OHPC in its ARR for FY 2016-17 should be considered.

72. In its Annual Revenue Requirement application, OHPC has claimed an amount of Rs.87.88 Cr. towards principal repayment and Rs.103.692 Cr. towards interest payment to Government of Odisha arising out of up-valuation of assets amounting to Rs.766.20 Cr.
73. It is necessary at this stage to understand the history of this particular issue. OHPC was formed in the year 1996 by transferring the assets of five nos. of hydro stations of erstwhile OSEB to OHPC and its assets were provisionally valued at Rs.1196.80 Cr. with a provision that final valuation will be made within one year pursuant to the provision of Section 25 (i) of OER Act, 1995. But, the tariff was determined on the basis of historic cost of the assets of OHPC as on 01.04.1996 for Rs.479.00 crore as per the Notification No1068 Dtd 29.01.2003 of DoE,GoO. It was also mentioned by the Government that while accepting the provisional valuation, the effect of up-valuation shall be kept in abeyance till the power sector shows a turn around.
74. In the meantime the Government vide its notification No. 5843 dated 03.07.2015 up-valued the assets of OHPC and the final valuation was made at Rs.1196.80 Cr. The increase of Rs.766.20 Cr. because of up-valuation was treated by Government as a convertible Government Bond in the hand of OHPC carrying interest @ 7%.
75. A letter was issued by the Commission on 11.09.2015 asking for detailed views of the Government since it will have substantial effect on Electricity Tariff of Odisha. The Government on 11.03.2016 has submitted its replies where unfortunately many of the

issues raised by the Commission have not been addressed. After considering the submission made by OHPC, reply by Government of Odisha and views of objectors the Commission decides as follows:

- (a) The Section 25 (i) of the Orissa Electricity Reform Act, 1995 provides that the transfer in terms of Schemes 23 and 24 shall be provisional for a period of 12 months from the effective date i.e. 01.04.1996. In the present case the notification of up-valuation made on 01.04.1996 specifying terms and condition of transfer has become final after 01.04.1997 and binding on all the parties. Therefore, the Government unilaterally cannot alter the terms and condition of transfer at present.
- (b) The up-valuation of the assets of OHPC and GRIDCO had been kept in abeyance by the Government vide its notification dated 29.01.2003 till the power sector turns around. Therefore, it is not in the larger interest of the State to pass on the effect of up-valuation on the consumers of Odisha by raising electricity tariff.
- (c) The Commission in its tariff order for FY 2015-16 for OHPC has also categorically stated that keeping in abeyance of up-valuation is a composite issue applicable to both OHPC and GRIDCO. Therefore, it cannot be treated in isolation for OHPC only.
- (d) It is an accepted principle under the Electricity Act and the Regulation framed by the Commission that tariff for generating stations has to be made on cost plus basis which means the cost of erection and installation of generating plant is to be considered for determination of tariff. All the plants of OHPC are old and after grant of depreciation the Written Down Value (WDV) of those plants on the date of transfer from OSEB to OHPC must have been much lower than final valuation now made by Government of Odisha amounting to Rs.1196.80 Cr. No data has been furnished either by OHPC or Government of Odisha with supporting evidence to justify the present higher valuation of the assets. The methodology of such valuation has also not been scrutinized by OERC.
- (e) It is found that the present method of tariff fixation of OHPC without considering up-valuation of assets leaves substantial surplus in OHPC from year to year which now stands at Rs.811.00 Cr. This has been invested in fixed deposits earning sizeable interest. In case up-valuation of assets is an

accounting and record keeping arrangement between Government of Odisha and OHPC the bond can be serviced from the reserves of OHPC without having any impact on tariff.

In view of the above it is not possible for the Commission to consider the effect of up-valuation of Rs.766.20 Cr. in the form of convertible bonds carrying interest @ of 7% at present with respect to the notification of the Government.

76. Thus the impact of Notification No.5843 dtd.03.07.2015 as proposed by OHPC in its ARR application is not taken into consideration while determining tariff for 2016-17 as the same is not in accordance with law and will escalate financial burden on public. There is also no fresh financial infusion to OHPC from Govt. Under such situations the tariff components for FY 2016-17 are determined as follows:

Interest on Loan:

77. The loan liabilities of OHPC consist of State Govt. loan, PFC loans and the Normative Loan. The details of various loan components as proposed by OHPC for the FY 2016-17 is presented above at para 15 and Table Nos.8,9,12 & 13.

I. State Govt. Loan

Capital cost of UIHEP as approved by the Commission earlier is Rs.1194.79 Cr.

The present status of State Govt. loan of UIHEP admitted by the Commission is given in the table below:

Table - 32

	(Rs. Cr.)
Original Approved Project Cost	1195.42
Project cost deducting the infirm power cost	1194.79
25% Equity	298.70
Loan outstanding as on 01.04.2015	497.86
Depreciation allowed from 2010-11 to 2015 -16 @ Rs.30.23 Crore	181.38
Loan Repayment made till FY 2014-15	151.15
Balance Outstanding Loan as on 01.04.2014	316.48
Interest claimed for the year 2016-17@ 7%	21.699

OHPC has claimed cumulative interest to be recovered from FY 2006-07 to FY 2015-16 @7% on Rs.522.62 Cr. to the extent of Rs.327.74 Cr. towards UIHEP Govt. loan.

OHPC has prayed the Commission to approve Rs.21.699 Cr. towards interest on Govt. loan of UIHEP in the Tariff for the FY 2016-17.

II. PFC Loan:

The PFC loans were obtained for R&M projects of HHEP, Burla and extension project of BHEP, Balimela as shown below.

Table - 33
Status of outstanding PFC loan

Sl. No.	Name of the Units	Outstanding loan as on 01.04.2016	Loan Repayment for FY 2016-17	Interest Repayment for FY2016-17
1.	Unit #3 & #4, Burla	0.00 Cr. (INR)	0.00 Cr. (INR)	0.00Cr.
2.	Unit #7 & #8, Balimela	2120999.73 (USD)	9.60 Cr. (INR)	0.72Cr.

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 Cr. for the FY 2016-17 for which approval is sought.

Loss due to FERV & its Reimbursement: On account of repayment of Principal & Interest in Indian rupees in respect of PFC Loan availed in USD for Unit#7 & Unit#8 of BHEP, Balimela, OHPC has incurred a loss of Rs.12.45 Cr. towards payment of principal and Rs.1.45 Cr. towards payment of interest from FY2007-08 to FY 2015-16 due to fluctuation in Dollar to Rupee rate. The total loss amounting to Rs.13.90 Cr. (Principal+ Interest) was due by the end of FY 2015-16, out of which Rs.5.99 Cr. & Rs.4.20 Cr. have already been approved by the Commission in FY 2014-15 & FY 2015-16 respectively. Balance **Rs.3.71 Cr.** is claimed as FERV reimbursement for FY 2016-17 for approval.

III. Normative Loan:

Normative Loans of different Power Stations due to Additional Capitalisation:-

Though, the 9.8% State Govt. loan has been repaid, the normative loans of the respective units are still awaiting repayment. This component for 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. Again, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2015-16 based on PFC interest rate applicable to HHEP, Burla. The Normative loan of UIHEP due to the additional capitalization based on audited accounts of FY 2014-15 is considered at the prevailing rate of interest of State Govt. Loan @7% as per the OERC tariff norms.

Normative Loan of Rs 53.32Cr. of UIHEP:-

As far as repayment of normative loan of UIHEP amounting to Rs.53.32 Cr. is concerned, the Commission in the Para 131 of Compendium of Tariff Order of OHPC for FY 2013-14 has concluded that “after the total repayment of Govt. loan as approved above, this loan repayment may start at the same rate of Rs.30.23 Cr. each year i.e. beginning with 2026-27. The interest component will be considered after the total repayment of the principal in line with the Govt. loans”.

The Commission has never accepted interest and/or principal of the Normative Loan of Rs.53.35 Cr. in previous Tariff approvals of OHPC. The accumulated interest calculated upto 31.03.2016 will be Rs.61.50 Cr. at the prevailing rate of interest of State Govt. Loan @7%.

In case, the Commission does not allow the interest on UIHEP Govt. Loan, as well as Principal & Interest of Normative Loan from FY 2016-17 onwards, then the financial burden in respect of UIHEP Loan will be very high as on FY 2026-27 when the generating units of UIHEP will be due for Renovation or Replacement and as such must be at the verge of high Capital Investment. The combined effect of the deferred interest impact of the Present Govt. Loan & Normative Loan (Principal + Interest) along with the huge Capital investment

for Renovation / Replacement towards the fag end shall definitely burden significantly on the consumers.

OHPC prays before the Commission to designate the accumulated interest amounting to Rs 61.50 Cr. from the FY 2001-02 to FY 2015-16 on Normative Loan of Rs 53.32 Cr. 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.

Summary of Interest & GC:

Considering the above facts, the interest on outstanding loans and guarantee commission payable by OHPC for the FY 2016-17 comes to Rs.134.49 Cr. and proposed by OHPC as presented in the Table No.13 of this order. OHPC prays the Commission to approve Rs.134.49 Cr. towards interest on loan and Guarantee Commission.

As summarized in Table No.13 above, the unit-wise interest on loan and Guarantee Commission as submitted by OHPC has been scrutinized by the Commission.

The Commission has examined the proposal of OHPC towards payment of interest on Govt. loan and in view of the letter No.JD(FIN)175/02(Vol.II)-1131 dtd.11.09.2015, as discussed above, the Commission considers Govt. loan of UIHEP as Rs.497.86 Cr. and interest on normative loan of Rs.78.23 Cr. The Commission has already dealt with the matter in Case No.100/2012 and as per para 131 of the compendium of tariff orders for FY 2013-14 has directed as follows.

“The Commission has analysed the proposal of OHPC and observes that the principal repayment has already been passed in the tariff of 2010-11, 2011-12 and 2012-13 @ Rs.30.23 Cr. per year. The same amount is allowed in the tariff of 2013-14 towards principal repayment. The total principal repayment will take 17 years i.e. beginning with 2010-11 and will terminate by 2027-28. Thereafter, the interest payment will be taken into consideration. In this circumstance for the year 2013-14 an amount of Rs.30.23 Cr. is allowed as principal repayment under the head Depreciation. No interest component for UIHEP is allowed in the tariff for 2013-14.

As far as repayment of normative loan of Rs.78.23 Cr. is concerned, the Commission feels that after the total repayment of Govt. loan as approved above, this loan repayment may commence at the same rate of Rs.30.23 Cr. each year i.e. beginning with 2028-29. The interest component will be considered after the total repayment of the principal in line with the Govt. loans. Moreover, OHPC had not mentioned about this loan in any of the filings made in the previous years.”

Based on the above observations and the letter dtd.28.12.2012 of the Commission to the Govt., the 7% loan on UIHEP has not been considered in the tariff of FY 2013-14. Therefore, for the purpose of tariff of UIHEP for the FY 2013-14, the Commission approves an amount of Rs.30.23 Cr. in the head Depreciation for the purpose of loan repayment. Thus at the end of the tariff period i.e. by March, 2014, the State Govt. loan is deemed to be repaid by an amount of Rs. 120.92 Cr. leaving an outstanding loan of Rs.376.94 Cr. to be repaid in the subsequent years. No interest on loan for UIHEP was allowed for the purpose of tariff for the FY 2013-14.

78. The Commission has examined the proposal of OHPC to consider the interest on Govt. loan of Rs.497.86 Cr. from the FY 2006-07 to 2013-14 and the interest on normative loan of Rs.78.23 Cr. from the FY 2001-02 to 2013-14. The Commission observed that the depreciation has already been allowed in the tariff of 2010-11 to 2015-16 @ Rs.30.23 Cr. per year. The same amount is also allowed in the tariff of 2016-17 towards principal repayment of UIHEP Govt Loan. During the hearing, the objectors and the Consumer Counsel drew the attention of Commission to the legal barrier accompanying the filings of OHPC. Therefore, we observe that accepting the plea of the applicant is not prudent and needs to be rejected. We do so.
79. Considering the above, the Commission allows OHPC to make Principal repayment of Rs.30.23 Cr. against the depreciation allowed during the FY 2016-17. 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 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 payment on Govt. loan and normative loan for UIHEP is allowed for the purpose of tariff for FY 2016-17.

80. The Unit-wise interest on loan and Guarantee Commission(GC) as described above and approved by the Commission for the FY 2016-17 is summarized as follows:

Table - 34

(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2013-14						
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	PFC loan	-	-	0.717	-	-	-	0.717
2.	Normative loan	2.428	0.281	0.398	0.197	0.530	0.18	4.014
3.	Govt. loan of UIHEP						0.00	0.00
4.	G.C.	-	-	0.64	-	-	-	0.64
Total		2.428	0.281	1.755	0.197	0.530	0.18	5.371

The Commission accepts and approves interest payment of Rs.5.371 Cr. for all stations of OHPC for the FY 2016-17 as against Rs.8.38 Cr. allowed in the tariff for the FY 2015-16.

Depreciation:

81. From FY 2003-04 onwards, as per the directions of the Hon'ble High Court of Odisha, depreciation was calculated at pre-1992 norms notified by Govt. of India on the book value of the assets. Since 2004-05, the Commission has been calculating depreciation limiting to principal repayment.

For the purpose of determination of Annual Fixed Cost, depreciation computed @ 2.57% of the project cost is considered for FY 2016-17 as per OERC Generation Tariff Regulation, 2014. However, in case of BHEP where loan repayment is more than the computed depreciation @2.57%, the actual loan repayment has been considered and the depreciation amount has been extended to meet full repayment of principal loan for the FY 2016-17. In case of UIHEP, the Commission has allowed recovery of depreciation from balance depreciable value of the project spread equally over the balance life period of the project. Therefore, depreciation of Rs.30.78 Cr. has been considered for FY 2016-17 for recovery through tariff.

82. The details of repayment of loan as submitted by OHPC in its revised submission for all power stations is as under:

Table – 35
Statement of Repayment of Loans
(Rs. cr.)

Power Stations	2015-16	2016-17
HHEP	7.20	0.77
CHEP	2.77	1.97
BHEP	15.43	15.56
RHEP	3.53	3.65
UKHEP	2.06	2.11
UIHEP	30.59	30.76
Total	61.58	54.82

83. For the year 2016-17, depreciation is claimed in the tariff applying 2.57% in case of RHEP, UKHEP, HHEP and CHEP whereas for BHEP, the requirement for actual loan repayment is considered for recovery through depreciation as approved by the Commission which is as summarized below:

Table – 36
Depreciation approved for 2016-17

Name of the Power Station	Approved Depreciation (Rs. Cr)	Remark
HHEP	7.03	2.57%
CHEP	3.57	2.57%
BHEP	15.56	Equal to loan repayment
RHEP	3.81	2.57%
UKHEP	3.26	2.57%
Sub-Total	33.24	
UIHEP	30.78	Spread over useful life of the plant
Grand Total	64.02	

The amount of depreciation of Rs.33.24 Crore is approved by the Commission for the FY 2016-17 for the old power stations of OHPC. In UIHEP, the depreciation amount calculated based on straight line method after deducting the cumulative depreciation allowed in ARR till 2009-10 from the depreciable value of the project cost which comes to Rs.30.23 Crore as determined during FY 2010-11 and Rs.0.53 cr. towards repayment of principal of Normative loan installment for FY 2016-17. But as per Regulation, depreciation @2.57% of the project is Rs.30.78 Cr. Thus, Rs.30.78 cr. is allowed towards depreciation requirement of UIHEP.

The Commission approves a total amount of Rs.64.02 cr. on account of depreciation for tariff purpose in ARR of FY 2016-17 as against Rs.189.26 cr. proposed by OHPC in its application.

Return on Equity (RoE)

84. The equity component of OHPC, was decided in the Commission's tariff order dtd.19th April, 2002 in Case No. 65 of 2001 & Case No. 04 of 2002 vide Para 6.4.17 through Para 6.4.21.
85. Based on the above order and subsequent Govt. Notification dtd.29.01.2003, the Return on Equity for the year 2004-05 was allowed to OHPC on new investments made after 01.04.1996. Further, the State Govt. vide its Notification dtd. 06.01.2010 had extended the same benefits upto the year 2010-11 for consumers of the State. The Commission assumes similar benefits from Govt. will be continued for the FY 2016-17 in support of public. On the basis of such assumption, the Commission accepts the equity base as the investments made after 01.04.1996 as mentioned above and proceed on to determination of tariff.
86. The return on equity (ROE) on the basis of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 shall be computed at the rate of 16% of the equity amount so accepted by the Commission.
87. The Commission is of the view that actual tax paid need to be allowed as a pass through but not a notional calculation of the tax on normative basis. Accordingly the Commission decides to allow return on equity at 16% with new capital addition with a provision to reimburse the actual income tax paid during the FY 2014-15 which is subject to change after the actual tax paid during the FY 2016-17. Since there is possibility of under recovery or over recovery of income tax if it is inbuilt to tariff the Commission feels to pass on the income tax as a reimbursement to be recovered from the beneficiary i.e. GRIDCO. Income tax paid during FY 2014-15 as per audited accounts is Rs.31.09 cr. and OHPC has claimed the same amount to be considered for reimbursement from GRIDCO during the year 2016-17. But, from the audited account for FY 2014-15, it is observed that the income tax paid during the year was on non-generation activities of OHPC and thus, the Commission does not allow the same to be reimbursed from GRIDCO in the tariff of 2016-17. Accordingly the details of RoE of OHPC power stations for the FY 2016-17 is summarized below:

Table – 37

(Rs. in Cr.)

Sl. No.	Name of the Power Stations	Project Cost	Equity Capital rate	Equity Capital	ROE @16% for the FY 2016-17
1	RHEP	57.26	30%	17.177	2.748
2	UKHEP	18.88	30%	5.664	0.906
3	BHEP	214.42	30%	64.325	10.292
4	HHEP	206.91	30%	62.074	9.932
5	CHEP	47.36	30%	14.208	2.273
6	UIHEP*	1197.69	30%*	299.612	47.938
	Total	1742.52		463.060	74.090

* The equity capital of UIHEP has been calculated considering the 25% (the approved project cost of UIHEP of Rs1194.79Cr minus de-capitalisation of Rs.0.86 Cr.) + 30%(capital addition during FY 2013-14 for Rs 2.57 Cr. & Rs .1.194 Cr. for FY2014-15). Thus the total equity capital for UIHEP is computed as Rs 299.612 Cr.

Return on Equity is calculated @16% of Equity Capital as per norms of OERC with a provision of reimbursement of Income Tax paid for the FY 2014-15.

88. The Commission approves return on equity for all the OHPC stations amounting to Rs.74.090 Cr. for the FY 2016-17.

O&M Expenses

89. The Commission has calculated the O&M expenses as per the Generation Tariff Regulations, 2014 and escalation @5.72% is allowed on the previous years approved O&M expenses. On this principle the O&M expenses comes to Rs.316.64 Cr. for FY 2016-17. It has been decided in the tariff order for FY 2015-16 that the DOWR share towards dam maintenance receivable by OHPC is to be deducted from the total O&M expenses of OHPC. Audited accounts for FY 2014-15 indicates that Rs.12.43 crore was received towards dam maintenance expenses from DOWR. The same amount is deducted from the approved O&M expenses of UIHEP of Rs.74.84 cr. resulting in the net O&M expenses of Rs.62.41 cr. for calculation of ARR of UIHEP for the FY 2016-17. Thus, the Commission after due scrutiny approves total O&M expenses at Rs.315.36 cr. for FY 2016-17 as against the proposal of Rs.317.79 cr. proposed by OHPC. Station-wise O&M expenses approved for FY 2016-17 is presented in the table below:

Table – 38
Statement of O & M Expenses for 2016-17

(Rs. In Cr.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M Expenses calculated averaging audited expense of each power station of OHPC from FY2008-09 to FY2012-13 as per CERC Tariff Regulation 2009(Escalating @5.17% as per CERC norm 2009)	36.31	27.35	52.04	55	12.59	183.29	52.61	17.58	253.48
2	O & M expenses for FY 2013-14 with escalation @ 5.72% over FY 2012-13	38.39	28.91	55.02	58.15	13.31	193.77	55.62	18.59	267.98
3	O & M expenses for FY 2014-15 with escalation @ 5.72% over FY 2013-14	40.58	30.57	58.16	61.47	14.07	204.86	58.80	19.65	283.31
4	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
5	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
6	Corporate Office expenses apportioned to different units under OHPC based on D.E.	2.03	3.22	4.58	2.65	1.90	14.37	7.59	21.96	
7	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
Add: Arrear salary and terminal liabilities										
8	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
9	Arrear terminal liabilities of Corporate Office expenses apportioned to different units under OHPC based on D.E.	0.14	0.23	0.33	0.19	0.13	1.02	0.54	1.56	
10	Total Arrear Salary and Terminal Liabilities	1.17	1.21	4.29	2.03	0.92	9.62	1.53		11.15

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
11	Less Amount to be received from DoWR towards Dam Maintenance Sharing of UIHEP for FY 2016-17							-12.43		
12	Total O&M Expenses for the FY 2016-17 including terminal liabilities	48.56	38.59	73.87	73.38	18.55	252.95	62.41		315.36

Working Capital

90. As per the OERC (Generation Tariff) Regulations, 2014 the basis for calculation of Working Capital in case of hydro generating stations including pump storage hydro electric generating station shall include the following:

- (i) Receivables equivalent to two months of fixed cost
- (ii) Maintenance spares @15% of Operation and Maintenance expenses specified in Regulation 4.28 and
- (iii) Operation and Maintenance expenses for one month.

The interest on working capital for the existing generation plants of OHPC shall be on normative basis and shall be equal to the SBI Base Rate plus 300 basis points as on 1st April of the year for which the application for determination of tariff is being made. The Commission has adopted this principle which is equivalent to 13% for FY 2016-17 considering 10% as the prevailing SBI Base Rate. The detailed calculation of Working Capital approved by the Commission is presented in the Table below:

Table – 39
Interest on Working Capital for FY 2016-17

(Rs. Cr.)									
Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	O&M Expenses for One Month	4.05	3.22	6.16	6.11	1.55	21.08	5.20	26.28
2	Maintenance spares @15% of O&M Expenses	7.28	5.79	11.08	11.01	2.78	37.94	9.36	47.30

Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
3	Receivable equivalent to Two Months of Annual Fixed Cost	10.06	7.53	17.67	15.80	4.34	55.40	24.36	79.77
4	Total Working Capital	21.39	16.54	34.91	32.93	8.67	114.42	38.93	153.35
5	Interest on Working Capital calculated @ 13%*	2.78	2.15	4.54	4.28	1.13	14.88	5.06	19.94

* SBI base rate for 01.04.2015 is 10% + 300 basis points = 13%

Thus, the Commission approves an amount of Rs.19.94 Cr. as interest on working capital for the year 2016-17 as against the OHPC proposal of Rs.26.97 cr. The interest of Working Capital approved by the Commission for FY 2015-16 was Rs.19.17 Cr.

Total Annual Fixed Cost

91. Based on the above parameters the station-wise ARR and tariff calculated for the year 2016-17 is indicated in the table below:

Table – 40
Station-wise Tariff Approved For 2016-17

Details of expenses	(Rs. Cr.)							
	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.15	485.10	3676.85	1942.38	5619.23
Return on Equity	2.748	0.906	10.292	9.932	2.273	26.152	47.938	74.090
Interest on Loan	2.428	0.281	1.755	0.197	0.530	5.191	0.180	5.371
Depreciation	3.813	3.265	15.561	7.031	3.570	33.239	30.781	64.020
O & M expenses	48.564	38.593	73.870	73.380	18.548	252.955	62.410	315.365
Interest on Working Capital	2.780	2.150	4.538	4.280	1.127	14.875	5.065	19.940
Total ARR	60.333	45.194	106.016	94.820	26.047	332.411	146.373	478.785
Average Tariff (P/U) for 2016-17	116.08	54.87	90.52	140.03	53.70	90.41	75.36	85.20
Average Tariff for the FY 2015-16 (P/U) (Approved)	112.89	52.92	89.51	132.54	48.73	87.16	73.87	82.57

ARR & Tariff Application Fees and related Publication Expenses

92. Regulation-7.9 of the OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014 states the following:

“The application filing fee and the expenses incurred on publication of notices in the application for approval of Tariff, may in discretion of the Commission, be allowed to be recovered by the generating company, directly from the beneficiaries.”

As per the Commission’s Notification No.1992 on Dt.31.08.2009 in the Clause No. 17, the Commission has fixed a fee of Rs.5,000/- 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 Only).

In consideration of the above order, OHPC is required to deposit application fee of Rs.25 lakhs for the FY2016-17. OHPC shall be allowed to recover the same amount from GRIDCO. In addition to the above, OHPC has stated to have incurred expenses Rs.0.83896 lakhs (approx.) on publication of tariff related matters in the newspaper for the FY 2015-16 against the approved Publication Expenses of Rs.1.00 Lakhs in the FY 2015-16.

In view of the above, OHPC has claimed Rs.26.00 lakhs towards the Application Fee & Publication Expenses for the FY 2016-17. The Commission approves the said amount of Rs.26.00 lakhs as reimbursement towards application fee and publication expenses as pass through in the ARR of GRIDCO for FY 2016-17.

License fee for use of water for generation of Electricity:

93. 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 Projects to the tune of Rs.5.676 cr. which is to be reimbursed to OHPC by GRIDCO, based on design energy.
94. OHPC has proposed that 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 licence fee paid to Govt. of Odisha from GRIDCO.
95. The Commission considered the above proposal of OHPC and since there is no substantive evidence to change the design energy of OHPC power stations, license fee is accordingly approved for reimbursement by the Commission. However, the Commission provisionally approves an amount of Rs.5.676 cr. to be reimbursed from

GRIDCO in the FY 2016-17 based on the design energy of OHPC power stations @ Rs.0.01 per KWh. The station-wise details is summarized in the table below:

Table - 41

(Rs. Cr.)							
Description	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
Licence fee for Consumption of water for generation of electricity	0.525	0.832	1.183	0.684	0.49	1.962	5.676

Electricity Duty on Auxiliary Consumption

96. As per the agreed PPA, the taxes and duties including 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.

While approving the reimbursement of ED on Auxiliary Consumption, the Commission at Para No. 135 of OHPC Tariff Order for the FY 2015-16 has quoted as below.

Para.135: "The Commission examined the proposal of OHPC and in view of unaltered design energy of OHPC stations approves ED on auxiliary consumption of all hydro electric projects to the tune of Rs.0.57 cr. to be reimbursed to OHPC by GRIDCO. Considering the proposal of OHPC the Commission allows annual adjustment on reimbursement of ED at the year end limiting to 0.5% of the cumulative actual generation during the financial year instead of limiting to monthly generation."

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. The rate of Electricity Duty / Unit has been revised from 20 paisa per Unit to 30 paisa per Unit with effect from 1st October 2015 as per the Gazette Notification No. 1387 dated 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.

Table - 42

Description	(Rs. in Cr)							Total
	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	
ED on Auxiliary Consumption	0.079	0.125	0.177	0.103	0.074	0.558	0.294	0.852

The Commission examined the proposal of OHPC and in view of unaltered design energy of OHPC stations and the Gazette Notification of Govt. of Odisha revising the rate of ED per unit, approves ED on auxiliary consumption of all Hydro Electric Projects to the tune of Rs.0.852 cr. to be reimbursed to OHPC by GRIDCO. The reimbursement is provisionally approved for FY 2016-17 as presented in the table above.

SLDC Charges

97. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2016-17 in Case No.56/2015, has allowed SLDC to levy and collect Annual Charges from the users towards System Operation Functions and Market Operation Functions in accordance with Regulations 22 & 23 of CERC (Fees and Charges of Regional Load Dispatch Centre and Other Related Matters) Regulations, 2009. Accordingly, the Commission has fixed Rs.8259.57/MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 1858 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC charges of OHPC comes to Rs.1.53 cr. for the FY 2016-17, which is to be collected by SLDC from OHPC on monthly basis and OHPC has to reimburse the same from GRIDCO. Accordingly, the Commission provisionally approves an amount of Rs.1.53 cr. as pass through in the ARR of GRIDCO for the FY 2016-17 towards power purchase related cost of OHPC.

Foreign Exchange Rate Variation loss of PFC Loan of BHEP

98. OHPC has applied for variation loss on account of Foreign Exchange Variation towards PFC loan of BHEP during FY 2012-13. The Commission had observed that “to the extent the generating company is not able to hedge the Foreign Exchange exposure, the extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency loan in the relevant year shall be

permissible provided it is not attributable to the generating company or its supplier or contractor.”

Accordingly, OHPC has calculated the details of payments of principal and interest on PFC Loan of BHEP for R&M works of Unit#7 & Unit#8. Total claim towards FERV claim of PFC Loan of BHEP is Rs.13.90Cr. (i.e. Rs.1.45 Cr. towards interest + Rs.12.45 Cr. towards principal) from FY 2007-08 to FY 2015-16. Out of which the Commission in the tariff order for the FY 2014-15 had approved Rs.5.99 Cr. and Rs.4.20 cr. for FY 2015-16. The balance Rs.3.71 Cr. is to be reimbursed from GRIDCO as FERV claim of PFC loan for FY 2016-17.

The Commission has examined the documents furnished by OHPC and approves Rs.3.71 Cr. towards Foreign Exchange Fluctuation loss of PFC loan of BHEP to be reimbursed by GRIDCO in 2016-17.

Reimbursement of contribution made to ERPC

99. OHPC has proposed to approve a total reimbursement claim for an amount of Rs.97.46 lakhs towards ERPC contribution from FY 2006-07 to FY 2014-15 and Rs.0.16 cr. for FY 2016-17 and Rs.0.10 Cr. towards additional contribution to ERPC establishment fund and ERPC fund during 2016-17 from GRIDCO. Total claim of ERPC contribution is Rs.1.2346 cr. After detail scrutiny the Commission observed that the payment towards ERPC contribution from 2006-07 to 2013-14 have already been incurred by OHPC and have duly been reflected in the Audited accounts of the respective financial years and must have been accounted for under some head. Hence, it seems there is no amount due as receivable under this head. Thus, the Commission does not approve the reimbursement claim of OHPC for the period from FY 2006-07 to FY 2014-15 for reimbursement. The Commission allows the contribution to ERPC establishment fund amounting to Rs.16.00 lakhs claimed by OHPC for the FY 2016-17. Further, after due scrutiny of the relevant documents the Commission allows the claim towards additional contribution to ERPC establishment fund and ERPC fund of Rs.10.00 lakhs for reimbursement from GRIDCO.

Income Tax

100. As discussed in para 127 of this order, OHPC has claimed that income tax paid during FY 2014-15 to the extent of Rs.31.09 cr. and has proposed this amount as reimbursement and is to be recovered from GRIDCO during FY 2016-17.

On scrutiny it has been observed that the income tax reimbursement claimed by OHPC is paid on the non-generating activities of OHPC and not on the profit earned from its core business. Chapter 4, Clause 4.7 of the Generation Tariff Regulation mandates,

“Income tax of the Generating Company shall be recovered from the beneficiaries. This will exclude income tax on other income streams (income from non-generation and non-transmission business.”

As per the above regulation, OHPC proposes for reimbursement of income tax on the entire income which includes tax on non-generation business (like interest on Fixed Deposit) of OHPC and thus cannot be allowed in the tariff for FY 2016-17.

It is revealed from the Audited Accounts for FY 2014-15 that the profit before tax is Rs.46.68 cr. for the period ended 31st March, 2015. Further, in Note 23 to the Audited Accounts it is revealed that interest on bank deposits is Rs.95.96 cr. which is an income from non-generating activities. Had this income not reflected in their profit and loss account there would have been a loss and in that situation income tax of Rs.31.09 cr. would not have been paid at all. Considering this the Commission does not allow reimbursement of income tax claim of OHPC to GRIDCO.

101. The details of expenses on account of application fee, and publication expenses, ED on auxiliary consumption, license fee for use of water for generation of electricity, SLDC charges, Foreign Exchange fluctuation loss of PFC loan of BHEP, and Reimbursement of contribution made to ERPC for FY 2016-17 of OHPC are summarized in the table below:

Table – 43

(Rs. Cr.)

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
(a) License fee for use of water for generation of electricity	0.525	0.832	1.183	0.684	0.490	1.962	5.676
(b) ED on Auxiliary Consumption	0.079	0.125	0.177	0.103	0.074	0.294	0.852
(c) SLDC charges							1.53
(d) Application fees and publication expenses							0.26
(e) Fluctuation loss of PFC loan of BHEP			3.71				3.71
(f) Reimbursement of contribution made to ERPC							0.16
(g) Additional contribution to ERPC estt. Fund for FY 2016-17							0.10
(h) Income tax paid during FY 2014-15							0.00
Total							12.288

Thus, the Commission approves the miscellaneous reimbursement of Rs.12.288 Cr. as against OHPC proposal of Rs.44.7226 Cr. The above expenditure has been included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing.

Two-Part Tariff

102. As per Regulation-22 of new CERC Tariff Regulations, 2009, the tariff for supply of electricity from a hydro generating station shall comprise of capacity charge and energy charge to be derived in the manner as indicated below:

As per Central Electricity Regulatory Commission (Terms and conditions of Tariff) Regulation 2009, 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 as per the formula indicated at below.

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

Capacity charge (C.C) = 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:

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

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_i = Declared Capacity (in ex-bus MW) for the ith 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.

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}

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(6) and (7) of Schedule-22 of CERC Tariff regulations 2009.

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

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, 2009.

103. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2016-17 as summarized in the table below:

Table - 44
Energy Charge and Capacity Charge for 2016-17

Name of the Power Stations	Annual Fixed Cost (Rs. Cr.)	Capacity Charge (Rs. Cr.)	Energy Charge (Rs. Cr.)	Design Energy (MU)	Energy Charge Rate (P/U)
Rengali HEP	60.333	30.166	30.166	519.75	58.039
Upper Kolab HEP	45.194	22.597	22.597	823.68	27.434
Balimela HEP	106.016	53.008	53.008	1171.17	45.261
Hirakud HEP	94.820	47.41	47.41	677.16	70.013
Chiplima HEP	26.047	13.024	13.024	485.10	26.848
Upper Indravati HEP	146.373	73.187	73.187	1942.38	37.679

The recovery of capacity charge and energy charge for a calendar month shall be as per the OERC Generation Tariff Regulations, 2014.

Normative Annual Plant Availability Factor (NAPAF)

104. The Commission had re-determined the NAPAF of OHPC stations for the control period i.e. from 2014-15 to 2018-19 as given in the table below:

Table - 45

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

The Commission approves the above NAPAF for FY 2016-17 and directs that the monthly capacity charge of each OHPC stations shall be computed for the FY 2016-17 based on the above NAPAF.

105. SLDC shall verify the daily declared capacity of the OHPC power stations and certify the monthly plant availability factor of each power station of OHPC as per the prevailing practice.

Tariff for CSPDCL on drawal of power from HHEP, Burla

106. OHPC has submitted that as per the MoM, the long term customer, the erstwhile Chhatisgarh State Electricity Board (CSEB), presently Chhatisgarh State Power Distribution Company Limited (CSPDCL) having 5MW share from Hirakud generation is pleading for payment of the energy charges to OHPC at the average tariff of HHEP, Burla, as is actually applicable for the consumers of Odisha, and determined by the Commission. This is because the average tariff of HHEP, Burla (which is being fixed by the Commission for the consumers of Odisha, considering the various direct and indirect supports and concessions extended by the Govt. of Odisha for a sustainable tariff) is less than the cost of generation of HHEP, Burla being the ECR (energy charge rate) at which OHPC bill to CSPDCL for the energy drawl by CSPDCL from Hirakud generation as per the MoM 24.12.2004. OHPC submits that the Commission may fix the tariff for CSPDCL at 195.64 paise p/u without the State Govt. support and it shall be applicable for billing to CSPDCL. The Commission considers the equity base of Rs.99.30 Cr. and loan base Rs.231.70 Cr. without any support from Govt. of Odisha as has been done in case of OHPC. The details for arriving at the average tariff for HHEP is as follows:

Table - 46
Tariff for CSPDCL for 2016-17
(Rs. Cr.)

Details of Expenses	HHEP
Saleable Design Energy of HHEP	677.16
Return on Equity	24.82
Interest on Loan	11.47
Depreciation	17.48
O & M expenses	73.38

Details of Expenses	HHEP
Interest on Working Capital	5.33
Total ARR	132.48
Average Tariff (p/u)	195.64

The Commission approves average tariff of 195.64 p/u for HHEP for billing to CSPDCL for FY 2016-17.

Annual Revenue Requirement and Tariff for Machhkund H.E. (Jt.) Scheme

107. Machhkund Hydro Electric Project is a joint scheme of Government of Andhra Pradesh and Government of Odisha with 70% and 30% share with option of Government of Odisha to draw an additional 20% power at a cost of Rs. 0.08 per KWh as per the interstate supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Odisha.
108. The proposed tariff of 47.92 Paise/KWh of Odisha drawl of Machhkund power for FY 2016-17 has been computed on cost reimbursement basis. Provisional O&M Expenses of Rs.10.32 Cr. for the FY 2014-15 has been escalated @ 6.64% per year to arrive at O & M Expenses of Rs.11.74 Cr for FY 2016-17. The power purchase cost comes to Rs.0.84 Cr. for additional 20% share (105 MU) computed @ 8 p/u. The total expected annual expenditure calculated to be Rs.12.58 Cr for FY 2016-17. The cost per unit is 47.92 Paise considering 50% share of design energy of Machhkund i.e. 262.50 MU. The provisional bill towards share of working expenses payable by OHPC for FY 2014-15 is furnished by OHPC in its application.
109. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of D. E. of Machhkund equivalent to 262.50 MU. The projected tariff calculation is given in the table below:

Table - 47
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 Cr)
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)	47.92
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.	

110. The Commission approves the above rate of 47.92 Paise per Unit for FY 2016-17 as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.

ARR and Approval of Tariff

111. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2016-17 as follows:

Table – 48

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
Approved for 2015-16								
Total ARR (Rs. Crore)	58.67	43.59	104.83	89.75	23.64	320.48	143.49	463.98
Average cost (P/U)	112.89	52.92	89.51	132.54	48.73	87.16	73.87	82.57
Approval for 2016-17								
Total ARR (Rs. Crore)	60.333	45.194	106.016	94.820	26.047	332.411	146.373	478.785
Average cost (P/U)	116.08	54.87	90.52	140.03	53.70	90.41	75.36	85.20

112. Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2016-17. The Capacity charge and the rate of Energy charge as approved at para 144 above and the corresponding approved rates for the FY 2015-16 are summarized in the table below :

Table – 49

Energy Charge and Capacity Charge for 2015-16 & Approval for 2016-17

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	15-16	16-17	15-16	16-17	15-16	16-17	15-16	16-17
Rengali HEP	58.67	60.333	29.335	30.166	29.335	30.166	56.441	58.039
Upper Kolab HEP	43.59	45.194	21.795	22.597	21.795	22.597	26.461	27.434
Balimela HEP	104.83	106.016	52.415	53.008	52.415	53.008	44.754	45.261
Hirakud HEP	89.75	94.820	44.875	47.41	44.875	47.41	66.269	70.013
Chiplima HEP	23.68	26.047	11.84	13.024	11.84	13.024	24.366	26.848
Upper Indravati HEP	143.49	146.373	71.745	73.187	71.745	73.187	36.937	37.679

The unit cost of energy from Machhkund is approved at 47.92 paise per unit for 2016-17 as against 34.38 paise per unit approved for 2015-16.

Capacity Addition

113. We subscribe to the view that hydro energy is a source of clean energy contributing to reduced environmental pollution. Govt. of India emphasizes on establishing new hydro power stations where scope is available. Agreeing with concerns of objectors, we observe that OHPC should pursue installation of new hydro power projects on major rivers of the state where scope is available in spite of earlier failed attempts. Simultaneously, they should strive to achieve greater availability of units and increased peak load capacity in the interest of the state.
114. The tariff now approved shall be effective from 01.04.2016 and shall be in force until further orders.
115. The application of OHPC in Case No.52 of 2015 for approval of its Annual Revenue Requirement and fixation of generation tariff of different stations for the FY 2016-17 is disposed of.

(A. K. DAS)
MEMBER

(S. P. SWAIN)
MEMBER

(S. P. NANDA)
CHAIRPERSON