

**ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
PLOT NO. 4, CHUNOKOLI, SHAILASHREE VIHAR,
CHANDRASEKHARPUR,
BHUBANESWAR-751021**

Present : **Shri U. N. Behera, Chairperson**
Shri A. K. Das, Member
Shri S. K. Parhi, Member

Case No.61/2016

DATE OF HEARING : **06.02.2017**
DATE OF ORDER : **23.03.2017**

IN THE MATTER OF : **An application for approval of Aggregate Revenue Requirement (ARR) and Generation Tariff of OHPC Stations for the FY 2017-18 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 2017-18.

PROCEDURAL HISTORY (Para 1 to 5)

1. The OHPC is a “Generating Company” under the meaning of Sec.2 (28) of the Electricity Act, 2003 (herein after referred as ‘the Act’). After the unbundling of the Odisha State Electricity Board (OSEB) in the year 1996, the assets, liability and personnel of the Board were transferred to this generating company to carry out the business of generation of hydro-electricity. The entire power produced by OHPC through its various generating stations is fully dedicated to the State of Odisha. Thus, OHPC is supplying its entire power to GRIDCO Ltd., who in turn is supplying the same to the Distribution Utilities of the State. After the Electricity Act, 2003 came into force and promulgation of the Government of Odisha Transfer Scheme, 2005, GRIDCO Ltd. as the deemed trading licensee was entrusted with the bulk supply business and the existing Bulk Supply Agreements and Power Purchase Agreements (PPAs) have been assigned to it. Under the existing legal set up, GRIDCO Ltd. is

evacuating the powers from the generating stations of OHPC and delivering it to the Distribution Licensees.

2. As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, a generating company is required to file an application by 30th November of each year to the Commission for determination of tariff for any of its generating stations, for sale of energy in the State of Odisha giving details of costs associated with the generation and sale of energy from the generating stations. Accordingly, on 29.11.2016 OHPC Ltd., as a generating company, had filed the Aggregate Revenue Requirement (ARR) and fixation of generation tariff i.e. Capacity and Energy Charge application in respect of each of its generating stations separately before the Commission for the FY 2017-18. The said application is as per the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 which had been notified in the Odisha Gazette on 10.10.2014. OHPC has filed its reply to the query of the Commission on its application on 06.01.2017.

3. After due scrutiny and admission of the aforesaid application, the Commission has directed OHPC Ltd. to publish its application in the approved format. In compliance to the same public notice was given in leading and widely circulated newspaper and 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 has received 6 number of objections from the following persons /organizations :

(1) Shri G.N. Agrawal, Convenor-cum-Gen. Secy, Sambalpur District Consumers Federation, Balaji Mandir Bhawan, Khetrajpur, Sambalpur-768003, (2) Shri Ananda Kumar Mohapatra, Power Analyst, S/o-Jachindranath Mohapatra, Plot No. L-II/68, SRIT Colony, Budharaja, Ps-Ainthapali, Dist-Sambalpur-768004., (3) Shri Ramesh Ch. Satpathy, Secretary, National Institute of Indian Labour, Plot No.302 (B), Beherasahi, Nayapalli, Bhubaneswar-751012, (4) Shri R.P. Mahapatra, Retd. Chief Engineer & Member (Gen., OSEB), Plot No.775(Pt.), Lane-3, Jayadev Vihar, Bhubaneswar 751013, (5) Shri Aditya Kumar Mishra, S/o. Late Laxminarayan Mishra, At/Po-Gudia Sahi, Dist-Puri-752001 (6) Chairman-cum-Managing Director GRIDCO Limited, Janapath, Bhubaneswar-22 were filed their suggestions/objections.

The date of hearing was fixed as 06.02.2017 at 11.30 AM and was duly notified in the leading and widely circulated newspaper mentioning the list of objectors. All the above named objectors along with the representative of Department of Energy, Government of Odisha and Shri L. R. Dash, G.M., GRIDCO Ltd., the authorized representative of CMD, GRIDCO Ltd. were present during tariff hearing and their written submissions filed before the Commission were taken on record and also considered by the Commission. The applicant submitted its reply to issues raised by the various objectors.

4. In exercise of the power u/S. 94(3) of the Electricity Act, 2003 and to protect the interest of the consumers, the Commission 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 individual power stations for the financial year 2017-18. The Consumer Counsel presented views on the matter during the hearing.
5. The Commission convened the State Advisory Committee (SAC) meeting on 20.02.2017 at 3.30 PM to discuss about the Aggregate Revenue Requirement (ARR) application and generation tariff proposal of the generating company for FY 2017-18. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission.

ARR PROPOSAL OF OHPC FOR FY 2017-18(Para 6 to 28)

Installed Capacity

6. The installed capacity of various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) for FY 2017-18 including Odisha's share of Machhkund is presented in table below.

Table – 1
Installed capacity of OHPC stations

(in MW)

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2016-17	Installed Capacity for FY 2017-18
1	Rengali (RHEP)	250.00	250.00
2	Upper Kolab(UKHEP)	320.00	320.00
3	Balimela(BHEP)	450.00 (for R&M of one Unit)	450.00 (from 05.08.2016 due to R&M Unit-1)
4	Burla (HHEP)	210.50 (from 16.10.2015 onwards till the approved period of shut-down of any one	210.50 (from 16.10.2015 onwards till the approved period of shut-down of Unit- 6 under

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2016-17	Installed Capacity for FY 2017-18
		Unit under R&M)	R&M)
		200.50 (during the overlapping period of R&M of #5 & #6)	200.50 (from 25.10.2016 for overlapping period of R&M of #5 & #6)
5	Chiplima (CHEP)	48.00 (from 15.10.2015 onwards till the approved period of shut down of Unit-3 under R&M)	48.00 (from 15.10.2015 onwards till the approved period of shut down of Unit-3 under R&M)
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhakund (30% Orissa share)	36.00	36.00
Total Installed Capacity (MW)		1974.50 (during R&M of Unit-3 of CHEP, Unit-6 of HHEP)	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)	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	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)	1844.5 (during R&M of Unit-3 of CHEP, overlapping period of Unit-5 & 6 of HHEP & Unit-1&2 of BHEP)

Design Energy

7. The Design Energy (DE) of a Hydro Power Station is an important parameter for determination of tariff. The existing design energy of OHPC power stations is given in table below.

Table – 2
Design energy for FY 2017-18

(in MU)

Sl. No.	Name of the Power Station	Design Energy approved for FY2016-17	Design Energy for sale for FY 2016-17	Design Energy proposed for FY 2017-18	Design Energy for sale for FY 2017-18
1	RHEP	525.00	519.75	525.00	519.75
2	UKHEP	832.00	823.68	832.00	823.68
3	BHEP	1183.00	1171.17	1183.00	1171.17
4	HHEP	684.00	677.16	684.00	677.16
5	CHEP	490.00	485.10	490.00	485.10
Sub Total of Old Power Stations		3714.00	3676.86	3714.00	3676.86
6	UIHEP	1962.00	1942.38	1962.00	1942.38
Total		5676.00	5619.24	5676.00	5619.24

Reservoir Level and Anticipated Generation

8. The Reservoir Level of OHPC Power Stations as on 31.10.2016 vis-à-vis on 31.10.2015 is presented in table below:

Table-3
Reservoir Levels of OHPC Power Stations

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

The actual generation of different Power Stations under OHPC up to 31.10.2016 and anticipated generation up to 31.03.2017 is given in the table – 4 below which is based on availability of water, irrigation requirement and peak load requirement of power.

Table-4
Actual and Anticipated Generation of OHPC

Sl. No.	Name of the power stations	Actual generation from 01.04.16 up to 31.10.16 (in MU)	Anticipated generation from 01.11.16 to 31.03.17 based on DoWR& DoE Schedule (in MU)	Total Anticipated generation for the FY 2016-17 based on DoWR& DoE Schedule (in MU)
1.	RHEP	484.99	188	672.99
2.	UKHEP	392.615	261	653.615
3.	BHEP	533.95	450	983.951
4.	HHEP	425.921	153	578.921
5.	CHEP	136.253	101	237.253
6.	UIHEP	980.682	686	1666.682
Total		2954.414	1839	4793.414

Project Cost

9. The revalued cost of old power stations of OHPC was 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 Odisha. However, the Tariff of Old power stations have been determined on the historical cost of old power station of OHPC for Rs. 479.80 Crores as per the Notification No. 1068 Dtd. 29.01.2003 of DoE, GoO.

The additional capitalization for an amount of Rs 13.34 cr. as per the audited account for FY 2015-16 has been considered for determination of tariff for the FY 2017-18. The OHPC has made capital maintenance of unit 1 of HHEP Burla amounting to Rs. 10.029 Cr. and civil works amounting to Rs. 6.56 Cr. Total decapitalisation of Power

Stations during the FY 2011-12 to FY 2015-16 comes to Rs 9.37 Cr which has been deducted from the original Revalued Cost as on 01.04.1996. The project cost of OHPC power stations considered for computation of ARR & tariff for the FY 2017-18 is given in the table below:

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

(Rs. Cr.)

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

Withdrawal of State Government Support in Determination of Generation Tariff

10. OHPC has stated that during the recent past the State Government has expressed severely regarding withdrawal of its supports in the matter of fixation of generation tariff of OHPC, and finally the State Government withdrew its support from the FY 2015-16 vide its Notification No. 5843 dtd 03.07.2015 in the Dept. of Energy, Government of Odisha.

Different notifications from Government of Odisha, mandate its implication in the determination of ARR & tariff of OHPC Power Stations from the FY 2015-16 onwards.

OHPC has considered Rs 67.11 Crs towards repayment of the UIHEP Government Loan in the calculation of Tariff & ARR for FY 2017-18. Interest on loan of UIHEP is calculated as Rs. 19.421 Cr. (i.e, 7% on average principal), which is proposed for the FY 2017-18. The accumulated interest of Rs. 350.57 Crs. from FY 2006-07 to FY 2016-17 is proposed to be considered as Regulatory Asset.

OHPC shall make payment to the GoO @7% interest on the Convertible Bond which shall be treated as loan from the FY 2015-16. Accordingly, OHPC has considered the interest on the Convertible Bond for the FY 2015-16, FY 2016-17 and FY 2017-18 in the Tariff of OHPC for FY 2017-18.

Table - 6
Power Station wise apportionment of Loan on account of Convertible Bond
(Rs. Cr.)

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

11. Further the Chhattisgarh State Power Distribution Company Limited (CSPDCL) is taking a plea to pay the energy charges to OHPC at the tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and which is determined by the Commission, considering the supportive measures extended by the Government of Odisha.

However, OHPC has computed the tariff for billing of energy to CSPDCL as per CERC (Terms and Conditions of Tariff) Regulations 2014 and prays to approve the tariff for energy billing to CSPDCL @ 194.81 paisa/unit for the FY 2017-18.

Determination of Annual Fixed Cost for FY 2017-18

12. OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 specifies methodology for computation of tariff for supply of electricity from hydro generating stations. The tariff shall comprise of 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
- c) Depreciation
- d) Operation and Maintenance expenses
- e) Interest on working capital

a) **Return on Equity**

OHPC has considered 25% of approved project cost of UIHEP and 30% of additional capitalization in UIHEP as equity base. Further OHPC has also considered 30% of the revalued cost of old power stations as on 01.04.1996 along with additional capitalization from 1996-97 to 2015-16 as per audited accounts as equity base. In addition to it, OHPC has claimed differential RoE for FY 2015-16 and FY 2016-17. Computation of RoE for different power stations is shown in the table below.

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

(Rs. cr.)

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

OHPC has claimed Income tax paid for FY 2015-16 as reimbursement from GRIDCO.

b) **Interest on Loan:**

The loan liabilities of OHPC consists of State Government loan, PFC loans and Normative Loans.

- OHPC has calculated the principal repayment, interest & differential depreciation claim on State Government Loan on UIHEP based on the observation of the State Government made vide Lr. No. 4323 Dtd. 31.05.2014 and in accordance with the Government Notification No. 5843 Dtd. 03.07.2015
- OHPC had considered the loan on the convertible bond of Rs766.2 Crore apportioned to different Old power stations of OHPC based on revalued cost as on 01.04.1996 and has considered the power station wise impact of interest

& principal of this bond for FY 2015-16 to FY 2017-18 in the present tariff of FY 2017-18.

- 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 was 2120999.73 USD as on 01.04.2016 and was repaid during FY 2016-17. So there is no liability towards repayment of interest and principal on PFC loan.
- The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% as per Clause No. 4.13 of OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014. The normative loan of BHEP, Balimela is considered @ 9.6 % for FY 2017-18 based on PFC interest rate applicable to BHEP. Similarly, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2017-18 based on PFC interest rate applicable to HHEP, Burla.
- The accumulated interest on UIHEP normative loan calculated upto 31.03.2016 is be Rs 65.24 Crore at the prevailing rate of interest of State Government Loan @7%.
- The Power Station wise interest on loan as described above is summarized in the table below:

Table-8
Interest on loan of different power house of OHPC

(Rs. Cr.)

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

c) Depreciation:

OHPC has computed depreciation for the FY 2017-18 @ 2.57% on the Revalued project cost as on 01.04.1996 (excluding de-capitalization) plus

additional capitalization w.e.f. 01.04.1996 up to FY 2015-16. The Unit wise depreciation so calculated is compared with the Loan repayment and the amount whichever is higher is considered as depreciation for Tariff computation.

The comparative statement for actual repayment of loans and depreciation @2.57% for the FY 2017-18 is presented in the Table below.

Table – 9
Depreciation Claim for the FY 2017-18

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

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

As per OERC Tariff Regulations, 2014, approved O&M expenses of FY 2016-17 have been escalated at the rate of 5.72% to arrive at O&M expenses for FY 2017-18.

OHPC has deducted Rs.10.97 cr. from O&M expenses of UIHEP towards dam maintenance expenses receivable from DoWR for FY 2017-18.

The Details of O&M expenses are given in table below.

Table – 10
Statement of O & M Expenses

(Rs. Cr.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses for FY 2017-18 with escalation @ 5.72% over FY 2016-17	47.95	36.12	68.73	72.64	16.63	242.08	69.48	23.22	334.77
2	Total O & M Expenses for the FY 2017-18	50.10	39.53	73.57	75.44	18.63	257.27	77.50		334.77
Less: Amount Received from DoWR.										
3	Less : Income to be received from DOWR towards dam maintenance of UIHEP							(-) 10.97		(-) 10.97
4	Total O&M Expenses for the FY 2017-18.	50.10	39.53	73.57	75.44	18.63	257.27	66.53		323.80

e) Interest on Working Capital

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

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

The rate of interest on working capital considered is the SBI MCLR @ 9.2% as on 1st April, 2016 plus 300 basis points which turns out to be 12.2%. In accordance with OERC guidelines, the interest on working capital shall be payable on normative basis.

The station wise interest on working capital as proposed by OHPC is presented in the table below.

Table- 11
Interest on Working Capital

(Rs. Crs)

Sl. No	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	Receivables equivalent to two months of fixed cost	27.93	28.27	37.63	24.50	17.42	135.76	35.30	171.06
2	Maintenance spares @ 15% of O&M expenses	7.52	5.93	11.04	11.32	2.80	38.59	9.98	48.57
3	O&M expenses for one month	4.18	3.29	6.13	6.29	1.55	21.44	5.54	26.98
4	Total working capital	39.62	37.49	54.80	42.10	21.77	195.79	50.83	246.61
5	Interest on working capital calculated @ 12.20%	4.834	4.574	6.685	5.137	2.656	23.886	6.201	30.087

Total Annual Fixed Cost

13. Based on the above parameters the station wise ARR and tariff calculated for the FY 2017-18 as proposed by OHPC is summarized below.

Table – 12
ARR and Tariff for the FY 2017-18

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
(Rs. in Crs.)								
Return on Equity	40.053	45.238	58.497	29.921	29.398	203.107	47.965	251.072
Interest on Loan	35.744	40.174	43.652	17.622	26.088	163.279	23.331	186.610
Depreciation	36.845	40.115	43.383	18.898	27.769	167.010	67.775	234.784
O&M Expenses	50.102	39.528	73.567	75.438	18.634	257.269	66.534	323.803
Interest on working capital	4.834	4.574	6.685	5.137	2.656	23.886	6.201	30.087
Total ARR	167.578	169.629	225.784	147.015	104.545	814.551	211.805	1026.356
Average Tariff (p/u)	322.42	205.94	192.79	217.11	215.51	221.53	109.04	182.65

Application Fee and the Publication Expenses:

14. As per the OERC Generation Tariff Regulations, 2014, the application filing fee and the expenses incurred on publication of notices may in the discretion of the commission, be allowed to be recovered by the generating company directly from the beneficiaries. As per the Commission notification no. 1992 dated 31.08.2009 in the clause no. 17, Commission has fixed a fee of Rs. 5000/- per MW as application fee for determination of tariff of conventional fuel based plant/ hydel plants, subject to maximum limit of Rs. 25,00,000/- (Rupees Twenty five lakhs). Further, OHPC has incurred Rs.0.83896 lakh as against approved amount of Rs.1 lakh for publication expenses during FY 2016-17. As per above provision, the application fee and publication expenses proposed by OHPC for FY 2017-18 are given below.

Table -13
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:

15. As per the agreed PPA between OHPC and GRIDCO, the taxes and duties including electricity duty (ED) on auxiliary consumption etc. payable by OHPC to the State Government and other statutory bodies shall be passed on to GRIDCO in the shape of supplementary bill raised by OHPC. The Rate of Electricity Duty / Unit have been revised from 20 paisa per Unit to 30 paisa per Unit with effect from 1st October 2015 as per the Gazette Notification No. 1387 dtd. 01.01.2015.

OHPC has proposed the ED on Auxiliary consumption of all Hydro Electric Projects to the tune of Rs 0.852 Cr during the FY 2017-18 and prayed before the commission to approve the same.

License fee for use of water for generation of Electricity:

16. As per the gazette notification dt.01.10.2010 of Water Resources Department, OHPC has to pay Rs.0.01/kwh as license fee on water used for generation of electricity from all Hydro Electric Projects to the tune of Rs.5.676 Crs. which is to be reimbursed to OHPC by GRIDCO, based on design energy. OHPC has further requested 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 license fee paid to Government of Odisha from GRIDCO.

SLDC charges

17. As per OERC (fees & charges of state load dispatch centre and other related matters) regulations, 2010, SLDC has to levy and collect annual charges from the users towards system operation charges and market operation charges. The Commission had allowed Rs. 1.53 Cr. as SLDC charges for the FY 2016-17 which is to be collected by SLDC from OHPC. Since OHPC has not received ARR, fees and charges of SLDC for FY 2017-18, OHPC has escalated previous year's fees and charges @5.72%. Accordingly, OHPC proposes Rs 1.62 Cr. as fees and charges payable by OHPC to SLDC for the FY 2017-18.

Tariff for Machhkund H.E. (Jt.) Scheme

18. 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 Odisha 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 Odisha. The proposed tariff of 55.068 Paise/Unit of Orissa drawl of Machhkund power for FY 2017-18 has been computed on cost reimbursement basis. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of design energy of Machhkund which is equivalent to 262.50 MU.

Table – 14
Projected Tariff of Machhkund H. E. (J) Scheme For FY 2017-18

Installed Capacity (MW)	120.00 MW
Odisha share as per Original Agreement (30%)	36.00 MW
Energy for sharing between Andhra Pradesh & Odisha	525.00 MU
Expected Energy Drawl by Odisha (50%)	262.50 MU
Energy Drawl of 30% of Odisha share	157.50 MU
Purchase of Power up to 20% as per Supplementary Agreement	105.00 MU
O&M Escalation factor @ 6.64% per year for 2 years	1.1372
	(Rs. in Crs)
1. O&M Exp. (Odisha share of Provisional O&M Exp. For FY 15-16)	11.973
2. O&M Exp for FY 2017-18 with escalation of 6.64% for 2016-17 & 2017-18	13.6156
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	14.4556
5. Tariff (Paise/Kwh)	55.068
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

19. OHPC had availed PFC loan in USD for R&M works of Unit#7 & Unit#8 of BHEP, the principal repayment and interest payment of which started from the FY 2007-08. Due to variation in Foreign Exchange Rate, OHPC has incurred total loss of Rs. 19.55 Cr (a loss of Rs 1.96 Cr. towards payment of interest and Rs 17.59 Cr. towards principal repayment) on the PFC loan of BHEP from FY 2007-08 to FY 2016-17. Out of Rs. 19.55 Cr., Commission had approved Rs 13.9 Cr for FY 2014-15, 2015-16 and 2016-17. The Commission may approve the balance Rs. 5.65 Cr. to be reimbursed from GRIDCO in FY 2017-18.

Reimbursement of Contribution Made to ERPC

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

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

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

OHPC had claimed Rs. 4.01 crores from GRIDCO in the FY 2015-16 and the same was approved by the Commission. OHPC assumes that the tentative expenditure of CATP programme during the FY 2017-18 will be within the approved amount of Rs 4.01Crs. So, OHPC does not claim any further reimbursement under the head CATP for the FY 2017-18.

Income Tax

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

Two-Part Tariff

23. As per clause 4.36 to 4.4 of the OERC (Terms and conditions for determination of Generation Tariff) Regulation 2014, the annual fixed cost of a power station shall be recovered on monthly basis through capacity charge (inclusive of incentives) and energy charge to be shared on 50:50 basis.

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

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

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

NAPAF= Normative Annual Plant Availability Factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

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

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

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

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 to provisions in clause(4.41) of OERC (Terms and Conditions for determination of Generation Tariff regulations) 2014.

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

Where,

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

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

Table-15
Capacity charge and energy charge of OHPC power stations

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

Normative Plant Availability Factor (NAPAF)

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

Table-16
Normative Plant Availability Factor (NAPAF)

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

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

25. The Commission had agreed in principle to carry out the R&M works in three plants vide order dated 31.03.2014. Subsequently tender for the R&M work was floated by OHPC.

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

The revised physical and financial profile of the proposed R&M activities are as under.

Table – 17
Revised Time schedule along with Reduced Project cost of R & M works

Power station	Unit	Zero Date	Tentative Date of Commercial Operation	Total duration of Shut down for R&M works	Revised Capital Cost of R&M works
CHEP, Chiplima	3	15.10.2015	15.06.2017	20 months	6567 Lakhs
BHEP, Balimela	1	05.08.2016	05.02.2019	30 months	38291 Lakhs
	2	*	05.02.2019	*	
	3	05.08.2018	05.02.2020	18 months	
	4	05.08.2018	05.02.2020	18 months	
	5	05.08.2019	05.02.2021	18 months	
	6	05.08.2019	05.02.2021	18 months	
HHEP, Burla	5	25.10.2016	24.04.2018	16 months	15877 Lakhs
	6	16.10.2015	16.02.2018	28 months	

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

Capital Maintenance of Different Power Stations

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

Table – 18
Capital Maintenance of Different Power Stations

Sl. No	Power Station & Unit under Capital Maintenance	Zero Date (in consultation with SLDC)	Approved Period	Present Status
1.	Unit-1 of HHEP, Burla	18.4.2015	153days	Synchronized to Grid on 14.10.2015 after completion of Capital Maintenance
2.	Unit-1 UKHEP, Bariniput	29.07.2015	181days	Synchronized to Grid on 13.06.2016 after completion of Capital Maintenance
3.	Unit-3 UIHEP, Mukhiguda	23.11.2015	123days	Synchronized to Grid on 01.08.2016 after completion of Capital Maintenance
4.	Unit-2 RHEP, Rengali	Not yet finalized	122days	To be taken up after due planning.
5.	Unit-3 RHEP, Rengali	04.11.2014	46days	Synchronized to Grid on 21.12.2014 after completion of Capital Maintenance
6.	Unit-2 of HHEP, Burla	22.07.2016	198days	Capital Maintenance Under Progress.

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

Augmentation of Storage Capacity of the Surulikonda Barrage

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

Prayer

29. OHPC's proposal for annual revenue requirement for FY 2017-18 is as follows
- (i) Rs.1026.356 cr. and average tariff @182.65 p/u with saleable design energy of 5588.79 MU
 - (ii) The miscellaneous reimbursement of Rs.54.922 cr. by OHPC from GRIDCO

- (iii) The tariff for energy billing to CSPDCL at Rs. 194.81 paisa/kWh
- (iv) Recognizing the following as the Regulatory Asset and taking suitable decision for realization of the same.
 - a. Accumulated interest of UIHEP Government Loan from 2006-07 to 2016-17 = Rs.350.57 Cr.
 - b. Accumulated interest on Normative Loan of UIHEP from 2001-02 to 2016-17 = Rs.65.24 Cr.
 - c. Realization of Rs. 207.70 Crs. Towards Hydrology Failure (negative fund for Secondary energy) from FY 1996-97 to FY 2015-16.
 - d. Allowing interest on recognized regulatory assets.
- (v) Approval of installed capacity for computation of PAFM and payment of SLDC charges during FY 2017-18 as per information furnished in table – 1.
- (vi) To approve the revised time schedule along with capital cost as shown in table – 5 for taking up R&M works of different units of OHPC.
- (vii) In principle approval for the proposed Capital Maintenance work of unit-4 of UKHEP, Bariniput.
- (viii) In principle approval for augmentation of storage capacity of the Surlikonda barrage at a cost of Rs. 24.5 Crs.
- (ix) Direct OPTCL to strengthen the power system network for evacuation of 50% Odisha share of generation from MHEP.
- (x) Direct appropriate authorities for optimization of hydro power generation from OHPC power stations utilizing the water potential upto MDDL.

VIEWS OF THE OBJECTORS (Para 30 to 53)

De-silting of the Reservoir

30. Some of the objectors have raised the issue of de-silting of reservoirs of OHPC. The objectors have stated that OHPC is not taking due care for addressing the silt problem. It should function in coordination with the department of Water Resources and Irrigation to address the silt problem. It was further suggested that OHPC should coordinate with VSSUT and Sambalpur University to solve the problem

Design Energy

31. One of the objectors has said that actual power generation from OHPC power stations is 123% more than the Design Energy and therefore the Commission may reassess the design energy upwards to allow OHPC to improve their efficiency and performance.

Some objectors have suggested that OHPC should be directed to re-determine design energy of its power stations by engaging an expert agency along with concerned central/state departments/ authorities. The objectors have suggested that until the reassessment of design energy takes place OHPC should not be allowed any regulatory assets proposed by it.

Below Potential Generation by OHPC

32. Department of Water Resources and Department of Energy, Government of Odisha have scheduled generation from OHPC and imposed restrictions on OHPC on utilization of water from reservoirs leading to below potential generation by OHPC.

Drawl of Energy from MHEP

33. One objector has said that Odisha is not in a position to draw 50% share of its energy from MHEP due to power transmission and distribution constraints caused by OPTCL and SOUTHCO.

Another objector has submitted that OHPC, GRIDCO, SLDC, OPTCL and SOUTHCO should be penalized by reduction of their Return on Equity proportionate to their default in streamlining the system for drawing full potential of Odisha share of power from MHEP.

Installed Capacity

34. One objector said that OHPC has failed to improve/develop any hydro projects and hence its application to reduce installed capacity should not be approved.

Manpower

35. One objector has said that OHPC should furnish details of manpower planning at all power projects before the time of hearing. The same objector has claimed that OHPC should furnish list of engineers and their profile.

Up-valuation of Asset

36. Almost all the objectors have raised the issue that the Commission should direct OHPC authorities not to place the up-valuation demand of Government of Odisha to be effective in the tariff of FY 2017-18. The objectors in general have emphasized that OHPC is still a wholly owned Government company of Government of Odisha and hence on legal ground the effect of upvaluation of assets should not be allowed in the ARR of OHPC for FY 2017-18.

Some of the objectors have suggested that the Tariff for FY 2017-18 may be approved without considering up-valuation of assets and the impact of modified Notification No.5843 dtd.03.07.2015 should not be considered.

One objector has advised that OHPC may submit detail work sheet with break up on up valued assets of old power stations and UIHEP, equity and differential equity amount of Rs. 300 Cr. in respect of old power stations.

Return on Equity

37. One objector stated that the return on equity shall be post-tax basis with the recovery of income tax from the beneficiaries. Another objector has advised that RoE and differential RoE on account of up-valuation of assets should not be allowed.

MDDL of Hirakud Project

38. One of the objectors stated that the MDDL of Hirakud power plant considered by OHPC as 595 ft in place of 590 ft may not be allowed. The Commission may add 32.4 MU to the data submitted by OHPC towards generation of HHEP while determining the ARR and Tariff. The same objector has proposed that as the Hirakud reservoir is managed by the Dept of Water Resources , OHPC should not recover the charges for drawl of water by industries.

Repair and Maintenance of Plants

39. Some objectors have raised that the progress of R&M work for various HEPs is being delayed. Another objector said that O&M cost and RoE may be reduced proportionately, when any unit is taken for R,M&U/capital maintenance and any unit is under prolonged outage condition except the annual maintenance period.

The objectors have suggested that OHPC may be advised to complete the R&M works in time.

O&M Expenses

40. Some objectors have stated that the Commission may specify norms for O&M expenses of OHPC and OPGC. Another objector has advised that OHPC may be asked to report actual O&M expenses for last five years.

Investment of OHPC

41. OHPC should produce list of JV companies where it is a promoter and expenditure incurred for these companies. OHPC is investing in equity of two companies namely OTPC and GEDCOL. Any loss incurred in those companies should not be carried to the ARR of OHPC.

Hydrology Failure

42. One objector has said that the compensation claims of Rs. 207.70 cr towards hydrology failure may not be approved as OHPC is recovering annual fixed charges based on availability of machines and generation of energy is at 4th priority as per the state water policy.

Damage to UIHEP

43. An objector has pointed out that all costs related to damage to UIHEP due to storage of water in the reservoir to higher level should not be added to the capital cost of UIHEP on ground of GOI/CERC Acts.
44. The same objector has suggested that GoO/OHPC may be advised to constitute an independent committee to find out the cost attributable to damage of UIHEP during the construction period. Further, he has also said that after submission of the report by the committee, the project cost of UIHEP may be re-determined.

License Fee for Use of Water

45. An objector has said that OHPC may be asked to furnish details of actions initiated for obtaining necessary waiver from state government on license fees for use of water for generation of electricity.

Dredging of Surulikonda Barrage

46. An objector has proposed that OHPC should be allowed to bear the cost of dredging Surulikonda barrage only to the extent of benefits received from the activity by OHPC. Another objector has said that Claim of OHPC on account of dredging of

Surulikonda barrage may not be approved by the commission as the dredging is for the purpose of irrigation which is responsibility of DoWR.

Income Tax

47. One objector said that income tax of an amount of Rs. 40.704 cr paid for FY 2015-16 may not approved as the operational income of Rs. 117.61 cr may be admitted only after due scrutiny of audited accounts.

Energy Status Report

48. One objector has claimed that OHPC should produce energy status report from the month of April 2016 till date, amount received from different industries availing water, actual generation status since 2009-10.

Expertise

49. One objector has argued that OHPC's application should be rejected on the ground that the ARR has not been filed by professional experts as per the definition of term "Expert" according to the newly framed Companies Act, 2013. He further added that engineering and accountancy-cum-commerce works should be done by respective experts in the fields.

True up Report

50. One objector has observed that OHPC has failed to submit Truing up report and performance review report for FY 2015-16 and hence the determination of ARR for FY 2017-18 is not possible.

ARR

51. One objector appealed that application for increase in tariff by OHPC should not be approved as OHPC is earning interest out of their surplus fund of Rs. 811 Cr. which is kept as fixed deposit. Another objector stated that the generation tariff of OHPC HEP 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. He further added that the Average Tariff proposal of 182.65 p/u for FY 2017-18 is unusually high compared to approved tariff for the previous year. Another objector said that submission of OHPC on change of state government investment as loan, additional depreciation of Rs.4.61

cr., differential depreciation of Rs. 32.27 cr., convertible bond accumulated interest of Rs.350.57 cr and Rs.65.24 cr as regulatory assets may not be considered.

IDC

52. One objector has suggested that IDC amount of Rs. 320 cr. may be excluded from the project cost of UIHEP.

Hydro Thermal Mix

53. One objector has suggested that OHPC may be asked to submit details on hydro thermal mix over last 10 years, status of addition of 1500 MW as identified by GoO, details of investment in OPTCL and BWCCL including their present status, capacity addition of 320 MW under Sindol project and any other plan for capacity addition.

REJOINDER AND REPLY OF OHPC TO QUERIES RAISED DURING HEARING (Para 54 to 81)

54. The compliance by OHPC to the suggestions/objections raised by the objectors as well as the reply to the queries raised during the hearing is summarized as under:

Installed Capacity

55. The reduction of installed capacity on account of capital maintenance of different units have not been deducted which will be considered depending upon the zero date as allowed by SLDC. OHPC has proposed reduction in the installed capacity following clause no. 4.1.3 of agreed PPA between OHPC and GRIDCO.

De-silting of Reservoir

56. DoWR shall create a corpus fund for removal of shoals/silt through periodic dredging as per order of Hon'ble high court of Odisha.

Up-valuation of Asset

57. Section 23(4)(a) applies to the transfer of property to private company and not applicable to OHPC since OHPC is a wholly owned government company and thereby entitled to get the effect of up-valuation. The decision of the state government which was intimated to the commission and the decision of the OHPC board in its 134th and 135th meeting form the basis of tariff proposal of OHPC for the FY 2017-18. The Reserves and surplus has been accrued on account of accumulated RoE and depreciation and this is to be invested or has been invested in RM&U of different

projects, capital maintenance work and investment in JV projects with the approval/knowledge of the commission.

Project Cost of UIHEP

58. Actual expenditure incurred on completion of the project has been considered as the final capital cost of UIHEP as per the orders of the commission.

Design Energy

59. OHPC has tried its best to revise the design energy of different power stations by engaging independent agency. But the commission has found it suitable to replenish the shortfall in revenue due to lesser generation by OHPC in the years of hydrology failure from secondary energy fund which is having a negative balance of Rs. 207.70 Cr. now. The submission of OHPC for revised design energy of different power stations may be reconsidered. Actual generation of a hydro generating station depend on rainfall pattern, availability of water in reservoir and machines for generation and demand in the state. Depending on these variable factors there is always a mismatch between actual generation and design energy.

Drawl of Energy from MHEP

60. Due to inadequate number of distribution substations, Odisha is unable to draw its full 50% share of MHEP on real time basis. Objection that day ahead monitoring may not solve the problem unless power evacuation system and proper matching load on real time basis is arranged.

Renovation and Modernization of Plants

61. OHPC never claims capacity charges for non-availability of power plants when the concerned machines are under outage plans and always seeks prior approval from the commission. In case of R&M works OHPC is not claiming any repair, maintenance and operational expenses except manpower and insurance charges. OHPC is maintaining its old power stations at lowest rate of O&M expenses in the country and providing machine availability at par with national standards. The delay in R&M of power plants is due to unavoidable reasons and OHPC is trying its best to complete the project within approved project schedule. OHPC has adopted massive R&M works in Balimela and units 2 to 6 of BHEP are still available for power supply to the grid.

License Fees for Use of Water

62. The Commission has approved license fee for use of water to generate electricity to be paid by OHPC @ Rs.0.01/kWh as per Gazette Notification dtd.01.10.2010 of Water Resources Department and Government of Odisha and the same amount is to be reimbursed from GRIDCO.

Dredging of Surulikonda Barrage

63. The BoD of OHPC decided that any payment to be made to the DoWR for the said purpose will be subject to approval of the Commission. The decision of the commission shall be binding to OHPC and if the commission decides to allow OHPC to pay for dredging, then the modalities of recovery of the same in the tariff mechanism may also be decided.

Capacity Addition Plan

64. The plan for addition of 1500 MW capacity has not yet achieved. The MoU signed for this purpose with NHPC has expired in 2013. OHPC will consider developing large hydro projects only after decision on construction of multipurpose dam taken up by DoWR. Details of Investment in OTPCL and BWCCCL including their present status is presented in the table below:

Table – 19
Details of Investment

Name of JV/Subsidiaries	Investment made by OHPC (in Rs. Lacs)	Total Expenditure Incurred by the JV/Subsidiaries (in Rs. Lacs)
OTPCL	13420.47	22424.42
BWCCCL	1000.00	2164.92
OCPL	4900.00	49579.27
GEDCOL	5032.00	--

Proposal of Sindol project is yet to be finalized. The DPR for pump storage project at UIHEP, Mukhiguda is under preparation. PFR for pump storage project at Upper Kolab and Balimela has been prepared and steps for DPR is under process.

Tariff Computation Methodology

65. OHPC has submitted its tariff proposal for FY 2017-18 based on Odisha Electricity Regulatory Commission Generation Tariff Regulations 2014.

Income Tax

66. GRIDCO may be directed, by an order, to pay the reimburse income tax on a periodic basis to OHPC. The Commission may approve the total reimbursement claim for an amount of Rs. 40.704 cr. from GRIDCO in the tariff of OHPC for FY 2017-18 towards income tax as per audited accounts of FY 2015-16.

Tariff & ARR Computation

67. The increase in tariff of Rs.97.45 paise/unit in average tariff of OHPC for FY 2017-18 is mainly due to the consideration of impact of the State Government Notification No.5843 dated 03.07.2015. OHPC has considered the effect of the above Government Notification as the basis of ARR and tariff computation of OHPC for the FY 2017-18.

MDDL of Hirakud Project

68. Due to restriction put on MDDL of Hirakud reservoir to maintain R.L. at 595 ft. instead of 590 ft., 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. The Commission may like to advise government to allow OHPC to generate up to 590 ft. at HHEP, Burla keeping aside earlier decisions with regards to the reservoir level. During non-monsoon period SLDC is scheduling the generation of HHEP during peak hours for 3 to 4 hours and during off-peak periods the machines remain idle. In the monsoon period DoWR releases water from Hirakud dam which in turn increases the tail race of CHEP and thereby reducing the net available head and generation of the power house. As the discharge capacity of the hill channel leading to forebay of the Chiplima power house is restricted to 12500 Cusec, the maximum generation from CHEP is restricted to 63.5 MW instead of installed capacity of 72 MW. In a realistic manner OHPC can achieve a maximum generation up to 350 MU for CHEP in case of optimum water availability and effective generation scheduling at HHEP, Burla.

Energy Compensation Charges

69. Energy compensation charges to be paid by industries for using water from reservoir should be collected by DoWR and OHPC may claim the amount from DoWR towards loss of generation, both for raising MDDL and also for loss due to drawl of water by industries from the reservoirs.

Loss of Subsidiary and JV Companies

70. The loss of subsidiary and JV companies shall not be part of OHPC ARR.

Investment and Expenditure in JV Companies

71. The related detailed information is provided in Annexure-II of OHPC's reply.

O&M Expenses

72. OHPC has taken O&M escalation rate at 5.72% over the previous year's approved O&M cost following the procedure adopted by the Commission. Comparative Statement of Actual and Approved O&M Expenses is given below.

Table – 20
Statement of O & M Expenses

(Rs. Cr.)

Financial Year	O&M Approved in ARR	Actual Expenditure of OHPC
2011-12	210.97	224.69
2012-13	221.18	249.95
2013-14	216.67	233.62
2014-15	294.46	254.87
2015-16	300.66	270.49

Hydrology Failure

73. OHPC has claimed compensation of an amount of Rs.207.70 cr. for non-recovery of energy charges due to no availability of water in the reservoirs during the years of hydrology failure and does not claim for shortfall in recovery of capacity charges. GRIDCO's claim that OHPC is recovering total annual fixed charges based on availability of machines and considering hydro power as 4th priority is not correct.

Truing Up Exercise

74. OHPC is in the process of engaging a consultant to carry out the process of truing up for different power plants from FY 1996-97 onwards. The performance of OHPC is being constantly monitored by DoE, GoO, and the Commission from time to time. OHPC in the FY 2015-16 has maintained a weighted plant availability factor of 85.95% against targeted PAF of 83.04%. The performance of OHPC is not under rated and the contention of the objector in this regard is not correct. OHPC has considered the tariff impact of Government Notification no.5843 dtd.03.07.2015 based on State Government decision in the Department of Energy.

Manpower

75. Detailed list of Engineers and manpower is provided in Annexure –VI & VII of the Rejoinder submitted by OHPC.

Expertise

76. Tariff application of OHPC has been prepared as per the applicable regulations set by regulatory commission and hence the objections raised by the objector are out of context.

Business Plan

77. Business plan for OHPC for 12th FYP is under preparation.

Fact Finding Committee

78. The commission may give a suitable decision on this.

Energy Status Report

79. The reservoir level of OHPC power stations as on 15.01.2016 vis-a-vis on 15.01.2017 is given below:

Table – 21

Reservoir	As on 15.01.2016	As on 15.01.2017
Rengali	118.07 meter	122.34 meter
Kolab	855.54 meter	856.21 meter
Balimela	1495.70 ft.	1501.40 ft.
Hirakud	623.73 ft.	627.02 ft.
Indravati	634.84 meter	638.80 meter

80. The actual generation report from 01.04.2016 up to 15.01.2017 and anticipated generation up to 31.03.2017 is furnished below.

Table – 22

Power Stations	Actual Generation from 01.04.2016 to 15.01.2017 (in MU)	Anticipated Generation from 16.01.2017 to 31.03.2017 based on DoWR and DoE Schedule (in MU)	RL likely to be Achieved as on 31.03.2017 as per Generation Schedule	Total Anticipated Generation for the FY 2016-17 based on DoWR and DoE Schedule (in MU)
RHEP	515.32	79.703	118.87 meter	595.023
UKHEP	455.28	192.71	852.75 meter	647.99
BHEP	794.223	389.596	1485.80 ft.	1183.819
HHEP	479.20	67.933	614.25 ft.	547.133
CHEP	165.613	51.56	-	217.173
UIHEP	1146.26	342.158	635.40 meter	1488.418
Total	3555.896	1123.66	--	4679.556

Compensation for Industrial Consumption of Water from the Reservoirs

81. OHPC has received total amount of Rs. 4.95 Cr. towards compensation for industrial consumption of water from the reservoirs. The details are provided in Annexure – 18 of OHPC's application dtd.28.11.2016.

VIEWS OF CONSUMER COUNSEL (Para 82)

82. On behalf of World Institute of Sustainable Energy, Pune the Consumer Counsel had made a presentation on the Analysis of ARR and Tariff filing of OHPC for 2017-18. The Consumer counsel's observations /suggestions are elaborated below.

- Comparative analysis of ARR approved by the Commission for FY 2016-17 to that of the proposed ARR for FY 2017-18 reveals that there is 114% increase proposed in the ARR for FY 2017-18. In case of Machhkund, the increase in tariff proposed is 14.92%.
- OHPC has further considered RoE on up-valued project cost less RoE approved for FY 2015-16 and FY 2016-17 as differential RoE and added these to the RoE claim of FY 2017-18. The Commission may ignore differential RoE claim for determining the tariff for FY 2017-18.
- The Commission may consider the interest accumulated on Govt Loan and Normative loan of UIHEP after completion of the Principal repayment of the Government loan and Normative loan as is being allowed in the previous years.
- The Commission may approve the remaining amount of loss due to FERV on PFC loans.
- OHPC has computed depreciation for FY 2017-18 @ 2.57% of revalued project cost as on 01.04.1996 plus additional capitalization from 01.04.1996 to FY 2015-16. The unit wise depreciation so calculated has been compared with loan repayment and whichever is higher has been considered as depreciable amount. The same methodology may be followed. However, depreciation may only be approved after due scrutiny of loan repayment schedules of different stations of OHPC.
- OHPC has claimed expenses on O&M following clause no. 4.28 of the OERC (Terms & Conditions for determination of Generation Tariff) Regulation,

2014. 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 year's approved O&M expenses. OHPC has deducted Rs. 10.97 Cr. from escalated O&M expenses of UIHEP for FY 2017-18 on account of maintenance expenses receivable from the DoWR. The same methodology may be followed by the Commission in determining the O&M expenses of OHPC.

- Working capital may be approved based on approved O&M cost and annual fixed cost.

OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC) (Para 83)

83. The Members of SAC deliberated on 20.02.2017 the different issues related to power sector and the Annual Revenue Requirement of various licensees. Regarding OHPC, some members suggested that since Machhakund and Upper Indravati Hydro Electric Projects were added later, the consumers should not pay for their renovation and expansion programmes as there is no substantial improvement due to modernisation of these projects. Renovation and Modernisation expenses should be allowed to OHPC after due diligence by the Commission. Further, the issue of considering upvaluation of assets of OHPC should not be considered while determining tariff.

VIEWS OF GOVERNMENT OF ODISHA (Para 84)

84. Government of Odisha communicated its suggestions/views/comments on various issues involving tariff setting for the year 2017-18 including subsidy / subvention and other important matters having a direct bearing on fixation of tariff for the year 2017-18 vide their letter No.LC-OERC-18/2017/En/1929 dated 08.03.2017.

“Regarding the issue of up-valuation of assets pertaining to OPTCL, Generators and other licensees the Government for the time being agrees with the views of the Commission to keep in abeyance the up-valuation of assets like previous years. Considering the present difficult situation, the Govt. agrees to extend the status-quo on up-valuation till 2017-18.

X X X X X

Relating to OHPC, the Hon'ble Commission may consider to include both payment of interest and repayment of principal in the ARR of UIHEP. However, the interest w.e.f. 2006-07 to 2017-18 may be kept as Regulatory Assets of OHPC to be paid in future tariff”.

COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL

(PARA 85 TO 144)

85. 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, audited figures for additional capitalisation, component wise O&M expenses in respect of all these stations have also been provided along with tariff calculations.

86. 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 on the issues related to tariff of OHPC are discussed as under:

- Power Procurement from OHPC
- Project Cost
- 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
- Status of Renovation, Modernisation and Uprating of different generating units of OHPC
- Augmentation of storage capacity of the Surulikonda Barrage

87. **The Annual Revenue Requirement of OHPC power stations for FY 2017-18 has been determined based on OERC (Terms and Conditions of Determination of Generation Tariff) Regulations, 2014.**

Power Procurement from OHPC

88. 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.

89. 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, 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 de-rated combined capacity of 20 MW of Unit 5 & 6. Subsequently Unit-5 has been planned to be under RM & U from 25.10.2016. Accordingly OHPC has considered the installed capacity of HHEP Burla as 210.5 MW and 200.5 MW with effect from 16.10.2015 and 24.10.2016 respectively as per Clause 4.1.3 of approved PPA and as per Order dated 31.03.2014 in Case No. 67 of 2013 of the Commission.

Further Unit- 1of BHEP, Balimela of 60 MW capacity has been taken under R&M with zero date starting from 05.08.2016. So the installed capacity of BHEP shall be considered as 450 MW for computation of PAFM from 05.08.2016 onwards for the approved period. OHPC has submitted that the Unit No. 02 will also be taken under R&M during FY 2017-18 and the actual date will be communicated as soon as the work is taken up.

The Installed Capacity of MHEP is 120MW (i.e. 17MW x 3 = 51MW and 23MW x 3 = 69MW). So the 30% Odisha Share from MHEP being 36 MW, has been considered for computation of total installed capacity of OHPC.

90. Accordingly, the installed capacity of different generating stations of OHPC for the FY 2016-17 and the proposed capacity for FY 2017-18 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.
91. 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 5598.68 MU of availability from OHPC hydro stations excluding 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.

Machhkund

92. 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 based on the supplementary agreement between the above parties. The Commission, therefore, approves 262.50 MU to be drawn from this station during 2017-18.
93. The Commission’s approval of power to be purchased by GRIDCO for FY 2017-18 sent out from various stations of OHPC is given in the table below:-

**Table - 23
Hydro Drawal and Projections for 2017-18**

Sl. No.	Name of the HE Project	Design Energy (MU)	Commission’s Approval for 2016-17 (MU)	Commission’s Approval 2017-18 (MU)
1	Hirakud	684.00	677.16	677.16

Sl. No.	Name of the HE Project	Design Energy (MU)	Commission's Approval for 2016-17 (MU)	Commission's Approval 2017-18 (MU)
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.

Project Cost

94. The tariff of old power stations has been determined on the historical cost of old power stations of OHPC for Rs.479.80 cr. as per the Notification No.1068 dtd.29.01.2003 of Department of Energy, GoO. Further, the Commission in its order dtd.20.03.2008 had approved Rs.1194.79 cr. as final capital cost of UIHEP for the purpose of determination of tariff. OHPC has also made additional capitalisation as per clause 3.4 of OERC (Terms and Conditions for Determination of Tariff) Regulations, 2014 for different power stations for different works like power house electrical and mechanical works, water supply installation, electrical installation, buildings, power house civil works, dam tunnel and substation equipments etc.

The adjustment of cost of assets during the period from FY 2011-12 to FY 2014-15 on account of de-capitalisation of assets for an amount of Rs.8.05 cr. had already been approved by the Commission in earlier tariff order of OHPC. During 2015-16 there is further de-capitalisation of total of Rs.1.33 cr. out of which 0.84 cr. in case of old power stations of OHPC and Rs.0.49 cr. in case of UIHEP. Hence the total de-capitalisation of power stations during FY 2011-12 to FY 2015-16 is to the extent of Rs.9.38 cr. which has been deducted from the project cost.

The additional capitalisation for an amount of Rs.13.34 cr. as per the audited accounts for FY 2015-16 has been considered for determination of tariff for the FY 2017-18. The approved project cost for the tariff calculation of 2017-18 is summarised in the table below:

Table – 24
Capital cost approved for Tariff Determination of FY 2017-18

Sl. No.	Name of the Power Stations	Historic cost of assets as on 01.04.96	Asset reduction during the FY 2011-12 to FY 2014-15	Asset reduction during the FY 2015-16	Asset reduction during the FY 2011-12 to FY 2015-16	New additions from 01.04.1996 to 31.03.2015 (Approved)	New additions during FY 2015-16 (Audited)	New addition upto 2015-16	Project cost considered for Tariff Calculation based on Historic Cost
1	2	3	4	5	6=4+5	7	8	9 = 7 + 8	10 = 3-6+9
1	RHEP	91.09	0.00	0.06	0.06	57.26	0.21	57.47	148.51
2	UKHEP	108.31	0.16	0.00	0.16	18.88	0.10	18.98	127.13
3	BHEP	115.42	0.26	0.03	0.29	214.42	1.08	215.50	330.64
4	HHEP	72.75	6.07	0.70	6.77	206.91	10.44	217.35	283.33
5	CHEP	92.23	0.70	0.05	0.75	47.36	0.51	47.87	139.35
	Sub Total	479.80	7.19	0.84	8.03	544.83	12.35	557.18	1028.95
6	UIHEP	1194.79	0.86	0.49	1.35	3.76	0.99	4.75	1198.19
	Total	1674.59	8.05	1.33	9.38	548.59	13.34	561.93	2227.14

95. 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 Government 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.”*
96. Further, the Commission vide letter No.1621 dtd.21.12.2015 had written to the Government 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 the 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

97. The effect of Notification No.5843 dtd03.07.2015 of Department of Energy, GoO cannot be taken into consideration while calculating tariff in view of the fact that the Commission has already dealt with the issue vide para 73, 74, 75 & 76 of OHPC's

ARR and Tariff Order for FY 2016-17. The extract of the said order is reproduced below:

- “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:"*

98. In the above order the Commission had explicitly expressed the reasons for not considering the impact of this notification issued by GoO which is inconsistent with Section 25 of OER Act, 1995 inter-alia. During public hearing of ARR and Tariff approval of OHPC for FY 2017-18, all the objectors vehemently opposed the proposal of OHPC for implementation of Government Notification No.5843 dtd.03.07.2015. The objectors have suggested not to consider the impact of the above notification and up-valuation of assets of old OHPC stations. Further, the consumer Counsel also pleaded not to take into account the effect of upvaluation of assets which would escalate the project cost and thereby the RoE, depreciation and interest on loan. During public hearing the Commission had also raised this issue and sought clarification from OHPC. OHPC could not furnish a satisfactory reply to the query raised by the Commission till date.

99. Again the Commission brought the issue to the notice of GoO vide letter No.JD(FIN)-175/02 (Vol. II)/302 dt.23.02.2017 to take a view on keeping the effect of up-valuation in abeyance for the year 2017-18. Government of Odisha vide letter no.LC-OERC-18/2017/1929 dt.08.03.2017 replied as follows:

“Regarding the issue of up-valuation of assets pertaining to OPTCL, Generators and other licensees the Government for the time being agrees with the views of the Commission to keep in abeyance the up-valuation of assets like previous years. Considering the present difficult situation, the Govt. agrees to extend the status-quo on up-valuation till 2017-18.

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Relating to OHPC, the Hon’ble Commission may consider to include both payment of interest and repayment of principal in the ARR of UIHEP. However the interest w.e.f. 2006-07 to 2017-18 may be kept as Regulatory Assets of OHPC to be paid in future tariff.”

100. The effect of Notification No.5843 dtd.03.07.2015 of Department of Energy, GoO cannot be taken into consideration while calculating tariff in view of the above mentioned reply by the Government of Odisha. Accordingly, the Commission has not considered the effect of up-valuation of assets in determining the Tariff and ARR for FY 2017-18. The component wise details for calculation of ARR are described as under.

Interest on Loan:

101. The loan liabilities of OHPC consist of State Government loan, PFC loans and the Normative Loan. The details of various loan components as proposed by OHPC for the FY 2017-18 is presented above at para 13(b) and Table No-8.

I. State Government Loan

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

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

Table - 25

	(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 2016 -17 @ Rs.30.23 Crore	211.61
Loan Repayment made till FY 2016-17	211.61
Balance Outstanding Loan as on 01.04.2016	286.25
Interest claimed for the year 2017-18@ 7%	19.42

OHPC has claimed to approve Rs.19.42 Cr. towards interest on Government loan of UIHEP in the Tariff for the FY 2017-18.

OHPC has also claimed cumulative interest to be recovered from FY 2006-07 to FY 2016-17 @7% on Rs.522.62 Cr. (as per OHPC's rescheduled statement) to the extent of Rs.350.57 Cr. towards UIHEP Government loan.

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 - 26
Status of outstanding PFC loan

Sl. No.	Name of the Units	Outstanding loan as on 01.04.2017	Loan Repayment for FY 2017-18	Interest Repayment for FY2017-18
1.	Unit #3 & #4, Burla	0.00 Cr. (INR)	0.00 Cr. (INR)	0.00Cr
2.	Unit #7 & #8, Balimela	0.00 (USD)	0.00 Cr. (INR)	0.00Cr.

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 was 2120999.73 USD as on 01.04.2016 which was repaid during FY 2016-17. So there is no liability towards repayment of interest and principal on PFC loan of Unit 7 & 8 for the FY 2016-17 as this loan is fully repaid.

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.17.59 Cr. towards payment of principal and Rs.1.96 Cr. towards payment of interest from FY2007-08 to FY 2016-17 due to fluctuation in Dollar to Rupee rate. The total loss amounting to Rs.19.55 Cr. (Principal+ Interest) was due by the end of FY 2016-17, out of which Rs.5.99 Cr. & Rs.4.20 Cr. and Rs.3.71 Cr. have already been approved by the Commission in the tariff of OHPC for FY 2014-15, FY 2015-16 & FY 2016-17 respectively. Balance **Rs.5.65 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:-

The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% as per Clause No. 4.13 of OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014. The normative loan of BHEP, Balimela is considered @ 9.6 % for FY 2017-18 based on PFC interest rate applicable to BHEP. Again, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2017-18 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 2015-16 is considered at the prevailing rate of interest of State Government Loan @7% as per the OERC tariff norms.

Normative Loan of Rs 53.32 Cr. 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 Government 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 Government loans”.

OHPC prays before the Commission to designate the accumulated interest amounting to Rs 65.24 Cr. from the FY 2001-02 to FY 2016-17 on Normative Loan of Rs 53.32 Cr. as Regulatory Asset and fix suitable installment as pass through in the tariff for the FY 2017-18 in order to reduce the future tariff burden.

Summary of Interest on loan:

Considering the above facts, the interest on outstanding loans payable by OHPC for the FY 2017-18 comes to Rs.186.61 Cr. and proposed by OHPC as presented in the Table No-8 of this order.

The unit-wise interest on loan as submitted by OHPC has been scrutinized by the Commission and the Commission’s observation on this issue is as follows:

The Commission has examined the proposal of OHPC towards payment of interest on Government 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 Government loan of UIHEP as Rs.497.86 Cr. and normative loan to the extent 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.”

102. In line with the above decisions of the Commission now it is observed that the depreciation has already been allowed in the tariff of 2010-11 to 2016-17 @ Rs.30.23 Cr. per year. The same amount is also allowed in the tariff of 2017-18 towards principal repayment of UIHEP Govt Loan. The objectors and the Consumer Counsel during hearing also suggested not to allow interest on Government loan and normative loan of UIHEP.

103. Considering the above, the Commission allows OHPC to make Principal repayment of Rs.30.23 Cr. against the depreciation during the FY 2017-18. 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 Government 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 Government loan and normative loans for UIHEP is allowed for the purpose of tariff for FY 2017-18. However, the interest on normative loans for additional capitalisation of Unit-II Chipilima, , Unit-IV Upper Kolab, Balimela, Hirakud, Rengali and UIHEP are allowed by the Commission.

104. The Unit-wise interest on loan as described above and approved by the Commission for the FY 2017-18 is summarized as follows:

Table - 27

(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2017-18						
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	Normative loan	2.082	0.151	0.159	0.706	0.276	0.176	3.550
2.	Govt. loan of UIHEP						0.00	0.00
Total		2.082	0.151	0.159	0.706	0.276	0.176	3.550

The Commission accepts and approves interest payment of Rs.3.550 cr. for all stations of OHPC for the FY 2017-18 as against Rs.5.371 cr. allowed in the tariff for the FY 2016-17.

Depreciation:

105. 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 Government 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 2017-18 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 2017-18. 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 2017-18 for recovery through tariff.

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

Table – 28
Statement of Repayment of Loans
(Rs. cr.)

Power Stations	2016-17	2017-18
HHEP	0.77	2.23
CHEP	1.97	2.04
BHEP	15.56	0.53
RHEP	3.65	3.68
UKHEP	2.11	0.68
UIHEP	30.76	30.89
Total	54.82	40.07

107. For the year 2017-18, depreciation is claimed in the tariff applying 2.57% of the project cost in case of RHEP, UKHEP, HHEP, CHEP & BHEP. The same is approved by the Commission which is as summarized below:

Table – 29
Depreciation approved for 2017-18

Name of the Power Station	Approved Depreciation (Rs. Cr)	Remark
HHEP	7.282	2.57%
CHEP	3.581	2.57%
BHEP	8.497	2.57%
RHEP	3.817	2.57%
UKHEP	3.267	2.57%
Sub-Total	26.444	
UIHEP	30.895	Spread over useful life of the plant
Grand Total	57.339	

The amount of depreciation of Rs.26.44 Crore is approved by the Commission for the FY 2017-18 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.0.66 cr. towards

repayment of principal of Normative loan instalment for FY 2017-18. Thus, Rs.30.89 cr. is allowed towards depreciation requirement of UIHEP.

The Commission approves a total amount of Rs.57.339 cr. on account of depreciation for tariff purpose in ARR of FY 2017-18 as against Rs.234.784 cr. proposed by OHPC in its application. The corresponding approved figure for FY 2016-17 was Rs.64.02 cr.

Return on Equity (RoE)

108. 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. Based on the above order and subsequent Government 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.
109. The return on equity (ROE) is determined 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 as accepted by the Commission.
110. The Commission had decided to allow return on equity at 16% on the new capital addition with a provision to reimburse the actual income tax paid during the FY 2015-16 which is subject to change after the actual tax paid during the FY 2017-18. 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 2015-16 as per audited accounts is Rs.40.704 cr. on operational income of Rs.117.61 cr. which is a core business. OHPC has claimed the same amount to be considered for reimbursement from GRIDCO during the year 2017-18. Thus the Commission allows Rs.40.704 cr. to be reimbursed from GRIDCO in the tariff of 2017-18. Accordingly the details of RoE of OHPC power stations approved by the Commission for the FY 2017-18 is summarized below:

Table – 30

(Rs. Cr.)

Sl. No.	Name of the Power Stations	Project Cost	Equity Capital rate	Equity Capital	ROE @16% for the FY 2017-18
1	RHEP	57.47	30%	17.242	2.759
2	UKHEP	18.98	30%	5.694	0.911
3	BHEP	215.50	30%	64.651	10.344

Sl. No.	Name of the Power Stations	Project Cost	Equity Capital rate	Equity Capital	ROE @16% for the FY 2017-18
4	HHEP	217.35	30%	65.206	10.433
5	CHEP	47.87	30%	14.360	2.298
6	UIHEP	1198.19	25% & 30%	299.785	47.966
	Total	1755.37		466.939	74.710

NB:

- Approved project cost of UIHEP is Rs1194.79Cr. Decapitalisation for FY 2014-15 & FY 2015-16= Rs1.35Cr. Decapitalisation is considered from the approved project cost. New project cost= Rs 1194.79Cr - Rs1.35Cr =Rs1193.44Cr. Additional Capitalisation from FY2013-14 to FY2015-16=Rs4.75Cr. Project Cost for Tariff= Rs1198.19Cr.
- The Equity Capital of UIHEP has been considered @25% of Rs 1193.44Cr= Rs298.36Crs. Adding to it the 30% equity towards net additional capitalisation from FY 2013-14 to FY 2015-16 of Rs 4.75Cr =Rs 1.425Cr.
- 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 2015-16.

The Commission approves return on equity for all stations of OHPC amounting to Rs.74.710 Cr. for the FY 2017-18 as against Rs.251.072 cr. claimed by OHPC for the same year. The corresponding approved figure for FY 2016-17 was Rs.74.09 cr.

O&M Expenses

111. 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.334.77 Cr. for FY 2017-18. 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 2015-16 indicates that Rs.10.97 crore was received towards dam maintenance expenses from DOWR. The same amount is deducted from the approved O&M expenses of UIHEP of Rs.77.504 cr. resulting in the net O&M expenses of Rs.66.534 cr. for calculation of ARR of UIHEP for the FY 2017-18. **Thus, the Commission after due scrutiny approves total O&M expenses**

at Rs.323.803 cr. for FY 2017-18 as proposed by OHPC. Station-wise O&M expenses approved for FY 2017-18 is presented in the table below:

Table – 31
Statement of O & M Expenses for 2017-18

(Rs. Cr.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses for FY 2016-17 Approved by OERC	45.36	34.17	65.01	68.71	15.73	228.98	65.72	21.96	316.66
	O & M expenses for FY 2017-18 with escalation @ 5.72% over the approved O&M for FY 2016-17.	47.95	36.12	68.73	72.64	16.63	242.08	69.48	23.22	334.77
2	Corporate Office expenses apportioned to different units under OHPC based on D.E.	2.15	3.40	4.84	2.80	2.00	15.19	8.03	23.22	
3	O & M Expenses for the FY 2016-17	50.102	39.528	73.567	75.438	18.634	257.269	77.504		334.773
4	Less Amount to be received from DoWR towards Dam Maintenance Sharing of UIHEP for FY 2016-17							-10.97		
5	Total O&M Expenses for the FY 2017-18	50.102	39.528	73.567	75.438	18.634	257.269	66.534		323.803

The corresponding approved figure for FY 2016-17 was Rs.315.36 cr.

Interest on Working Capital

112. 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.

OERC Generation Tariff Regulations, 2014 stipulates that 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. Interest on Working

Capital shall be payable on normative basis notwithstanding that the generating company has not taken loan for working capital from any outside agency. The Reserve Bank of India has issued new guidelines for setting lending rate (on loans) by Commercial Banks under the name Marginal Cost of Funds based Lending Rate (MCLR). This MCLR will replace the prevailing SBI base rate from April, 2016 onwards. The MCLR as on 1st April, 2016 of SBI for one year was 9.2%. OHPC has considered the MCLR rate of SBI as on 01.04.2016 instead of SBI base rate. The Commission has adopted this principle which is equivalent to 12.20% for FY 2017-18 considering 9.2% as the MCLR Rate (9.2% + 300 basis point = 12.2%). The detailed calculation of Working Capital approved by the Commission is presented in the Table below:

Table – 32
Interest on Working Capital for FY 2017-18

(Rs. Cr.)

Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	O&M Expenses for One Month	4.18	3.29	6.13	6.29	1.55	21.44	5.54	26.98
2	Maintenance spares @15% of O&M Expenses	7.52	5.93	11.04	11.32	2.80	38.59	9.98	48.57
3	Receivable equivalent to Two Months of Annual Fixed Cost	10.24	7.65	16.10	16.33	4.31	54.64	25.09	79.72
4	Total Working Capital	21.93	16.88	33.27	33.94	8.66	114.67	40.61	155.28
5	Interest on Working Capital calculated @ 12.20%*	2.675	2.059	4.059	4.140	1.056	13.989	4.955	18.944

* SBI MCLR for 01.04.2016 is 9.20% + 300 basis points = 12.20%

Thus, the Commission approves an amount of Rs.18.944 Cr. as interest on working capital for the year 2017-18 as against the OHPC proposal of Rs30.087 cr. The interest of Working Capital approved by the Commission for FY 2016-17 was Rs.19.94 Cr.

Total Annual Fixed Cost

113. Based on the above parameters the station-wise ARR and tariff calculated and approved for the year 2017-18 is indicated in the table below:

Table – 33
Station-wise Tariff Approved For 2017-18

Details of expenses	(Rs. Cr.)							Total
	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.15	485.10	3676.85	1942.38	5619.23
Return on Equity	2.759	0.911	10.344	10.433	2.298	26.745	47.966	74.710
Interest on Loan	2.082	0.151	0.159	0.706	0.276	3.374	0.176	3.550
Depreciation	3.817	3.267	8.497	7.282	3.581	26.444	30.895	57.339
O & M expenses	50.102	39.528	73.567	75.438	18.634	257.269	66.534	323.803
Interest on Working Capital	2.675	2.059	4.059	4.140	1.056	13.989	4.955	18.944
Total ARR	61.435	45.916	96.627	97.998	25.845	327.820	150.525	478.346
Average Tariff (P/U) for 2017-18	118.20	55.74	82.50	144.72	53.28	89.16	77.50	85.13
Average Tariff for the FY 2016-17 (P/U) (Approved)	116.08	54.87	90.52	140.03	53.70	90.41	75.36	85.20

The Commission approves total ARR of Rs.478.346 cr. at an average price of 85.13 paise/unit as against proposed ARR of Rs.1026.356 cr. @182.65 paise/unit. The corresponding approved figure for FY 2016-17 was Rs.478.790 cr. at an average price of 85.20 paise/unit when OHPC had proposed for Rs.799.72 cr. at an average price of 143.09 paise/unit for the same year.

ARR & Tariff Application Fees and related Publication Expenses

114. 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 FY2017-18. 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 2016-17 against the approved Publication Expenses of Rs.1.00 Lakhs in the FY 2016-17.

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 2017-18.

License fee for use of water for generation of Electricity:

115. 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.
116. 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 Government of Odisha from GRIDCO.
117. 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 2017-18 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 - 34

(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

118. 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.

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 Government of Odisha in the Department of Energy as amended from time to time, the State Government specified the rate for which Electricity Duty shall be levied & paid to the State Government 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 Government, OHPC has proposed the ED on Auxiliary consumption of all Hydro Electric Projects to the tune of Rs 0.852 Cr during the FY 2017-18, as shown in the table below.

Table - 35

							(Rs. in 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

The Commission examined the proposal of OHPC and in view of the Gazette Notification of Government 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 2017-18 as presented in the table -35 above.**

SLDC Charges

119. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2017-18 in Case No.61/2016, 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.7805.80/MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 1850 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC

charges of OHPC comes to Rs.1.44 cr. for the FY 2017-18, 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.1.44 cr. as pass through in the ARR of GRIDCO for the FY 2017-18 towards power purchase related cost of OHPC.

Foreign Exchange Rate Variation loss of PFC Loan of BHEP

120. 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.19.55 Cr. (i.e. Rs.1.96 Cr. towards interest + Rs.17.59 Cr. towards principal) from FY 2007-08 to FY 2016-17. Out of this the Commission had approved Rs.5.99 cr., Rs.4.20 cr. and Rs.3.71 cr. for the FY 2014-15, 2015-16 and 2016-17 respectively total amounting to Rs.13.90 cr. The balance Rs.5.65 Cr. is to be reimbursed from GRIDCO as FERV claim of PFC loan for FY 2017-18.

The Commission has examined the documents furnished by OHPC and approves Rs.5.65 cr. towards Foreign Exchange Fluctuation loss of PFC loan of BHEP to be reimbursed by GRIDCO in 2017-18.

Reimbursement of contribution made to ERPC

121. OHPC is contributing towards ERPC establishment fund & ERPC fund from the FY 2006-07 onwards as per their demand note. OHPC had paid Rs. 15 Lakhs towards contribution to ERPC Establishment Fund & Rs. 1 Lakhs towards contribution to ERPC Fund. Assuming the same claim of ERPC, OHPC has claimed this amount of Rs. 16.0 Lakhs as a pass through in the tariff for FY 2017-18 to be reimbursed from GRIDCO. Any excess claim (above Rs. 16.0 Lakhs) made by ERPC for the FY 2017-18 will be claimed as additional reimbursement in the subsequent year.

Hence, the Commission approves a total reimbursement claim for an amount of Rs.0.16 cr. towards ERPC contribution for FY 2017-18 from GRIDCO.

Income Tax

122. *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.”*
- OHPC has submitted that it has paid a total of Rs.72.649 cr. towards income tax for FY 2015-16 out of which Rs.31.945 cr. on the interest income of Rs.92.3061 cr. which is a non-generation business but has paid Rs. 40.704 cr. on Operational Income of Rs.117.61 cr. which is a core business.
123. The Commission has examined the Audited Accounts of OHPC for FY 2015-16. It is revealed from their balance sheet, Note-23 that they have interest income of Rs.178.39 Cr. which is from non-core activity. In the statement of income submitted by OHPC it is also found that they have a taxable income of Rs.209.92 Cr. out of which Rs.178.39 Cr. is from other sources which is non-core activities. Excluding the income of non-core activities OHPC has a taxable income under the head income from business profession to the extent of Rs.31.53 Cr. Applying appropriate tax rate the net tax implication is Rs.10.91 Cr. The same may be approved for reimbursement claim from GRIDCO. Thus, after due scrutiny the Commission approves Rs.10.91 Cr. towards income tax as reimbursement claim from GRIDCO.
124. 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, Income tax and Reimbursement of contribution made to ERPC for FY 2017-18 of OHPC are summarized in the table below:

Table – 36

(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							1.44
(d) Application fees and publication expenses							0.26
(e) Fluctuation loss of PFC loan of BHEP			5.65				5.65
(f) Reimbursement of							0.16

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
contribution made to ERPC							
(g) Income tax paid during FY 2015-16							10.91
Total							24.948

Thus, the Commission approves the miscellaneous reimbursement of Rs.24.948 cr. as proposed by OHPC. The above expenditure has been included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing.

Two-Part Tariff

125. 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 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:

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

Where

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC_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.

126. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2017-18 as summarized in the table below:

Table - 37
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	61.435	30.718	30.718	519.75	59.101
Upper Kolab HEP	45.916	22.958	22.958	823.68	27.872
Balimela HEP	96.627	48.313	48.313	1171.17	41.252
Hirakud HEP	97.998	48.999	48.999	677.16	72.360
Chiplima HEP	25.845	12.922	12.922	485.10	26.638
Upper Indravati HEP	150.525	75.263	75.263	1942.38	38.748

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)

127. 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 - 38

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 2017-18 and directs that the monthly capacity charge of each OHPC stations shall be computed for the FY 2017-18 based on the above NAPAF.

128. 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

129. 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 5 MW 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 Government 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 194.81 paise p/u without the State Government support and it shall be applicable for billing to CSPDCL. The details for arriving at the average tariff for HHEP is as follows:

Table - 39
Tariff for CSPDCL for 2017-18

(Rs. Cr.)

Details of Expenses of HHEP	
Salable Design Energy of HHEP	677.16 MU
Project Cost (Up-valued cost as on 01.04.1996 + Capitalization up to 31.03.2016 - Decapitalization)	340.740
Return on Equity (@ 24.9962%)	25.55
Interest on Loan	6.31
Depreciation (@ 5.28%)	17.99
O & M expenses (Escalated @ 6.64%)	77.00
Interest on Working Capital (@ 13.5%)	5.07
Total ARR	131.92
Average Tariff (p/u)	194.81

The Commission approves average tariff of 194.81 p/u for HHEP for billing to CSPDCL for FY 2017-18 as against 195.64 p/u approved during FY 2016-17.

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

130. 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.
131. The proposed tariff of 55.068 Paise/KWh of Odisha drawl of Machhkund power for FY 2017-18 has been computed on cost reimbursement basis. Provisional O&M Expenses of Rs.11.973 Cr. for the FY 2015-16 has been escalated @ 6.64% per year to arrive at O & M Expenses of Rs.13.615 Cr for FY 2017-18. 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.14.455 Cr for FY 2017-18. The cost per unit is 55.068 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 2015-16 is furnished by OHPC in its application.
132. 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 - 40
Projected Tariff of Machhkund H. E. (J) Scheme For FY 2017-18**

Installed Capacity (MW)	120.00 MW
Odisha share as per Original Agreement (30%)	36.00 MW
Energy for sharing between Andhra Pradesh & Odisha	525.00 MU
Expected Energy Drawl by Odisha (50%)	262.50 MU
Energy Drawl of 30% of Odisha share	157.50 MU
Purchase of Power up to 20% as per Supplementary Agreement	105.00 MU
O&M Escalation factor @ 6.64% for year for 2 years	1.1372
	(Rs. in Crs)
1. O&M Exp. (Odisha share of Provisional O&M Exp. For FY 15-16)	11.973
2. O&M Exp for FY 2017-18 with escalation of 6.64% for 2016-17 & 2017-18	13.6156
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	14.4556

5. Tariff (Paise/Kwh)	55.068
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.	

133. **The Commission approves the above rate of 55.068 Paise per Unit for FY 2017-18 as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.**

ARR and Approval of Tariff

134. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2017-18 as follows:

Table – 41

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
Approved 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
Approval for 2017-18								
Total ARR (Rs. Crore)	61.435	45.916	96.627	97.998	25.845	327.820	150.525	478.346
Average cost (P/U)	118.20	55.74	82.50	144.72	53.28	89.16	77.50	85.13

135. Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2017-18. The Capacity charge and the rate of Energy charge as approved at para 127 and table 44 above and the corresponding approved rates for the FY 2016-17 are summarized in the table below :

Table – 42
Energy Charge and Capacity Charge for 2016-17 & Approval for 2017-18

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	16-17	17-18	16-17	17-18	16-17	17-18	16-17	17-18
Rengali HEP	60.333	61.435	30.166	30.718	30.166	30.718	58.039	59.101
Upper Kolab HEP	45.194	45.916	22.597	22.958	22.597	22.958	27.434	27.872
Balimela HEP	106.016	96.627	53.008	48.313	53.008	48.313	45.261	41.252
Hirakud HEP	94.820	97.998	47.41	48.999	47.41	48.999	70.013	72.360
Chiplima HEP	26.047	25.845	13.024	12.922	13.024	12.922	26.848	26.638
Upper Indravati HEP	146.373	150.525	73.187	75.263	73.187	75.263	37.679	38.748

The unit cost of energy from Machhkund is approved at 55.068 paise per unit for 2017-18 as against 47.92 paise per unit approved for 2016-17.

Status of renovation and modernisation of OHPC power plants and approval of revised schedule

136. The Commission had accorded in principle approval to carry out the R & M works of Unit 3 of CHEP, Chiplima, Unit- 1 to 6 of BHEP, Balimela and Unit 5 & 6 of HHEP, Burla at an estimated cost Rs.96.5 crores, Rs.325.96 crores and Rs.664.76 crores respectively vide its order dated 31.3.2014 in case No.62/2013, 67/2013 and 68/2013. OHPC have submitted the present status on their renovation and modernisation works of the aforesaid stations which is summarised as follows:-

**Table – 43
Status of R&M of Power Stations**

Name of Power Stations	Unit Identity	Date of shut down	Date of initial R & M	Expected date of completion of R &M	Cost of R & M	Present Status/ Remarks
BHEP, Balimela	Unit-1 to 6	31.01.13 (forced outage due to thrust bearing problem)	05.08.2016 (LOA to successful bidder issued on 06.06.2016 M/s BHEL)	01.04.2019	Rs.382.91 cr. (including L-1 price of Rs.295 cr. IDC, consultancy charges etc.) for all the 6 units	BHEL is the successful bidder. They have already started dismantling work of Unit-1
HHEP, Burla	Unit – 5 & 6	Unit-6 (from 17.02.2014 due to heavy leakage from shaft seal and abnormal sound)	16.10.2015 (effective date of contract with M/s Voith Hydro Pvt. Ltd.) 25.10.2016 (effective date of contract for Unit-5)	15.5.2018 (Unit-6) April, 2018 (Unit-5)	Rs.158.77 cr. (for both Unit 5 & 6)	Unit-6 handed over dismantled work completed. Work in progress Unit-5 – dismantling work started
CHEP, Chiplima	Unit -3	18.02.2014 (forced outage due to TGB problem)	15.10.2015 (effective date of contract)	June, 2017	Rs.65.67 cr.	Dismantling work is completed. Work under progress

OHPC has submitted that for the purpose of R&M works the final adjustment if any, in the capitalisation of the projects shall be made in the subsequent tariff proposals based on the audited accounts.

The Commission approves the revised time schedule along with capital cost proposed by OHPC and presented in table No.17 of this order which is derived after finalisation of the tenders through international competitive bidding for taking up the R&M works

of different units. The above may be considered for capitalisation of the project costs of respective units and computation of PAFM during the period of shut down.

Capital Maintenance work of Unit—IV of UKHEP

137. OHPC has sought approval of the Commission to carry out the capital maintenance of unit-IV of UKHEP. In addition to the capital maintenance of the unit it is also proposed for replacement of old governor by micro processor based digital governor which is already procured. During the period of Capital Maintenance, the replacement of Governor, HM panel, Speed sensing device, replacement of defective poles, Stator cleaning work & other works will also be taken up. It is also proposed for overhauling of 102MVA, 11/220KV Generating Transformer of Unit-4 and replacement of old Transformer oil by OEM, M/s. Crompton Greaves Limited. The Transformer is in service since inception of the Project and no major works have been taken up so far. Hence it is proposed to carry out the Capital Maintenance of Unit No.-4 of UKHEP at a cost of Rs. 2.9 Cr. (approx.) within a shutdown period of 185 days. The Capital Maintenance work of Unit - IV of UKHEP shall be taken up tentatively from 15th March 2017 to 15th September 2017 during the lean period of generation in consultation with the OEM and zero date shall be finalized after discussion with SLDC for the purpose.

The Commission after due scrutiny, approves the above proposal of OHPC to take up the capital maintenance work of Unit-IV of UKHEP in consultation with SLDC.

Drawl of Odisha Share from MHEP

138. OHPC has raised the issue of non-drawl of 50% share of energy from Machhakund generation due to transmission and distribution constraints. OHPC submitted that the matter was deliberated in the detail during Grid Co-ordination Committee on 25.05.2016 and thereafter CGM (O&M), OPTCL was directed to act as the nodal officer to co-ordinate among OPTCL, SOUTHCO, OHPC, GRIDCO & MHEP to avail power from MHEP generation in a regular/continuous manner for optimum utilisation of the state share. The Commission therefore raised a query about the action taken by OPTCL so as to draw 50% of Odisha share power available from MHEP on real time basis.

In reply to the queries of the Commission, OPTCL has submitted that MHEP is not synchronised with state system and the state share is being drawn radially by

providing matching load on real time basis. Further, the state is drawing power through one Machhkund - Jejnagar line only when more than two units are in operation. The second feeder connected to cater the loads of traction substations has been isolated from MHEP to avoid impact of unbalanced loads on the MHEP generators. It is also a fact that the state is not able to provide matching load at the time of maintenance of downstream sub-stations/feeders. However, SLDC in co-ordination with field sub-stations is taking all steps for optimization of drawl of share of energy from MHEP.

139. OHPC has submitted that the DoWR, Government of Odisha has submitted a proposal to Department of Energy and requested to intimate OHPC to contribute Rs. 24.50 cr. for augmentation of storage capacity of Surulikonda Barrage in the downstream of Balimela Power House. The discharged water from Balimela Power House during generation is stored in the Surulikonda Barrage for irrigation. In order to enhance the storage capacity to support irrigation the DoWR has framed an estimate for dredging of the Surulikonda Barrage for an amount of Rs. 24.50 cr. During hearing some objectors opined that OHPC should be allowed to bear the cost of dredging Surulikonda Barrage only to the extent of benefit receipt from the activity. Some other objectors stated that the claim of OHPC on account of dredging should not be approved by the Commission as the dredging is for the purpose of irrigation which is responsibility of DoWR. The Commission during hearing raised queries regarding the tangible benefit to be achieved in generation of power after dredging of the storage capacity.
140. OHPC in its reply has submitted that after commissioning of unit 7 & 8 under expansion project of BHEP in the year 2009 OHPC experimented the storage capacity of Surulikonda Barrage by running all the 8 nos. of generating units simultaneously and observed that the barrage achieved its full capacity within a period of 2 hours 15 minutes with all radial gates and canal gates in closed conditions. Considering the present power scenario of the state scheduling pattern of SLDC it is not required to run all the units of BHEP, Balimela at a time. The proposed augmentation of the Barrage through dredging of its present capacity will not only facilitate irrigation to a larger command area but also can store water during the peak hour for a time period of about 4 hours with all units of BHEP running without spilling into the river. Further OHPC has submitted that after dredging if the storage capacity of the barrage

is improved to store water from 2 hours to 4 hours, then GRIDCO has an opportunity to draw more power from BHEP Balimela during the peak hours utilizing Odisha share of water. The excess generation from BHEP, Balimela during peak hours will reduce the need for expensive power required by GRIDCO which in turn will reduce the tariff burden on consumers of the state to some extent.

141. OHPC has also made a limited submission that in rare cases with all units of Balimela Power Plant running, there is overflowing of reservoir for limited duration of about 2 hours which can be used for planned irrigation of the downstream areas. These issues are handled by DoWR, Odisha. Dredging of the reservoir will primarily help in preventing over flow and wastage of water meant for irrigation. Therefore, though capacity increase of the reservoir may help in peak hour generation thereby having marginal effect on tariff, we are not inclined to accept the proposed cost in the ARR of OHPC. We are of the view that enhancement of reservoir capacity be taken up by DoWR in the interest of optimum use of water for irrigation. An advisory for the same may be issued to the Government separately.

Capacity Addition

142. We subscribe to the view that hydro energy is a source of clean energy contributing to reduced environmental pollution. Government 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.
143. The tariff now approved shall be effective from 01.04.2017 and shall be in force until further orders.
144. The application of OHPC in Case No.61 of 2016 for approval of its Annual Revenue Requirement and fixation of generation tariff of different stations for the FY 2017-18 is disposed of.

Sd/-
(S. K. PARHI)
MEMBER

Sd/-
(A. K. DAS)
MEMBER

Sd/-
(U. N. BEHERA)
CHAIRPERSON