

**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.74 of 2017

DATE OF HEARING : **05.02.2018**

DATE OF ORDER : **22.03.2018**

IN THE MATTER OF : **An application for approval of Aggregate Revenue Requirement (ARR) and Generation Tariff of OHPC Stations for the FY 2018-19 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 2018-19.

PROCEDURAL HISTORY (Para 1 to 7)

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'). The assets, liability and personnel of OSEB were transferred in 1996 to this generating company to carry out business of generation of hydro-electricity. The entire power produced by OHPC through its various generating stations is dedicated only for State of Odisha. Same is supplied to GRIDCO Ltd., who in turn sells the same to the Distribution Utilities of the State. Since GRIDCO Ltd. has been entrusted with the bulk supply business and the existing Bulk Supply Agreements and Power Purchase Agreements (PPAs) have been assigned to it.

2. As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, on 29.11.2017 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 2018-19. The said application is as per the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 notified in the Odisha Gazette on 10.10.2014. OHPC has filed its reply on 06.01.2018 to the query of the Commission on its application.
3. After due scrutiny and admission of the aforesaid application, the Commission has directed OHPC Ltd. to publish its application in the approved format. To invite objections and suggestions from the general public, public notice was given in leading and widely circulated newspaper and was also posted in the Commission's website. OHPC Ltd. was also directed to file its rejoinder to the objections/suggestions received. In response to the aforesaid public notice the Commission has received 05 number of objections from the following persons /organizations :

(1) Sri G.N. Agrawal, Convenor-cum-Gen. Secy, Sambalpur District Consumers Federation, Balajee Mandir Bhawan, Khetrajpur, Sambalpur-768003,(2) Shri Ramesh Ch. Satpathy, Secretary, National Institute of Indian Labour & President, Upobhokta Mahasangha, Plot No.302(B), Beherasahi, Nayapalli, Bhubaneswar-751012, (3) Sri Ananda Kumar Mohapatra, Power Analyst, S/o-Jachindranath Mohapatra, Plot No. L-II/68, SRIT Colony, Budharaja, Ps-Ainthapali, Dist-Sambalpur-768004,(4) M/s. GRIDCO Limited, Janapath, Bhubaneswar-751022,(5) Shri R.P.Mahapatra, Retd. Chief Engineer & Member (Gen.), Plot No-775 (P), Lane-3, Jayadev Vihar, Bhubaneswar-751013.
4. The Commission has implead the Principal Secretary to Govt. Water Resources Department, Govt. of Odisha, Bhubaneswar and the Principal Secretary to Govt. Department of Energy, Govt. of Odisha, Bhubaneswar as parties to the above proceeding to put forth their views for fixation of tariff of OHPC Ltd. by OERC.
5. The date of hearing was fixed as 05.02.2018 at 11.00 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 Sri 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. Though notice was issued to the Water Resources Department, Govt. of Odisha, Bhubaneswar for filing of views, it was not present during hearing of the application for determination of ARR & Generation tariff of OHPC Ltd. for FY 2018-19 and also not submitted its views. The applicant submitted its reply to issues raised by the various objectors.

6. 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 2018-19. The Consumer Counsel presented views on the matter during the hearing.
7. The Commission convened the State Advisory Committee (SAC) meeting on 20.02.2018 at 10.30 AM to discuss about the Aggregate Revenue Requirement (ARR) application and generation tariff proposal of the generating company for FY 2018-19. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission.

ARR PROPOSAL OF OHPC FOR FY 2018-19 (Para 8 to 28)

Installed Capacity

8. The installed capacity of various Hydro Stations owned by the OHPC for FY 2018-19 including Odisha's share of Machhkund is as tabulated below.

**Table – 1
Installed Capacity of OHPC Stations**

(In MW)			
Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2017-18	Installed Capacity for FY 2018-19
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)	<ul style="list-style-type: none"> • 390 (from 21.11.2017 due to R&M of Unit-1 &Unit-2 till the approved period) • 270 (during the overlapping period for R&M of Unit -1 to 4. The Unit No. 3&4 are Scheduled for R&M from 05.08.2018)

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2017-18	Installed Capacity for FY 2018-19
4	Burla (HHEP)	210.50 (from 16.10.2015 onwards till the approved period of shut-down of any one Unit under R&M)	238.00 (from 17.02.2018 onwards as per the approved period of S/D of Unit-6)
		200.50 (during the overlapping period of R&M of #5 & #6)	275.50 (from 25.04.2018 onwards as per the approved period of S/D of Unit-5)
5	Chiplima (CHEP)	48.00 (from 15.10.2015 onwards till the approved period of shut down of Unit-3 under R&M)	72.00 (from 16.06.2017 onwards as per the approved period of shut-down of Unit- 3)
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhakund (30% share of Odisha)	36.00	36.00

Design Energy

9. 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 tabulated below.

**Table – 2
Design Energy for FY 2018-19**

(In MU)

Sl. No.	Name of the Power Station	Design Energy approved for FY2017-18	Design Energy for sale for FY 2017-18	Design Energy proposed for FY 2018-19	Design Energy for sale for FY 2018-19
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

10. The Reservoir Level of OHPC Power Stations as on 31.10.2017 vis-à-vis on 31.10.2016 is tabulated below:

Table - 3
Reservoir Levels of OHPC Power Stations

Sl. No.	Reservoirs	As on 31.10.2016	As on 31.10.2017
1.	Rengali	123.00 mtr.	123.26 mtr
2.	Kolab	856.66 mtr.	854.06 mtr.
3.	Balimela	1507.20 ft.	1486.60 ft.
4.	Hirakud	630.06 ft.	629.29 ft.
5.	Indravati	639.32 mtr.	636.44 mtr.

The actual generation by different OHPC Power Stations up to 31.10.2017 and anticipated generation up to 31.03.2018 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 01.04.17 up to 31.10.17 (in MU)	Anticipated generation from 01.11.17 to 31.03.18 based on DoWR& DoE Schedule (in MU)	Total Estimated generation for the FY 2017-18 based on DoWR& DoE Schedule (in MU)
1.	RHEP	636.466	97.8	734.266
2.	UKHEP	478.654	165.6	644.254
3.	BHEP	1216.773	252.72	1469.493
4.	HHEP	510.445	118.92	629.365
5.	CHEP	156.396	86.4	242.796
6.	UIHEP	1266.270	536.4	1802.670
Total		4265.004	1257.84	5522.844

Project Cost

- 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 DoE, GoO. The Tariff of Old power stations of OHPC for Rs.479.80 Crores have been determined on the historical cost of old power station as per the Notification No. 1068 dtd. 29.01.2003 of DoE, GoO.

An additional capitalization of Rs 62.91 cr. as per the audited account for FY 2016-17 has been considered for determination of tariff for the FY 2018-19.

OHPC has made capital maintenance of unit 1 of HHEP Burla for Rs. 10.029 Cr. and civil works for Rs. 6.56 Cr. Total de-capitalization of Power Stations from FY 2011-12 to FY 2016-17 is Rs11.78 Cr which has been deducted from the original Re-valued Cost as on 01.04.1996. The project cost of OHPC power stations considered for computation of ARR & tariff for the FY 2018-19 is tabulated below:

Table - 5
Project Cost for Tariff Calculation for FY 2018-19

(Rs. in Crs.)

Name of the power stations	Historic Cost as on 01.04.1996	Asset reduction during FY 2011-12 to FY 2016-17	Approved New additions up to 31.03.2016	New additions for FY 2016-17 (audited)	Total New Addition upto 2016-17	Project Cost considered for Tariff calculation based on Historic Cost
1	2	3	4	5	6=4+5	7=2+6-3
RHEP	91.09	0.06	57.47	0.32	57.79	148.82
UKHEP	108.31	0.43	18.98	0.29	19.27	127.15
BHEP	115.42	0.29	215.50	1.52	217.02	332.15
HHEP	72.75	6.77	217.35	27.76	245.11	311.09
CHEP	92.23	0.88	47.87	0.63	48.50	139.85
Sub Total	479.80	8.43	557.17	30.53	587.70	1059.06
UIHEP	1194.79	3.35	1198.19	32.39	1228.58	1228.58
Total	1674.59	11.78	1755.36	62.91	1816.28	2287.64

Tariff for Energy Billing to CSPDCL

12. 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 only, since this is determined by OERC 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 @ 211.96 paisa/unit for the FY 2018-19.

Determination of Annual Fixed Cost for FY 2018-19

13. 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(RoE)**

OHPC has considered 25% of approved project cost of UIHEP and 30% of additional capitalization in UIHEP as equity base. 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. Proposal of OHPC for RoE computation for different power stations is tabulated below.

Table – 6
RoE for different Power Stations of OHPC for FY 2018-19

Name of the Power Station	Capital Addition after 01.04.1996 upto 31.03.2016 approved (in Crs)	Capital Addition for the FY 2016-17 audited (in Crs)	Capital Addition considered for RoE for FY 2018-19 (in Crs)	Share of Equity (%)	Value of Equity capital (in Crs)	ROE @16% Proposed for 2018-19 (in Crs)	RoE approved by OERC for 2017-18 (in Crs)
1	2	3	4=2+3	5	6=4*5	7=16% of 6	8
RHEP	57.47	0.32	57.79	30	17.337	2.774	2.759
UKHEP	18.98	0.29	19.27	30	5.781	0.925	0.911
BHEP	215.5	1.52	217.02	30	65.107	10.417	10.344
HHEP	217.35	27.76	245.11	30	73.534	11.765	10.433
CHEP	47.87	0.63	48.50	30	14.550	2.328	2.298
UIHEP	1198.19	32.39	1228.58	25&30	309.002	49.440	47.966
Total	1755.37	62.91	1816.27		485.310	77.650	74.710

OHPC has claimed Income tax paid for FY 2016-17 as reimbursement from GRIDCO.

b) Interest on Loan:

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

Present Status of UIHEP Govt. Loan based on the approvals of OERC

(Rs. in Crs.)

Original Approved Project Cost	1195.42
Project cost deducting the infirm power cost	1194.79
Equity @25%	298.70
Govt. Loan of UIHEP	497.86
Depreciation allowed from 2010-11 to 2017-18 @ Rs30.23 Crore	241.84

Loan Repayment made till FY 2017 -18	Rs241.84(Rs30.23Cr to be paid)
Balance Outstanding Loan as on 01.04.2018	Rs256.02 Crore (Considering Depreciation allowed)
Cumulative interest on UIHEP Govt. Loan from FY 2006-07 to FY 2017-18 @ 7%	350.49 Crore (Govt. proposed to consider as regulatory asset)
Cumulative interest on normative loan from FY 2001-02 to FY 2017-18@ 7%	101.85 Crore (Not paid)

PFC loan of Rs320.00 Cr. has already been repaid in full by FY 2009-10.OHPC has so far paid Rs211.61Cr to Govt. by March 2017. The depreciation approved for FY 2017-18 for Rs 30.23Cr shall be paid by the end of this FY. Interest on UIHEP Loan has been provided by OHPC in its books of account every year as per the direction of the Commission in the tariff order of OHPC for FY2014-15. So, the cumulative interest of UIHEP, Govt. Loan up to FY 2017-18 stands at Rs350.49Cr.

Status of UIHEP Loan Liability as on 31.03.2018

- i) PFC loan of Rs.319.49 Crs repaid.
- ii) Rs241.84 Crs @Rs.30.23Crs approved and repaid to Govt.
- iii) Interest on Govt. Loan of UIHEP not approved by Commission.
- iv) Principal & Interest on normative loan not approved by the Commission.

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

If above order of OERC is to be carried out, total liability of UIHEP Loan as on 01.01.2029 will be Rs761.22Cr, which has to be recovered between FY 2029-30 to FY2034-35 (i.e. the balance useful life period of the UIHEP, project). To avoid sharp hike in UIHEP's tariff to the tune of 50 paise per unit, OHPC proposes to OERC to consider the repayment of interest of UIHEP Govt. Loan & UIHEP Normative Loan of Rs 78.74Crs in the ARR of OHPC from FY2018-19 onwards to reduce sharp rise in Tariff towards the fag end of Project life when the R&M of these Units will be due.

OHPC further proposes that the OERC may consider the claim of DoE, GoO and recognize the Accumulated interest of Govt. Loan of UIHEP upto FY2017-18 as Regulatory Asset & decide its repayment in suitable instalment and in line with the

suggestion of the DoE, GoO, the accumulated interest of Normative Loan of UIHEP may also be recognized as Regulatory Asset & its repayment in suitable instalment may be decided.

If the Commission does not approve the proposal of OHPC, then a suitable plan may be approved so as to clear all interest liabilities as well as recovery of 90% of the project cost within the useful life period.

Thus OHPC prays to approve the following in the tariff for the FY 2018-19 as presented below:

1.	Rs. 30.23Crs towards Principal Repayment of UIHEP Govt. Loan.
2.	Rs. 16.863Crs towards Interest Repayment of UIHEP Govt. Loan.
3.	Rs. 5.51Crs towards Interest Repayment of UIHEP Normative Loan of Project Cost.
4.	Declare the accumulated Interest of Rs.350.49 Crs as on 31.03.2018 on the UIHEP Govt. Loan as the Regulatory Asset.
5.	Declare the accumulated Interest of Rs.101.85Crs as on 31.03.2018 on the UIHEP Normative Loan of Project Cost as the Regulatory Asset.
6.	Pass through of the 1 st Installment (to be decided by the Hon'ble Commission) of the above Regulatory Asset as under sl. No. 4 & 5 in the tariff of 2018-19.

- 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 31.03.2018 will be Rs101.85Cr at the prevailing rate of interest of State Government Loan @7%.
- OHPC prays before the Commission to include the interest on normative loan for the FY 2018-19 amounting to Rs. 5.51 Crs. in the ARR and designate the accumulated interest amounting to Rs101.85 Crs from the FY 2001-02 to FY 2016-17 on Normative Loan of Rs 78.74 Crs as Regulatory Asset and fix suitable installment as pass through in the tariff for the FY 2018-19 in order to reduce the future tariff burden.

- The Power Station wise interest on loan as described above is summarized in the table below:

Table-7
Interest on loan of different power house of OHPC

(Rs. in Crs.)

Sl. No.	Source of loan	Interest on loan for FY 2018-19						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	Normative loan	1.741	0.110	0.200	2.040	0.208	7.062	11.360
2.	Govt. Loan	-	-	-	-	-	16.863	16.863
Total		1.741	0.110	0.200	2.040	0.208	23.925	28.224

c) Depreciation:

OHPC has computed depreciation for the FY 2018-19 @ 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 2016-17. 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 2018-19 is presented in the Table below.

Table – 8
Depreciation Claim for the FY 2018-19

(Rs. in Crs)

Sl. No.	Power Stations	Project Cost	Loan Repayment Amount	Depreciation @ 2.57%	Depreciation Claimed	Remark
1.	RHEP	148.82	3.72	3.82	3.82	Depreciation @ 2.57%
2.	UKHEP	127.15	0.72	3.27	3.27	Depreciation @ 2.57%
3.	BHEP	332.15	0.75	8.54	8.54	Depreciation @ 2.57%
4.	HHEP	311.09	6.14	8.00	8.00	Depreciation @ 2.57%
5.	CHEP	139.85	2.17	3.59	3.59	Depreciation @ 2.57%
6.	UIHEP	1228.58	35.43	31.57	35.43	Equal to loan Repayment
Total		2287.64	48.93	58.79	62.65	

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

As per OERC Tariff Regulations, 2014, approved O&M expenses of FY 2017-18 have been escalated at the rate of 5.72% to arrive at O&M expenses for FY 2018-19. OHPC has deducted Rs. 9.66 cr. from O&M expenses of UIHEP towards dam maintenance expenses receivable from DoWR for FY 2018-19. OHPC proposes to allow 40% of the estimated arrear on account of adoption of 7th Pay Commission's pay structure to employees in O&M component of tariff for FY 2018-19. The Details of O&M expenses are given in table below.

**Table – 9
Statement of O & M Expenses**

(Rs. in Crs.)

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses for FY 2018-19 with escalation @ 5.72% over FY 2017-18	50.69	38.19	72.661	76.80	17.58	255.93	73.45	24.55	353.93
2	Corporate Office expenses apportioned to different units under OHPC based on Design Energy	2.27	3.60	5.12	2.96	2.12	16.06	8.49	24.55	65.12
3.	40% of arrear of 7 th pay revision of OHPC & Terminal liabilities w.e.f 01.01.2016	3.70	1.56	4.03	2.62	1.81	13.71	6.44	1.42	21.576
4.	Corporate Office arrear expenses apportioned to different units under OHPC based on D.E.	0.13	0.21	0.30	0.17	0.12	0.93	0.49		
Less: Amount Received from DoWR.										
5	Less : Income to be received from DOWR towards dam maintenance of UIHEP							(-9.66)		(-9.66)
6	Total O&M Expenses for the FY 2018-19.	56.791	43.554	82.100	82.545	21.634	286.633	79.212		365.846

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@ 8% as on 1st April, 2017 plus 300 basis points which turns out to be 11%. 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- 10
Interest on Working Capital

(Rs. in Crs)									
Sl. No	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	Receivables equivalent to two months of fixed cost	11.31	8.31	17.55	18.08	4.81	60.05	32.26	92.32
2	Maintenance spares @ 15% of O&M expenses	8.52	6.53	12.31	12.38	3.25	43.00	11.88	54.88
3	O&M expenses for one month	4.73	3.63	6.84	6.88	1.80	23.89	6.60	30.49
4	Total working capital	24.56	18.48	36.71	37.34	9.86	126.93	50.75	177.68
5	Interest on working capital calculated @ 11.00%	2.701	2.033	4.038	4.107	1.084	13.963	5.582	19.545

Total Annual Fixed Cost

14. Based on the above parameters the station wise ARR and tariff calculated for the FY 2018-19 as proposed by OHPC is summarized below.

Table – 11
ARR and Tariff for the FY 2018-19

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	2.774	0.925	10.417	11.765	2.328	28.209	49.440	77.650

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Interest on Loan	1.741	0.110	0.200	2.040	0.208	4.299	23.925	28.224
Depreciation	3.825	3.268	8.536	7.995	3.594	27.218	35.429	62.647
O&M Expenses	56.791	43.554	82.100	82.545	21.634	286.633	79.212	365.846
Interest on working capital	2.701	2.033	4.038	4.107	1.084	13.963	5.582	19.545
Total ARR	67.832	49.889	105.290	108.453	28.847	360.311	193.589	553.911
Average Tariff (p/u)	130.51	60.57	89.90	160.16	59.47	97.99	99.67	98.57

Application Fee and the Publication Expenses:

15. 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.0.84815 lakh as against approved amount of Rs.1 lakh for publication expenses during FY 2017-18. As per above provision, the application fee and publication expenses proposed by OHPC is Rs.26.20 lakhs for FY 2018-19.

Electricity duty on Auxiliary Consumption:

16. 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.

As per the Odisha Electricity (Duty) Amendment Act 2016 dated 05.11.2016 , the electricity duty is payable on auxiliary equipment consumption and transformer losses within the power station. OHPC propose to allow transformer loss a per the average transformer loss for past 7 years of different power stations of OHPC.

OHPC has proposed the ED on Auxiliary consumption and transformer losses within

the power stations of all Hydro Electric Projects to the tune of Rs11.394 Cr during the FY 2018-19 and prayed before the commission to approve the same.

License fee for use of water for generation of Electricity:

17. 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. As per the amendment made in Rule-23-A (2) (f) of the Odisha irrigation Rule the license fee for drawl or allocation of water was enhanced @10% per annum w.e.f 1st day of April. Accordingly, OHPC is paying @Rs. 0.011/KWh w.e.f 01.04.2017 as Licence Fee on water used for generation of electricity from all Hydro Electric Project and getting it reimbursed from GRIDCO.

OHPC has requested for approval of total amount of Rs 7.435 Cr reimbursement of Licence fee paid to Government of Odisha from GRIDCO consisting of differential licence Fee on water used for generation of electricity for FY 2017-18 and licence Fee on water used for generation of electricity for FY 2018-19

SLDC charges

18. 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. 1.44Cr. as SLDC charges for the FY 2017-18 which is to be collected by SLDC from OHPC. Since OHPC has not received ARR, fees and charges of SLDC for FY 2018-19, OHPC has escalated previous year's fees and charges @5.72%. Accordingly, OHPC proposes Rs 1.522 Cr. as fees and charges payable by OHPC to SLDC for the FY 2018-19.

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

19. Machhkund Hydro Electric Project is a joint scheme of Government of Andhra Pradesh and Government of Odisha 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 75.34 Paisa/Unit of Orissa drawl of Machhkund power for FY 2018-19 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 – 12

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
	<u>(Rs. in Crs)</u>
1. O&M Exp. (Odisha share of O&M Exp. For FY 16-17)	16.6526
2. O&M Exp for FY 2018-19 with escalation of 6.64% for 2016-17 & 2017-18	18.9375
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	19.7775
5. Tariff (Paise/Kwh)	75.34
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.	

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 2018-19 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. 2.936 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 2018-19 will be within the approved amount of Rs 4.01Cr. So, OHPC does not claim any further reimbursement under the head CATP for the FY 2018-19.

Income Tax

22. OHPC has paid Rs. 59.07 Cr. on operational income of Rs. 505.13 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 2018-19 towards income tax as per the audited accounts of FY 2016-17.

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:

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

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.

- 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 2018-19 are shown below.

Table-13
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	67.832	33.916	33.916	519.75	65.254
UKHEP	49.889	24.945	24.945	823.68	30.284
BHEP	105.290	52.645	52.645	1171.17	44.951
HHEP	108.453	54.226	54.226	677.16	80.079
CHEP	28.847	14.424	14.424	485.10	29.733
UIHEP	193.589	96.795	96.795	1942.38	49.833

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-14
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 – 15
Revised Time schedule alongwith Reduced Project cost of R & M works

Power station	Unit	Zero Date	Tentative Date of Commercial Operation	Total duration of Shut down for R&M works	Revised Capital Cost of R&M works
CHEP, Chiplima	3	15.10.2015	15.06.2017	20 months	6567 Lakhs
BHEP, 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	<u>5</u>	25.10.2016	24.04.2018	16 months	15877 Lakhs
	<u>6</u>	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 – 16
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-2 RHEP, Rengali	Not yet finalized	122days	To be taken up after due planning.
2.	Unit-2 of HHEP, Burla	22.07.2016	198days	Synchronized to Grid on 01.07.2017 after completion of Capital Maintenance.

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 in consultation of with OEM. The zero date for the purpose shall be determined in consultation with SLDC.

Prayer

28. OHPC’s proposal for annual revenue requirement for FY 2018-19is as follows
- (i) Rs. 553.911 cr. and average tariff @98.57 p/uwithsaleable design energy of 5619.24 MU
 - (ii) The miscellaneous reimbursement of Rs.79.8443 cr. by OHPC from GRIDCO
 - (iii) The tariff for energy billing to CSPDCL at Rs. 211.96 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 2017-18 = Rs.350.49 Cr.
 - b. Accumulated interest on Normative Loan of UIHEP from 2001-02 to 2017-18 = Rs. 101.85 Cr.
 - c. Realization of Rs. 263.283 Crs towards Hydrology Failure (negative fund for Secondary energy) from FY 1996-97 to FY 2016-17.
 - d. Allowing interest on recognized regulatory assets.
- (v) Approval of installed capacity for computation of PAFM and payment of SLDC charges during FY 2018-19 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 acknowledging and loading of the financial impact on account of non-consideration of CWIP and pass through of the same in tariff after lapse of almost 2 years after finalization of accounts.
 - (viii) In principle approval to meet the additional financial requirement arising out of the implementation of the proposed arrear dues arising out of implementation of 7th Pay Commission to OHPC employees
 - (ix) Direct appropriate authorities for optimization of hydro power generation from OHPC power stations utilizing the water potential upto MDDL.

VIEWS OF THE OBJECTORS (Para 29 to 44)

De-silting of the Reservoir

29. Some of the objectors have raised the issue of de-silting of reservoirs of OHPC. They have stated that OHPC is not taking due care to address the silt problem in the reservoirs for which coordination with the department of Water Resources and Irrigation is required. It was further suggested that OHPC should coordinate with VSSUT and Sambalpur University to find a feasible solution to the problem. The following other issues were also raised by the objectors.

Design Energy

30. The design energy approved for OHPC power stations is 5676 MU but actually OHPC is generating more power than design energy.

Sub-Optimal Generation by OHPC

31. Department of Water Resources and Department of Energy, Government of Odisha have imposed restrictions on OHPC on utilization of water from reservoirs leading to generation by OHPC below its normative capacity.

Drawl of Energy from MHEP

32. 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. Adequate transmission system needs to be in place to draw full share of energy.

Installed Capacity

33. They further opined that OHPC has failed to develop any new hydro projects and mini /micro hydro projects in spite of potential. Therefore, its application to reduce installed capacity should not be accepted.

Manpower

34. One objector has said that OHPC should furnish details of manpower planning including list of engineers with profile at all power projects before hearing.

Up-valuation of Asset

35. They also 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 2018-19.

MDDL of Hirakud Project

36. The MDDL of Hirakud power plant considered by OHPC as 595 ft in place of 590 ft shall not be allowed arbitrarily. The Commission may add 32.4 MU to the data submitted by OHPC towards generation of HHEP while determining the ARR and Tariff. It is also 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

37. The progress of R&M work for various HEPs is very slow compared to approval given by the Commission and also R&M for Balimela is inordinately delayed.

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

Investment made by OHPC

38. 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. One of the objector submitted that expenses incurred by OHPC for other projects/companies like Sindol Projects, GEDCOL, OTPL, BWCCL, GPCL, KSEB etc. should be scrutinized and disallow such expenditures in the process of determination of OHPC generation tariff for FY 2018-19.

Hydrology Failure

39. One objector has submitted that the compensation claims of Rs. 263.283 Cr towards hydrology failure from 1996-97 to 2016-17 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..

Income Tax

40. One of the objectors said that income tax of an amount of Rs. 59.07 Cr paid for FY 2016-17 may not approved and the income tax be admitted only after due scrutiny of audited accounts.

Energy Status Report

41. One objector has claimed that OHPC should produce energy status report from the month of April 2016 till date, report of actual O&M expenses for last five years, amount received from different industries availing water, actual generation status since 2009-10.

True up Report

42. One objector has observed that OHPC has failed to submit Truing up report and performance review report for FY 2016-17 and hence the determination of ARR for FY 2018-19 is not possible. The objector also submitted that OHPC should also publish the true up orders on its website in order to maintain transparency while estimating the tariff for ensuing year to safeguard the interest of the consumers.

ARR and Tariff

43. 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 submitted that Tariff determination should be necessarily guided by the Electricity Act'2003 stating Multi-Year Tariff (MYT) Principles in addition to the other guidelines to give an element of certainty. The same objector submitted that OHPC should explain the significant reduction in total Fixed cost(AFC), capacity charges, Energy charges & average ECR for all its power stations as proposed in the instant petition for FY 2018-19 and initiate necessary proceedings for truing up for previously approved tariff of FY 2015-16 & FY 2016-17. Another objector submitted that the additional capitalization for an amount of Rs 62.91 Cr for FY 2016-17 for determination of tariff for the FY 2018-19 be allowed after thorough scrutiny.

Electricity Duty on transformer loss within power station

44. One objector has submitted that submission of OHPC that 2% of generated power is lost as core loss in transformer is not correct and hence to allow transmission loss as per the average transmission loss of 2.163% for last 7 years may not be accepted and the commission should determine the normative auxiliary consumption rate for balance normative life of each of the hydro power station.

REJOINDER AND REPLY OF OHPC TO QUERIES RAISED DURING HEARING (Para 45 to 62)

45. 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

46. OHPC has proposed to reduce the Installed Capacity of different power stations considering the R&M programmes from the zero date till the scheduled (approved) completion period. However, the reduction on account of approved Capital Maintenance is considered depending upon the shutdown permission of SLDC.

OHPC has proposed reduction in the installed capacity following clause no. 4.1.3 of agreed PPA between OHPC and GRIDCO. OHPC is in process of setting some

feasible Small Hydro Projects , the status report of the same is submitted to Hon'ble Commission.

Increase in D.E of RHEP, Rengali

47. Sri R.P.Mohapatra viewed that RHEP, Rengali is constantly generating more than its approved Design Energy, so the Design Energy of RHEP should increase.

To this OHPC has replied that in the Case No. 121/2009, OHPC had made a prayer before Hon'ble OERC for reduction/ increase in Design Energy of different power stations based on the earlier direction of the Commission for Reassessment of D.E of different Power stations of OHPC. OHPC carried out the Reassessment of D.E of different power station through an independent agency(i.e. M/s SPARC) and submitted the report before the OERC for approval. But the same was deferred at that that time.

Up-valuation of Asset

48. The ARR & Tariff of OHPC Power Stations is computed for FY 2018-19 without considering the impact of Govt. Notification No. 5843 dated 03.07.2015. For details page no.03 to 05 and no. 13 to 16 of the Original Tariff Application of OHPC for FY 2018-19 may please be referred.

Design Energy

49. Actual generation from a hydroelectric project depends on the rainfall, availability of water in the reservoir & machines for generation, demand of the State. Further the water available in a carry-over reservoir is very often carried over to the next year due to uncertainty and irregular pattern of rainfall which affects the actual generation in a particular year. Therefore, there is always a mismatch between actual generation & design energy. Accordingly, OHPC power stations have never generated exactly equal to its Design Energy (5676MU) during any financial year. In most of the financial years, the total generation of OHPC is less than the Design Energy of 5676MU due to the reasons mentioned above.

Drawl of Energy from MHEP

50. OHPC in the 14th GRID Co-ordination Committee meeting held at NALCO, Angul had suggested for improvement in optimization of Machhkund drawal as well as reliability in power generation. The report in this regard is submitted to the

Commission. Accordingly, the Commission may take suitable decision in this regard for greater interest of the State to avail cheap power.

Renovation and Modernization of Plants

51. OHPC has taken massive Renovation & Modernization works which covers Unit-3 of CHEP; Unit-5&6 of HHEP & Unit-1 to 6 of BHEP, Balimela. Out of this Unit-3 to 6 of BHEP are still available for generation and meet the grid requirement as and when required. Presently Unit-1 & 2 of BHEP, Unit- 5&6 of HHEP, Burla and Unit-3 of CHEP are under RM&U programme. The Status of R&M works has already been furnished in detail in the original tariff application of OHPC for the Financial Year 2018-19. OHPC is putting its best effort to complete the R&M work of Unit-3 CHEP, Chiplima at the earliest.

Investment made by OHPC

52. Amount spent by OHPC as on 31.03.2017 in Jvs/ Subsidiaries/ Associate Companies are as follows:

Table - 17

Name of JVs / Associates	As Equity (in Rs.)	Others (in Rs.)	Total (in Rs.)
OTPCL	134,20,47,000.00	-	134,20,47,000.00
GEDCOL	50,32,00,000.00	1,08,10,433.00	51,40,10,433.00
OCPL	98,00,00,000.00	-	98,00,00,000.00
BWCCCL	10,00,00,000.00	4,726.00	10,00,04,726.00

Investment made by OHPC in its different Jvs/ Subsidiaries / Associate Companies are not included in the tariff of OHPC as these are not a Component of tariff to be included.

Increase in Electricity Duty of different power stations of OHPC

53. Some of the objectors raised the issue that OHPC has wrongly interpreted the definition of Auxiliary Consumption. Auxiliary Consumption should not include Generator Transformer loss. Only the consumption for operation of on-line Tap changer, mechanized isolator, breaker & switchyard lighting should be considered as Auxiliary consumption for switch yard. GRIDCO pointed out that any transformer loss beyond 0.5% is not acceptable, but prayed before the Commission that the Commission may determine a Normative Auxiliary Consumption Rate for balance normative life of each of the Hydro Power Stations of OHPC.

OHPC has replied that the views of the objectors regarding “Auxiliary consumption should not include the Transformer loss” is correct since it is consonance with the definition provided in the Chapter-3 para 31(iv) of CERC Tariff Regulation, 2004 which is reproduced below.

'Auxiliary Energy Consumption' in relation to a period means the quantum of energy consumed by auxiliary equipment of the generating station, and shall be expressed as a percentage of the sum of gross energy generated at generator terminals of all the units of the generating station.

The above definition of auxiliary energy consumption has been redefined/ amended in the CERC Tariff Regulation, 2009 & 2014 and OERC Generation Tariff Regulation 2014 which is reproduced below.

'Auxiliary energy consumption' or 'AUX' in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station”.

In view of the above, Govt. of Odisha vide Gazzate Notification No.1981 dtd. 05.11.2016 implemented “The Odisha Electricity(Duty) Amendment Act 2016” where the clause no (b) of section (2) of the Principal ED Act, 1961 was substituted as under:

'Auxiliary consumption' means the consumption of energy by auxiliary equipment of the generating station, which is used for the purpose of operating the plant and machinery including switchyard of the generating station and transformer losses within the generating station.”.

Hence the interpretation of the objectors regarding Auxiliary Consumption is not correct. Accordingly, OHPC has started paying ED on Aux. Equipment consumption & Transformer loss within the power station.

OHPC has submitted all the above aspects along with corresponding provisions for reimbursement in the ARR & Tariff application for FY 2018-19.

Considering the proposal of GRIDCO for determination of Auxiliary Consumption rate for OHPC power stations, this is to bring to the kind notice of the Commission

that, at Clause No. 5.3(e)(ii) of Chapter 5 (Norms of Operation) of OERC (Terms and Conditions for Determination of Generation Tariff) Regulation, 2014 it has been mentioned as under :

“The Auxiliary Energy Consumption for existing Thermal Generating Stations of OPGC Ltd. will be as determined by the commission from time to time”.

But the Commission has not kept the above provision for OHPC. However, as per Clause No. 7.13 (Power to Relax) under Chapter- 7 of the above regulation, the Commission has the power to relax any of the provisions after due scrutiny.

In view of the above, OHPC submits that for Reimbursement of actual ED on Auxiliary Consumption paid to Govt. by OHPC to be allowed from GRIDCO from the Date of Odisha Electricity Duty Amendment Act, 2016 vide Gazette Notification No. 1981 Dtd. 05.11.2016.

54. **Income Tax**

Chapter 4, Clause 4.7 of the OERC Generation Tariff Regulation, 2014 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).”

Accordingly, Income Tax paid by OHPC for the FY2016-17 is detailed below:

i)	Total Income	: Rs 599.34Cr.
ii)	Less Interest earned on fixed deposits	: Rs 94.21Cr.
iii)	Income from core business {(i)-(ii)}	: Rs 505.13Cr.
iv)	Total income tax charged to P&L A/c	: Rs 70.09 Crs.

So, Tax on core business (to be reimbursed from GRIDCO)

= Rs 70.09Cr x Rs.505.13Cr/Rs.599.34 = Rs.59.07Cr. Accordingly, in the FY 2018-19, OHPC is entitled to get reimbursement of Rs.59.07 Crs towards income tax paid in FY 2016-17 on core business of Rs.505.13Cr.

ARR & Tariff

55. ARR & Tariff of OHPC Power Stations for the FY2018-19 is computed without considering the impact of Govt. Notification No. 5843 Dtd. 03.07.2015.

The rise in the Average Tariff is mainly due to the following factors.

- i) OHPC has *considered the impact of Ministry of Corporate Affairs Notification No. GSR III(E) dated 16.02.2015 for considering the Additional Capitalization.*
- ii) Interest of UIHEP, Govt. Loan amounting to Rs16.863Cr on outstanding balance is considered. (Compliance of GRIDCO para no.4 may pls. be referred)
- iii) 40% Arrear of 7th pay revision of OHPC & Terminal liabilities is considered in O&M.

MDDL of Hirakud Project

56. The minimum water level in Hirakud Reservoir is maintained at 595ft against the draw down level of 590ft. This is due to inadequate pressure in the end reaches of canal below RL 595ft, which is hampering irrigation. The decision has been taken based on directions received from following :

- i. 72nd meeting of Hirakud Co- Ordination Committee held on 04.12.2013 at Rajiv Bhawan, Bhubaneswar.
- ii. 1st meeting of the committee on Dtd. 03.07.2012 in the Conference Hall of DoWR taken by Principal Secretary, DoWR on policy for optimum utilization of water in the reservoirs by industries and running of Hydro Electric Project with their optimum capacity
- iii. Engineer-in-Chief, Water Resources, Odisha, and Bhubaneswar vide his letter dtd 25.11.2014

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 on 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 330 MU for CHEP in case of optimum water availability and effective generation scheduling at HHEP, Burla.

Hydrology Failure

57. The compensation claimed by OHPC for an amount of Rs 263.283 Crs (approximately) for the period from FY 1996-97 to FY 2015-16 is only for non-recovery of Energy Charges due to non-availability of water in the reservoirs during the years of Hydrology failure, and does not include any claim for shortfall in recovery of Capacity Charges. The Design Energy of a power station is fixed after consideration of consumptive use of water for different purposes such as Industrial Consumption, Irrigation, Town Supply etc. After satisfying these priorities OHPC should be allowed to achieve its design energy to recover its annual energy charge which is 50% of the AFC. Any shortfall in design energy results in non-recovery of Annual Energy Charge as approved by the Commission. As per the CERC / OERC Regulatory norms, OHPC should be compensated for the shortfall amount in the recovery of AEC. Since the secondary energy fund has a negative balance, OHPC pray before the OERC to consider Rs 263.283 Crs as regulatory asset and approve its return to OHPC in suitable installments..

Truing Up Exercise

58. Truing up Exercise of OHPC for the FY 1996-97 to 2015-16 is under progress. After submission of draft truing up application by the consultant and final submission of the same before the Commission, the truing up exercise for the Financial Year 2016-17 shall be started in line with application prepared by the consultant & finally filed by OHPC.

Manpower

59. Details of manpower planning of all projects under OHPC including its corporate office had been furnished as rejoinder to Tariff application of OHPC for FY 2017-18, which may please be referred. Detail list of Engineers of OHPC managing the Power Houses had already been furnished as rejoinder to Tariff application of OHPC for Fact Finding Committee.

Energy Status Report

60. The reservoir level of OHPC power stations as on 15.01.2017 vis-a-vis on 15.01.2018 is given below:

Table – 18

Sl. No.	Reservoirs	As on 15.01.2017	As on 15.01.2018
1.	Rengali	122.34 meter	122.49 meter
2.	Kolab	856.21meter	853.53meter
3.	Balimela	1501.40ft.	1476.00ft.
4.	Hirakud	627.02ft.	625.50ft.
5.	Indravati	638.80meter	635.66meter

61. The actual generation report from 01.04.2017 up to 15.01.2018 and anticipated generation up to 31.03.2017 is furnished below.

Table – 19

Sl. No.	Name of the power stations	Actual generation from 01.04.17 up to 15.01.18 (in MU)	Anticipated generation from 16.01.18 to 31.03.18 based on DoWR& DoE Schedule (in MU)	RL likely to be achieved as on 31.03.18 as per generation Schedule	Total Anticipated generation for the FY 2017-18 based on DoWR& DoE Schedule (in MU)
1.	RHEP	675.297	65.04	120.30Mtr.	740.337
2.	UKHEP	543.608	104.16	850.89Mtr.	647.768
3.	BHEP	1346.187	180.48	1465.90Ft.	1526.667
4.	HHEP	565.80	68.16	615.53Ft.	633.96
5.	CHEP	188.807	50.16	-	238.967
6.	UIHEP	1451.708	340.80	630.81Mtr.	1798.508
Total		4777.407	808.80		5586.207

Electricity Duty

62. The reasons for high Transformer Loss in the different power stations of OHPC are as follows:

- i. The transformers (GT, UAT, SST etc.) operating in the different power stations of OHPC are old and the name plate efficiency are much below the 99.5% i.e around 97 & 98%. This means 2% of generated power is lost as core loss in the Transformer.
- ii. As per the grid requirement, SLDC instruct to operate the Units of OHPC under part load condition where percentage of Transformer loss with reference to low generation becomes high from the normative value.

Replacement of the energy consuming equipment like Generator Transformer is

costly. It's payback period considering the net energy saved will be very high as the Energy Charge Rate of OHPC power stations are very low. Therefore, OHPC propose to continue with the existing Transformer and the replacement of GT will be considered at the time of renovation & modernization.

OHPC agrees with GRIDCO's proposal that Commission may determine a Normative Auxiliary Consumption rate for balance life period of each power stations of OHPC and make a review in every five years. The Commission may take suitable decision in this regard.

VIEWS OF CONSUMER COUNSEL (Para 63)

63. 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 2018-19. The Consumer counsel's observations /suggestions are elaborated below.

- Comparative analysis of ARR approved by the Commission for FY 2017-18 to that of the proposed ARR for FY 2018-19 reveals that there is 15.80 % increase proposed in the ARR for FY 2018-19. In case of Machhkund, the increase in tariff proposed is 36.8 %.
- The Commission may approve the equity base and return on equity as proposed by OHPC in the ARR for FY 2018-19.
- The Commission may suggest a suitable mechanism of considering the accumulated interest repayment in the ARR of OHPC and allow the same for tariff determination purpose to minimize its impact on tariff.
- OHPC has computed depreciation for FY 2018-19 @ 2.57% of re-valued project cost as on 01.04.1996 plus additional capitalization from 01.04.1996 to FY 2016-17. 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. OHPC has escalated the O&M expenses approved by the Commission for FY 2017-18 @ 5.72% to arrive at O&M expenses for FY 2018-19 .OHPC

has deducted Rs. 9.66 Cr. from escalated O&M expenses of UIHEP for FY 2018-19 on account of maintenance expenses receivable from the DoWR. This may be allowed, however, addition of 40% of arrear on account of 7th Pay Commission revision and terminal liabilities wef 1.01.2016 may not be allowed.

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

OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC) (Para 64)

64. The Commission convened the State Advisory Committee (SAC) meeting on 20.02.2018. The Members of SAC deliberated on different issues related to power sector and the Annual Revenue Requirement of various licensees. Regarding OHPC, some members raised their concern over stagnation of capacity addition and development of small hydro projects. Shri Hemanta Sharma, Commissioner-cum-Secretary, Deptt. of Energy participating in the deliberations, outlined the present status of power sector and effort from the government in order to address the concerns raised by the SAC members. He further stated that Govt. is taking action for development of hydro power in the state. OHPC has initiated action plan for development of 600 MW pumped storage power stations at Upper Indravati and renovation of Balimela Power Station. Further, two small hydroelectric projects of 43 MW is scheduled to be commissioned by October/November this year.

VIEWS OF GOVERNMENT OF ODISHA (Para 65)

65. Government of Odisha communicated its suggestions/views/comments on various issues involving tariff setting for the year 2018-19 including subsidy / subvention and other important matters having a direct bearing on fixation of tariff for the year 2018-19 vide their letter No.ELC-OERC-03/2018/2253 dated 12.03.2018.

“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 2018-19.

COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL

(PARA 66 TO 113)

66. 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.

67. In 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)
- Tariff of Machhkund Hydro Electric Project

68. **The Annual Revenue Requirement of OHPC power stations for FY 2018-19 has been determined based on OERC (Terms and Conditions of Determination of Generation Tariff) Regulations, 2014.**

Power Procurement from OHPC

69. 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. Later on, for the FY 2013-14 after 15.06.2013 the installed capacity was 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.

70. As per Commission's order at para 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 target 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 and 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 target 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- 1 of 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 from 21.11.2017. Hence the installed capacity of BHEP from 21.11.2017 is considered as 390 MW. Similarly as per the approved revised R&M schedule Unit No.3 & 4 of BHEP may be taken for R&M from 05.08.2018 for a period of 18 months.

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.

71. Accordingly, the installed capacity of different generating stations of OHPC for FY 2017-18 and the proposed capacity for FY 2018-19 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.

72. 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 also 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. Therefore, GRIDCO has considered 5598.68 MU of availability from OHPC hydro stations excluding Machhkund and after deduction of 16.60 MU of allocations to CSEB from Hirakud Power Station, 0.5% auxiliary consumption and 0.5% transformation loss. The Commission accepts the same 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

73. This hydro power station is a joint project 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 was been considered for computation of total Installed Capacity of OHPC with the design energy of 525 MU. Now, the drawl of 262.50 MU (50%) is proposed by GRIDCO based on the supplementary agreement between the concerned States. The Commission, therefore, approves 262.50 MU to be drawn from this station during 2018-19.
74. The Commission’s approval of power to be purchased by GRIDCO for FY 2018-19 sent out from various stations of OHPC is given in the table below:-

**Table - 20
Hydro Drawal and Projections for 2018-19**

Sl. No.	Name of the HE Project	Design Energy (MU)	Commission’s Approval for 2017-18 (MU)	Commission’s Approval 2018-19 (MU)
1	Hirakud	684.00	677.16	677.16
2.	Chiplima	490.00	485.10	485.10
3.	Balimela	1183.00	1171.17	1171.17
4.	Rengali	525.00	519.75	519.75
5.	Upper Kolab	832.00	823.68	823.68
	Total (Old Stations)	3714.00	3676.86	3676.86
6.	UIHEP	1962.00	1942.38	1942.38
7.	Machhkund (Odisha Share)	262.50	262.50	262.50
	Total Hydro	5938.50	5881.74	5881.74

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

Project Cost

75. The tariff of old power stations has been determined on the historical cost of old power stations of OHPC (except UIHEP) at Rs.479.80 cr. as per the Notification No.1068 dtd.29.01.2003 of Department of Energy, GoO. The Commission in its order dtd.20.03.2008 had approved Rs.1194.79 cr. as final capital cost of UIHEP. 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 various associated works.

The adjustment of cost of assets for the period from FY 2011-12 to FY 2015-16 on account of de-capitalisation of assets for an amount of Rs.9.38 cr. had already been approved by the Commission in tariff order of OHPC for the said years. During 2016-17 there is further de-capitalisation of Rs.0.40 cr. on old power stations and Rs.2.00 cr. in case of UIHEP. Hence the total de-capitalisation of power stations during FY 2011-12 to FY 2016-17 considering above is Rs.11.78 cr. to be reduced from the project cost.

The additional capitalisation for an amount of Rs.62.91 cr. as per the audited accounts for FY 2016-17 has been proposed by OHPC in tariff for the FY 2018-19 considering the effect of the amended Companies (Ind AS) Rules of Ministry of Corporate Affairs notification No. GSR III (E) dtd.16.02.2015. The Commission scrutinised the audited accounts for 2016-17 and observed that additional capitalisation of Rs.5.27 cr. is shown as addition under the head PPE as against Rs.62.91 cr. submitted under the same head in their proposal. On further scrutiny the Commission wanted to know the basis of additional capitalisation of Rs.62.91 cr. for FY 2016-17 which was not found in audited report submitted by OHPC. To this query OHPC could not produce any satisfactory evidential document in favour of this. However, the Commission sought detailed information without considering the effect of the above notification. Since the inventory above Rs.5 lakhs which is actually not capitalised but remains in store as idle asset, the Commission does not feel it appropriate to pass on the impact of the additional capitalisation claimed by OHPC in its proposal. OHPC has submitted the detailed power house wise and year wise break up of capital additions without

considering the above mentioned Ind-AS notification. The Commission while calculating tariff has not considered the effect of the said notification. The additional capitalisation for an amount of Rs.4.83 cr. has been considered for determination of tariff for FY 2018-19. The approved project cost for the tariff calculation of 2018-19 is tabulated below:

Table – 21
Capital cost approved for Tariff Determination of FY 2018-19

(Rs. in Cr.)

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 2015-16	Asset reduction during the FY 2016-17	Asset reduction during the FY 2011-12 to FY 2016-17	New additions from 01.04.1996 to 31.03.2016 (Approved)	New additions during FY 2016-17 (Audited)	New addition upto 2016-17	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	0.06	0.02	0.08	57.47	0.34	57.81	148.82
2	UKHEP	108.31	0.16	0.30	0.46	18.98	0.30	19.28	127.13
3	BHEP	115.42	0.29	0.04	0.33	215.50	0.36	215.86	330.95
4	HHEP	72.75	6.77	0.02	6.79	217.35	2.77	220.12	286.07
5	CHEP	92.23	0.75	0.15	0.90	47.87	0.25	48.12	139.45
	Sub Total	479.80	8.03	0.52	8.55	557.17	4.02	561.19	1032.43
6	UIHEP	1194.79	1.35	2.07	3.42	4.75	0.81	5.56	1196.94
	Total	1674.59	9.38	2.59	11.97	561.92	4.83	566.75	2229.37

76. Annual fixed cost of OHPC stations includes interest on loan, depreciation, return on equity, O&M expenses and interest on working capital. These are 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 not considered the effects of the Notification No. 5843 dated 03.07.2015 issued by the Department of Energy, GoO.

77. The Commission has not considered the effect of up-valuation of assets in determining the Tariff and ARR for FY 2018-19 in view of the letter No.ELC-OERC-03/2018/2253 dated 12.03.2018 of Govt. of Odisha and also Commission's order vide Case No.61 of 2016 regarding determination of ARR & Tariff for FY 2017-18. Item wise details are described as under.

Interest on Loan:

78. The loan liabilities of OHPC consist of State Government loan and Normative Loans.

I. State Government Loan(UIHEP)

In case of old stations of OHPC as on date there is no outstanding loan liability. In case of UIHEP there is a component of state government loan and the balance is considered as normative loan provided by OHPC.

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

Breakup of UIHEP approved project cost

Govt. loan	:	Rs.497.86 cr.
PFC loan	:	Rs.319.49 cr,
Equity	:	Rs.298.70 cr.
Normative loan	:	Rs.78.74 cr.
(Balancing figure)		

Total : Rs.1194.79 cr.

The detailed breakup of the project cost and the basis of allowing depreciation linked to loan repayment is dealt in para 134 of OHPC tariff order for the FY 2010-11 which is presented below:

- Original cost of the project : Rs.1194.79 cr.
- 90% of the project cost : Rs.1075.31 cr. ...(i)
- Cumulative depreciation allowed in
ARR till 2009-10 (PFC loan repayment) : Rs.319.49 cr. ...(ii)
- Balance depreciation to be recovered(i-ii) : Rs.755.82 cr. ...(iii)
- Balance Life period : 25 years (iv)
- Depreciation calculated by OERC(iii/iv) : **Rs.30.23 cr.**

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

Table - 22

(Rs. Cr.)

a.	Original Approved Project Cost	1195.42
b.	Project cost deducting the infirm power cost	1194.79
c.	25% Equity on (b)	298.70
d.	PFC loan already repaid	319.49
e.	Loan outstanding as on 01.04.2015	497.86
f.	Depreciation allowed from 2010-11 to 2017 -18 @ Rs.30.23 Crore per annum	241.84
g.	Loan Repayment made till FY 2017-18 (d-g)	241.84
h.	Balance Outstanding Loan as on 01.04.2018	256.02
i.	Interest claimed by OHPC for the year 2018-19@ 7% on (h)	16.86

OHPC has claimed Rs.16.86 Cr. towards interest on Government loan of UIHEP in the Tariff for the FY 2018-19.

OHPC has also claimed cumulative interest to be recovered from FY 2006-07 to FY 2017-18 @7% on Rs.522.62 Cr. (as per OHPC's rescheduled statement) to the extent of Rs.350.49 Cr. towards UIHEP Government loan which the Government has proposed to consider as Regulatory Asset. The Commission is not inclined to consider it in view of earlier orders.

II. Normative Loan:

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

The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% on weighted average basis 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 2018-19 based on PFC interest rate applicable to BHEP. The normative loan of HHEP, Burla is considered @ 8.75 % for FY 2018-19 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 2016-17 is considered at the prevailing rate of interest of State Government Loan @7% as per the OERC tariff norms.

Normative Loan of UIHEP:-

As far as repayment of normative loan of UIHEP of Rs.53.32 Cr.(OHPC's rescheduled statement) is concerned, the Commission in the Para 131 of Compendium of Tariff Order of OHPC for FY 2013-14 has agreed 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 beginning with 2026-27. The interest component will be considered after the total repayment of the principal in line with the Government loans".

OHPC has prayed before the Commission to designate the accumulated interest amounting to Rs 78.74 Cr. from the FY 2001-02 to FY 2016-17 on Normative Loan of Rs 53.32 Cr. as Regulatory Asset and fix suitable instalment as pass through in the tariff for the FY 2018-19 in order to reduce the future tariff burden. Commission is not inclined to accept the proposal in view of its earlier orders.

Summary of Interest on loan:

Considering the above facts, the interest on outstanding loans payable by OHPC for the FY 2018-19 comes to Rs.28.22 Cr. as proposed by OHPC is presented in the Table No.7 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:

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 of Rs.78.23 Cr. which has already been dealt 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.”

79. The order of the Commission has become final. It is observed that the depreciation has already been allowed in the tariff of 2010-11 to 2017-18 @ Rs.30.23 Cr. per year. The same amount is also allowed in the tariff of 2018-19 towards principal repayment

of UIHEP Govt Loan. Commission agrees with the view of the objectors and the Consumer Counsel during hearing not to allow any separate interest on Government loan and normative loan of UIHEP in ARR.

80. Considering the above, Principal repayment of Rs.30.23 Cr. against the depreciation during the FY 2018-19 is allowed and may consider the accumulated interest on above after completion of the Principal repayment as has been decided earlier.

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 2018-19. Interest on normative loans for additional capitalisation of Chipilima, Upper Kolab, Balimela, Hirakud, Rengali and UIHEP are allowed by the Commission.

81. The Unit-wise interest on loan as described above and approved by the Commission for the FY 2018-19 is tabulated below:

Table - 23

(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	1.743	0.110	0.129	0.662	0.184	0.157	2.986
2.	Govt. loan of UIHEP						0.00	0.00
Total		1.743	0.110	0.129	0.662	0.184	0.157	2.986

The Commission accepts and approves interest payment of Rs.2.986 cr. for all stations of OHPC for the FY 2018-19 as against Rs. 3.550 cr. allowed in the tariff for the FY 2017-18.

Depreciation:

82. 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 2018-19 as per OERC Generation Tariff Regulation, 2014. 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.31.01 Cr. has been considered for FY 2018-19 for recovery through tariff.

83. For the year 2018-19, depreciation is claimed by OHPC in the tariff, applying 2.57% of the project cost of RHEP, UKHEP, HHEP, CHEP & BHEP. The same is approved by the Commission as summarized below:

Table – 24
Depreciation approved for 2018-19

Name of the Power Station	Approved Depreciation (Rs. Cr)	Remark
HHEP	7.35	2.57%
CHEP	3.58	2.57%
BHEP	8.51	2.57%
RHEP	3.82	2.57%
UKHEP	3.27	2.57%
Sub-Total	26.53	
UIHEP	31.01	Spread over useful life of the plant
Grand Total	57.54	

Depreciation of Rs.26.53 Crore is approved by the Commission for the FY 2018-19 for old power stations of OHPC. In UIHEP, the depreciation 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 is Rs.30.23 Crore as determined during FY 2010-11 and Rs.0.78 cr. towards repayment of principal of Normative loan instalment for FY 2018-19. Thus, Rs.31.01 cr. is allowed towards depreciation of UIHEP.

The Commission approves a total of Rs.57.54 cr. on account of depreciation for tariff purpose in ARR of FY 2018-19 against Rs.62.65 cr. proposed by OHPC in its application. The corresponding depreciation amount for FY 2017-18 was Rs.57.339 crs.

Return on Equity (RoE) and Income Tax

84. The equity component of OHPC, was decided in the Commission's tariff order dtd.19th April, 2002 in Case No. 65 of 2001 & Case No. 04 of 2002 vide Para 6.4.17 through Para 6.4.21. 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.
85. The return on equity (ROE) determined on the basis of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 is computed at the rate of 16% of the equity amount as accepted by the Commission.

86. 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 2016-17 which is subject to change after the actual tax paid during the FY 2018-19. 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. The Commission does not allow the interest income earned by OHPC on the fixed deposits of Rs.94.20 crores during 2016-17 but allows Rs.37.49 cr. to be reimbursed from GRIDCO in the tariff of 2018-19. Accordingly, the details of RoE of OHPC power stations approved by the Commission for the FY 2018-19 is summarized below:

Table – 25

(Rs. in Crs.)

Sl. No.	Name of the Power Stations	Project Cost	Equity Capital rate	Equity Capital	ROE @16% for the FY 2017-18
1	RHEP	57.81	30%	17.344	2.775
2	UKHEP	19.28	30%	5.784	0.925
3	BHEP	215.86	30%	64.758	10.361
4	HHEP	220.12	30%	66.035	10.566
5	CHEP	48.12	30%	14.436	2.310
6	UIHEP	1196.94	25% & 30%	299.511	47.922
	Total	1758.13		467.868	74.859

NB : Approved project cost of UIHEP is Rs1194.79Cr. De-capitalisation for FY 2014-15 to FY 2016-17= Rs3.35Cr. De-capitalisation is considered from the approved project cost. New project cost= Rs 1194.79Cr - Rs3.42Cr =Rs1191.37Cr. Additional Capitalisation from FY2013-14 to FY2016-17=Rs5.56Cr. Project Cost for Tariff= Rs1196.94 Crores.

The Equity on UIHEP is 25% of Rs.1191.37 (i.e. Rs.297.842 Crs.) and 30% of Rs.5.56 crores towards additional capitalisation (ie. Rs.1.668 crores). The total equity is Rs.299.51 Crores.

Return on Equity is @16% of Equity Capital as per norms of OERC with a provision of reimbursement of Income Tax paid for the FY 2016-17

The Commission approves return on equity for all stations of OHPC amounting to Rs.74.859 Cr. for the FY 2018-19 as against Rs.77.650 cr. proposed by OHPC. The corresponding approved figure for Return on Equity in FY 2017-18 was Rs.74.710 crs.

O&M Expenses

- The Commission has calculated the O&M expenses as per the Generation Tariff Regulations, 2014 and escalation @5.72% is allowed on the previous year's approved O&M expenses. On this principle the O&M expenses is Rs.353.929 Cr. for FY 2018-19. 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 2016-17 indicates that only Rs.9.66 crore was received towards dam maintenance expenses from DOWR. The same amount is deducted from the approved O&M expenses of UIHEP of Rs.81.940 crs.
- OHPC has considered the impact of the 7th Pay Commission under O&M expenses. OHPC has calculated the financial impact on account of implementing the 7th Pay Commissions pay-structure which works out to about Rs.53.94 Cr from 01.01.2016 to 31.03.2018 and proposed to release the above payment in three(03) annual installments after approval of OHPC Board. OHPC pray before the Commission to allow the arrear in three financial years starting from FY 2018-19 in the ratio of 40:30:30 respectively. Accordingly OHPC proposes to allow 40% of the estimated arrear in O&M expenses in FY 2018-19.
- The Commission has analyzed the proposal of OHPC and observed that OHPC has not yet formally decided to implement the arrear payments with due concurrence from the State Govt. It may be implemented in the coming financial year. The issue of payment of arrear in this regard shall be decided by the Commission at appropriate time once the revised scale is implemented. For calculation of O & M expenses for FY 2018-19 the impact of arrear payments and terminal liabilities have not been considered.

87. **Thus, the Commission after due scrutiny approves total O&M expenses at Rs.344.259 cr. for FY 2018-19 against Rs.365.846 cr. proposed by OHPC. Station-wise O&M expenses approved for FY 2018-19 is presented in the table below:**

Table – 26
Statement of O & M Expenses for 2018-19

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses for FY 2017-18 Approved by OERC	47.95	36.12	68.73	72.64	16.63	242.07	69.48	23.22	334.78
	O & M expenses for FY 2018-19 with escalation @ 5.72% over the approved O&M for FY 2017-18.	50.69	38.19	72.66	76.80	17.58	255.92	73.45	24.55	353.93
2	Corporate Office expenses apportioned to different units under OHPC based on D.E.	2.27	3.60	5.12	2.96	2.12	16.06	8.49	24.55	
3	Total O & M Expenses for the FY 2018-19	52.963	41.784	77.778	79.753	19.700	271.978	81.940		353.919
4	Less Amount to be received from DoWR towards Dam Maintenance Sharing of UIHEP for FY 2017-18							-9.66		-9.66
5	Total O&M Expenses for the FY 2018-19	52.963	41.784	77.778	79.753	19.700	271.978	72.280		344.259

The corresponding approved figure for FY 2017-18 was Rs.323.803 cr.

Interest on Working Capital

88. 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 not withstanding 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 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, 2017 of SBI for one year was 8.0%. OHPC has considered the MCLR rate of SBI as on 01.04.2017 plus 300 basis

points for computation of interest on working capital. The Commission has adopted this principle which is equivalent to 11% (considering 8.0% as the MCLR rate plus 300 basis points = 11%) for FY 2018-19. The detailed calculation of Working Capital approved by the Commission is presented in the Table below:

Table – 27
Interest on Working Capital for FY 2018-19

(Rs. in Crs.)

Sl. No	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	O & M Expenses for One Month	4.41	3.48	6.48	6.65	1.64	22.67	6.02	28.69
2	Maintenance spares @15% of O & M Expenses	7.94	6.27	11.67	11.96	2.96	40.80	10.84	51.64
3	Receivable equivalent to Two Months of Annual Fixed Cost	10.64	8.01	16.77	17.04	4.46	56.92	26.01	82.93
4	Total Working Capital	23.00	17.76	34.92	35.65	9.06	120.38	42.88	163.26
5	Interest on Working Capital calculated @ 11.0%	2.530	1.953	3.841	3.922	0.997	13.242	4.717	17.959

* SBI MCLR for 01.04.2016 is 8.0% + 300 basis points = 11.00%

Thus, the Commission approves an amount of Rs.17.959 Cr. as interest on working capital for the year 2018-19 as against the OHPC proposal of Rs.19.545 cr. The interest on Working Capital approved by the Commission for FY 2017-18 was Rs.18.944 Cr.

Total Annual Fixed Cost

89. Based on the above parameters the station-wise ARR and tariff calculated and approved for the year 2018-19 is indicated in the table below:

Table – 28
Station-wise Tariff Approved For 2018-19

(Rs. Cr.)

Components	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total FY2018-19
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
Return on	2.775	0.925	10.361	10.566	2.310	26.937	47.922	74.859

Components	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total FY2018-19
Equity								
Interest on Loan	1.743	0.110	0.129	0.662	0.184	2.828	0.157	2.986
Depreciation	3.825	3.267	8.505	7.352	3.584	26.534	31.009	57.542
O & M expenses	52.963	41.784	77.778	79.753	19.700	271.990	72.280	344.259
Interest on Working Capital	2.530	1.953	3.841	3.922	0.997	13.242	4.717	17.959
Total ARR	63.835	48.040	100.615	102.255	26.775	341.520	156.084	497.604
Average Tariff (P/U) for 2018-19	122.82	58.32	85.91	151.01	55.19	92.88	80.36	88.55
Average Tariff for the FY 2017-18 (P/U) (Approved)	118.20	55.74	82.50	144.72	53.28	89.16	77.50	85.13

The Commission approves total ARR of Rs.497.604 crs. at an average price of 88.55 p/u as against proposed ARR of Rs.553.911 cr. @ 98.57 p/u. The corresponding approved figure for FY 2017-18 was Rs.478.35 cr. at an average price of 85.13 p/u vis-a-vis OHPC's ARR proposal for Rs.1026.356 cr. at an average price of 182.65 p/u for the same year.

ARR & Tariff Application Fees and related Publication Expenses

90. 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 FY 2018-19. OHPC shall be allowed to recover the same amount from GRIDCO. In addition to the above, OHPC has stated to have incurred expenses

Rs.0.84815 lakhs (approx.) on publication of tariff related matters in the newspaper for the FY 2017-18 against the approved Publication Expenses of Rs.1.00 Lakh in the FY 2017-18. OHPC has further submitted that due to implementation of GST the publication expenses may likely to be increased.

In view of the above, OHPC has claimed Rs.26.20 lakhs towards the Application Fee & Publication Expenses for the FY 2018-19. The Commission approves the said amount of Rs.26.20 lakhs as reimbursement towards application fee and publication expenses as pass through in the ARR of GRIDCO for FY 2018-19.

License fee for use of water for generation of Electricity:

91. 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.
92. OHPC has proposed that due to the enforcement of Govt. of Odisha Notification dtd.27.09.2016 the licence fee for drawal and allocation of water was enhanced @10% per annum with effect from 01.04.2017. Accordingly, OHPC is paying @ 1.10 p/Kwh with effect from 01.04.2017 as license fee on water used for generation of electricity from all hydro electric projects and getting it reimbursed from GRIDCO.
93. OHPC has claimed to reimburse the total license fee on water used for generation of electricity for OHPC power stations for FY 2018-19 @ 1.21 p/Kwh as presented in the table below:

Table – 29
License Fee for use of Water for FY 2017-18 & 2018-19

Description	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
Differential Licence Fee on water used for generation of electricity for FY 2017-18	0.053	0.083	0.118	0.068	0.049	0.196	0.567
Licence Fee on water used for generation of electricity for FY 2018-19	0.635	1.007	1.431	0.828	0.593	2.374	6.868

94. The Commission considered the above proposal of OHPC and provisionally approves an amount of Rs.7.435 cr. mentioned in the table above to be reimbursed from GRIDCO in the FY 2018-19 based on the design energy of OHPC power stations @ 1.21 p/KWh.

Electricity Duty on Auxiliary Consumption

95. 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.

OHPC in the present tariff filing has submitted the following facts for claim of ED on auxiliary consumption.

- As per the Odisha Electricity (Duty) Amendment Act, 2016 vide their Gazette Notification No. 1981 Dtd. 05.11.2016.the electricity duty(ED) on Auxiliary Energy Consumption shall be paid on auxiliary equipment consumption and the transformer losses within the power stations. The Auxiliary Energy Consumption(AUX) has been defined in CERC Tariff Regulation 2014 & OERC(Terms & condition for determination of generation Tariff) Regulation, 2014.
- In pursuance of Sub-section-I of Section-3 of Orissa Electricity (Duty) Act-1961 and supersession to the Govt. Notification No 9539 BT(ed)-01/2016-En dated 27.12.2016, the State Govt in the Dept. of Energy has revised the rate of ED vide the present notification No.912 dated the 12.05.2017. Accordingly, the Rate of Electricity Duty / Unit has been revised from 30 paisa per Unit to 55 paisa per Unit with effect from 12th May 2017 as per the Gazette Notification No. 912 dated 12.05.2017. Therefore OHPC proposes to claim ED @55paise per Unit for all power stations for FY 2018-19 as reimbursement.

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.6.123 cr. based on auxiliary equipment consumption limiting to 0.5% and the actual average transformer loss of various power stations for last 7 years, as shown in table below.

Table - 30
Total ED Claim for OHPC Power station for FY 2018-19

(Rs. Cr)

Description	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
Differential ED on Auxiliary Consumption for FY 2017-18	0.549	0.662	0.603	0.685	0.172	2.600	5.271
ED on Auxiliary Consumption for FY 2018-19	0.628	0.787	0.780	0.788	0.246	2.894	6.123

The Commission examined the proposal of OHPC regarding the Gazette Notification of Government of Odisha revising the rate of ED per unit from 30 p/u to 55 p/u. The Commission does not accept the proposal of OHPC to allow the transformer loss calculated by taking the average of last 7 years. The Commission in OERC Generation Regulation 2014 at 1.7(c) has defined the auxiliary consumption (AUX) as under:

“(c) “Auxiliary Energy Consumption” or “AUX” in relation to a period in case of a generating station means the quantum of energy consumed by auxiliary equipment of the generating station, and transformer losses within the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station”

Accordingly, the Commission at 5.4(b)(i) of the Regulation has approved the percentage of AUX for surface hydro generating stations with static excitation system as 1%.

It is observed that the GoO vide Gazette Notification No.912 dtd.12.05.2017 has enhanced the rate of ED on auxiliary energy consumption from 30 p/u to 55 p/u w.e.f 12.05.2017. Accordingly the Commission allows the reimbursement of ED @30 p/u for the period from 01.04.2017 to 11.05.2017 and @55 p/u for the period from 12.05.2017 to 31.03.2018 on normative value of AUX at 1%. Based on this normative values the Commission approves ED on auxiliary consumption of all Hydro Electric power stations for 2017-18 and 2018-19 as presented in the table below:

Table – 31
ED on Auxiliary Consumption

(Rs. in Crs.)

Name of Power Station	Design Energy	2017-18					2018-19	Total ED approved for reimbursement
		ED approved for 2017-18	ED for 41 days @ 30 p/u	ED for 324 days @ 55 p/u	Total ED for 365 days	Differential ED for 2017-18	ED @ 55 p/u	
1	2	3	4	5	6 = (4+5)	7 = (6-3)	8	9 = (7+8)
RHEP	525	0.079	0.018	0.256	0.274	0.195	0.289	0.484
UKHEP	832	0.125	0.028	0.406	0.434	0.309	0.458	0.767
BHEP	1183	0.177	0.040	0.578	0.617	0.440	0.651	1.091
HHEP	684	0.103	0.023	0.334	0.357	0.254	0.376	0.63
CHEP	490	0.074	0.017	0.239	0.256	0.182	0.270	0.452
UIHEP	1962	0.294	0.066	0.958	1.024	0.730	1.079	1.809
Total	5676	0.851	0.191	2.771	2.962	2.11	3.122	5.232

The Commission approves differential ED on auxiliary consumption and transformation loss for 2017-18 to the tune of Rs.2.11 cr. in addition to the approved amount of ED of Rs.0.851 cr. in the tariff order of FY 2017-18 and Rs.3.122 cr. for 2018-19 as per the amended notification on ED dtd.12.05.2017. Accordingly an amount of Rs.5.232 cr. (Rs.2.11 cr. + Rs.3.122 cr.) may be reimbursed by GRIDCO to OHPC on account of ED on auxiliary consumption and transformation loss for the years 2017-18 & 2018-19.

SLDC Charges

96. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2018-19 in Case No.78/2017, 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.8922.26/MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 1754.5 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC charges of OHPC comes to Rs.1.57 crs. for the FY 2018-19, 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.1.57 crs. as pass through in the ARR of GRIDCO for the FY 2018-19 towards power purchase related cost of OHPC.

Reimbursement of contribution made to ERPC

97. 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 2018-19 will be claimed as additional reimbursement in the subsequent year.

Thus the Commission approves a total reimbursement claim for an amount of Rs.0.16 cr. towards ERPC contribution for FY 2018-19 from GRIDCO.

Income Tax

98. 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.70.09 cr. towards income tax for FY 2016-17. OHPC has calculated income tax claim as follows:

Income Tax paid by OHPC for the FY2016-17 is detailed below:

i)	Total Income	: Rs 599.34Cr.
ii)	Less Interest earned on fixed deposits	: Rs 94.21Cr.
iii)	Income from core business {(i)-(ii)}	: Rs 505.13Cr.
iv)	Total income tax charged to P&L A/c	: Rs 70.09 Crs.

So, tax on core business (to be reimbursed from GRIDCO) =

$$\frac{\text{Rs.70.09 cr} \times \text{Rs.505.13 cr.}}{\text{Rs.599.34 cr.}} = \text{Rs.59.07 cr.}$$

OHPC has submitted that it is entitled to get reimbursement of Rs 59.07 Crs towards income tax for FY 2016-17 on core business amounting to Rs.505.13Cr.

99. The Commission has examined the Audited Accounts of OHPC for FY 2016-17. It is revealed from their balance sheet, that interest of Rs.94.21 cr. has been earned on fixed deposits and at the applicable tax rate on this amount, the tax is coming to Rs.32.60 cr. Thus after excluding Rs.32.60 cr. from the total income tax of Rs.70.09 cr. paid during 2016-17 the balance of Rs.37.49 cr. is the tax paid on core business. Therefore, the Commission approves Rs.37.49 Cr. towards income tax as reimbursement claim from GRIDCO.
100. 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, Income tax and Reimbursement of contribution made to ERPC for FY 2018-19 of OHPC are summarized in the table below:

Table – 32
Total Reimbursement from GRIDCO for FY 2018-19

Component of Costs	(Rs. Cr.)						Total
	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1. (a) Differential License fee for use of water for generation of electricity for 2017-18	0.053	0.083	0.118	0.068	0.049	0.196	0.567
(b) Licence Fee on water used for generation of electricity for FY 2018-19	0.635	1.007	1.431	0.828	0.593	2.374	6.868

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
2. (a) Differential ED on Auxiliary con. for 2017-18	0.210	0.333	0.473	0.274	0.196	0.785	2.270
(b) ED on Aux. con & transformation loss for 2018-19	0.289	0.458	0.651	0.376	0.270	1.079	3.122
3. SLDC charges							1.57
4. Application fees and publication expenses							0.262
5. Reimbursement of contribution made to ERPC							0.16
6. Income tax paid during FY 2016-17							37.49
Total							52.309

Thus, the Commission approves the miscellaneous reimbursement of Rs.52.309 cr. The above expenditure has been included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing.

Two-Part Tariff

101. As per Clause 4.37 of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014, 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 OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014, the annual fixed cost of a power station shall be recovered through capacity charge (inclusive of incentives) and energy charge to be shared on a 50:50 basis 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:

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

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.

102. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2018-19 as summarized in the table below:

Table - 33
Energy Charge and Capacity Charge for 2018-19

Name of the Power Stations	Annual Fixed Cost (Rs.in Crs.)	Capacity Charges (Rs in Crs.)	Energy Charges (Rs in Crs.)	Saleable Design Energy (in MU)	Energy Charge Rate(P/U)
RHEP, Rengali	63.835	31.918	31.918	519.75	61.410
UKHEP, Baraniput	48.040	24.020	24.020	823.68	29.162
BHEP, Balimela	100.615	50.307	50.307	1171.17	42.955
HHEP, Burla	102.255	51.127	51.127	677.16	75.503
CHEP, Chiplima	26.775	13.387	13.387	485.10	27.597
UIHEP, Mukhiguda	156.084	78.042	78.042	1942.38	40.179

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)

103. 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 - 34

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 2018-19 and directs that the monthly capacity charge of each OHPC stations shall be computed for the FY 2017-18 based on the above NAPAF.

104. 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

105. 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 210.45 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 - 35
Tariff for CSPDCL for 2018-19

(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)	343.484
Return on Equity (@ 25.233)	26.00
Interest on Loan	5.13
Depreciation (@ 5.28%)	18.14
O & M expenses (Escalated @ 6.64%)	84.44
Interest on Working Capital (@ 13.5%)	4.93
Total ARR	138.65
Average Tariff (p/u)	204.75

The Commission approves average tariff of 204.75 p/u for HHEP for billing to CSPDCL for FY 2018-19 as against 194.81 p/u approved during FY 2017-18.

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

106. 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.

**Table - 36
Projected Tariff of Machhkund H. E. (J) Scheme For FY 2018-19**

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
	<u>(Rs. in Crs)</u>
1. O&M Exp. (Odisha share of O&M Exp. For FY 16-17)	16.6526
2. O&M Exp for FY 2018-19 with escalation of 6.64% for 2016-17 & 2017-18	18.9375
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	19.7775
5. Tariff (Paise/Kwh)	75.34
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.	

107. The proposed tariff of 75.34 Paise/KWh of Odisha drawl of Machhkund power for FY 2018-19 has been computed on cost reimbursement basis. Provisional O&M Expenses of Rs.16.65 Cr. for the FY 2016-17 has been escalated @ 6.64% per year to arrive at O & M Expenses of Rs.18.937 Cr for FY 2018-19. 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.19.777 Cr for FY 2018-19. The cost per unit is 75.34 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 2016-17 is furnished by OHPC in its application.

108. 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:

109. The Commission approves the above rate of 75.34 Paise per Unit for FY 2018-19 as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.

ARR and Approval of Tariff

110. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2018-19 as follows:

Table – 37

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
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
Approval for 2018-19								
Total ARR	63.835	48.040	100.615	102.255	26.775	341.520	156.084	497.604
Average Tariff (P/U) for 2018-19	122.82	58.32	85.91	151.01	55.19	92.88	80.36	88.55

111. Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2018-19. The Capacity charge and the rate of Energy charge as approved at para 102 and table-33 above and the corresponding approved rates for the FY 2017-18 are summarized in the table below :

Table – 38

Energy Charge and Capacity Charge for 2017-18 & Approval for 2018-19

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	17-18	18-19	17-18	18-19	17-18	18-19	17-18	18-19
Rengali HEP	61.435	63.835	30.718	31.918	30.718	31.918	59.101	61.410
Upper Kolab HEP	45.916	48.040	22.958	24.020	22.958	24.020	27.872	29.162
Balimela HEP	96.627	100.615	48.313	50.307	48.313	50.307	41.252	42.955
Hirakud HEP	97.998	102.255	48.999	51.127	48.999	51.127	72.360	75.503
Chiplima HEP	25.845	26.775	12.922	13.387	12.922	13.387	26.638	27.597
Upper Indravati HEP	150.525	156.084	75.263	78.042	75.263	78.042	38.748	40.179

The unit cost of energy from Machhkund is approved at 75.34 p/u for 2018-19 as against 55.068 p/u approved for 2017-18.

112. The tariff now approved shall be effective from 01.04.2018 and shall be in force until further orders.
113. The application of OHPC in Case No.74 of 2017 for approval of its Annual Revenue Requirement and fixation of generation tariff of different stations for the FY 2018-19 is disposed of.

Sd/-
(S. K. PARHI)
MEMBER

Sd/-
(A. K. DAS)
MEMBER

Sd/-
(U. N. BEHERA)
CHAIRPERSON