

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

*** **

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

CASE NO.65/2014

**DATE OF HEARING : 09.02.2015
DATE OF ORDER : 23.03.2015**

IN THE MATTER OF : Application for approval of Aggregate Revenue Requirement and Generation Tariff of OHPC Stations for the FY 2015-16 under Sections 62 & 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 2015-16.

PROCEDURAL HISTORY (Para 1 to 7)

1. The OHPC Ltd. is a “Generating Company” under the meaning of Sec.2 (28) of the Electricity Act, 2003 (herein after referred as ‘the Act’). Under the existing legal set up, GRIDCO Ltd. is evacuating powers from the generating stations of OHPC Ltd. and delivering it to the Distribution Licensees of the State.
2. As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, a generating company is required to file an application by 30th November of each year to the Commission for determination of tariff for any of its generating stations, for sale of energy in the State of Odisha giving details of costs associated with the

generation and sale of energy from the generating stations. Accordingly, on 29.11.2014 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 2015-16. The Commission for the first time had framed its own Regulations called OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 which was notified in the Odisha Gazette on 10.10.2014. OHPC in its reply to the query of the Commission has submitted on 12.01.2015 that their application needs no amendment since it has been filed under the provisions of the said Regulations.

3. After due scrutiny and admission of the aforesaid application, the Commission directed OHPC Ltd. to publish its application in the approved format. In compliance to the same; public notice was given in leading and widely circulated newspaper and was also posted in the Commission's website, in order to invite objections/suggestions from the general public. The applicant was also directed to file its rejoinder to the objections/suggestions filed by the objectors. In response to the aforesaid public notice the Commission received 7 nos. of objections from the following persons /organizations:

(1) Shri Ramesh Ch. Satpathy, Secretary, National Institute of Indian Labour, Plot No.302(B), Beherasahi, Nayapalli, Bhubaneswar-751012, (2) Shri A K Bohra, Chief Executive Officer (Comm), NESCO, WESCO & SOUTHCO, Regd. Office- Plot No. N-1/22, IRC Village, Nayapalli, Bhubaneswar-15, (3) Shri R.P. Mahapatra, Retd. Chief Engineer & Member (Gen., OSEB), Plot No.775(Pt.), Lane-3, Jayadev Vihar, Bhubaneswar-751013, (4) Sri G.N. Agrawal, Convenor-cum-Gen. Secy, Sambalpur District Consumers Federation, Balajee Mandir Bhawan, Khetrajpur, Dist-Sambalpur-768003, (5) M/s Swain & Sons Power Tech Private Limited, Swati Villa, Surya Vihar, Link Road, Cuttack-753012. (6) Shri. Prashanta Kumar Das, President, State Public Interest Protection Council, 204, Sunamoni Apartments, Telenga Bazar, Cuttack-753009. (7) M/s.GRIDCO Limited, Janapath, Bhubaneswar-22 were filed their suggestions/ objections.

All the above named objectors along with the representative of Department of Energy, Government of Odisha were present during tariff hearing except Objector Nos. 1 & 6 and their written submissions filed before the Commission were taken on record and

also considered by the Commission. The applicant submitted its reply to issues raised by the various objectors.

4. In exercise of the power u/S. 94(3) of the Electricity Act, 2003 and to protect the interest of the consumers, the Commission appointed World Institute of Sustainable Energy (WISE), Pune as Consumer Counsel for objective analysis of the applicant's Aggregate Revenue Requirement and determination of generation tariff proposal for its different power stations for the financial year 2015-16. The Consumer Counsel presented their views on the matter during the hearing.
5. The date of hearing was fixed on 09.02.2015 at 3.30 PM and was duly notified in the leading and widely circulated newspaper mentioning the list of objectors. The Commission also issued individual notice to the objectors and Government of Odisha through the Department of Energy informing them about the date and time of hearing and requesting to send the Government's authorized representative to take part during the proceedings and offer views/suggestion/proposal of the Govt. as a stakeholder.
6. In its consultative process, the Commission conducted a public hearing at its premises at Bhubaneswar on 09.02.2015 and heard the Applicant, Objectors, Consumer Counsel and the Representative of the Dept. of Energy, Government of Odisha at length.
7. The Commission convened the State Advisory Committee (SAC) meeting on 25.02.2015 at 3.30 PM to discuss about the Aggregate Revenue Requirement (ARR) application and generation tariff proposal of the generating company for FY 2015-16. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission.

ARR PROPOSAL OF OHPC FOR FY 2015-16 (Para 8 to 28)

Installed Capacity

8. The total installed capacity of the various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) is projected at 2008.5 MW for FY 2015-16 including Orissa's share from Machhkund. The Odisha share of Machhkund has been increased from 34.5 MW to 36 MW as the actual installed capacity of MHEP has been reported as 120 MW by the MHEP authorities.

The installed capacity of different generating stations as reported by OHPC for the FY 2015-16 is given in the table below.

Table – 1
Installed capacity of OHPC stations

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2014-15	Proposed Installed Capacity for FY 2015-16
1	Rengali (RHEP)	250.00	250.00
2	Upper Kolab(UKHEP)	320.00	320.00
3	Balimela(BHEP)	510.00	510.00
4	Burla (HHEP)	220.50	220.50
5	Chiplima (CHEP)	72.00	72.00
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhakund (30% Orissa share)	34.50	36.00
Total		2007.00	2008.5

Design Energy of OHPC Stations

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

Table – 2
Design Energy for FY 2015-16

Sl. No.	Name of the Power Station	Design Energy (DE) (in MU)	Design Energy for sale (in MU)
1	RHEP	525.00	519.75
2	UKHEP	832.00	823.68
3	BHEP	1183.00	1171.17
4	HHEP	652.00	645.48
5	CHEP	309.00	305.91
Sub Total of Old Power Stations		3501.00	3465.99
6	UIHEP	1962.00	1942.38
Total		5463.00	5408.37

Reservoir Level and Anticipated Generation for FY 2015-16

10. The reservoir level of Power Stations reported by OHPC as on 24.11.14 vis-à-vis on 24.11.13 is given below.

Table – 3
Reservoir Levels of Power Stations

Sl. No.	Reservoirs	As on 24.11.2013	As on 24.11.2014
1	Rengali	123.41 M	122.09 M
2	Kolab	856.28 M	856.87 M
3	Balimela	1514.60 Ft.	1515.00 Ft.
4	Hirakud	629.71 Ft.	629.31 Ft.
5	Indravati	641.57 M	640.49 M

The actual generation of different power stations under OHPC up to 23.11.2014 and anticipated generation up to 31st March 2015 are also provided as given below in table-4, taking into consideration the directives of the Govt. of Odisha.

Table – 4
Actual /Anticipated Energy Generation for FY 2014-15

Sl. No.	Name of the power stations	Actual generation from 01.04.14 up to 23.11.14 (MU)	Anticipated generation from 24.11.14 to 31.03.15 based on DoWR & DoE Schedule	Total Anticipated generation for the FY 2014-15 based on DoWR & DoE Schedule
1.	RHEP	674.25	89.28	763.53
2.	UKHEP	488.83	183.36	672.19
3.	BHEP	996.03	257.04	1253.07
4.	HHEP	444.05	139.68	583.73
5.	CHEP	194.05	100.24	294.29
6.	UIHEP	2073.98	603.60	2677.58
Total		4871.19	1373.20	6244.39

Project Cost

11. The revalued cost of old power stations under OHPC is Rs.1196.80 Crs as on 01.04.1996 as per the notification no 5207 dtd. 01.04.1996 of Department of Energy, Government of Orissa. The Commission in its Order dated 23.03.2006 at clause no. 5.4 (C) had approved the same. The historical cost of old power stations of OHPC is Rs.479.80 Crores. Further, the Commission in the Order dated 20.03.2008 has approved Rs.1195.42 crores as final capital cost of UIHEP for the purpose of determination of tariff.

OHPC has shown additional capitalization of Rs. 140.59 Cr. for the FY 2015-16. This additional capitalization is based on the following factors.

- a) Capital work in progress (CWIP) of Rs. 9.87 Cr. for FY 2014-15 to be capitalized during FY 2014-15 and CWIP for FY 2015-16 to be capitalized during FY 2015-16 as per the audited accounts of FY 2013-14.
- b) An amount of Rs 130.72 Crs. is considered as additional capitalization for FY 2014-15 & 2015-16.

The detailed unit wise additional capitalization considered for determination of tariff for the FY 2015-16 is presented in the table below.

Table – 5
Additional Capitalization for the FY 2015-16

(Rs. Cr.)					
SL. No.	Power Stations	Additional Capitalisation for FY 2013-14	Additional Capitalization considering CWIP for FY 2014-15	Additional Capitalization considering CWIP for FY 2015-16	Total Additional Capitalization for FY 2015-16 tariff
	1	2	3	4	5=2+3+4
1	RHEP	0.84	2.15	6.08	9.06
2	UKHEP	2.72	19.80	11.08	33.60
3	BHEP	1.14	0.21	1.11	2.46
4	HHEP	1.67	8.62	31.05	41.34
5	CHEP	0.93	1.52	3.57	6.02
6	Sub Total	7.30	32.29	52.88	92.48
7	UIHEP	2.57	10.47	35.08	48.11
8	Total	9.87	42.76	87.96	140.59

12. The de-capitalization of OHPC power stations during FY 2011-12 to FY 2013-14 has been computed as Rs. 7.12 Cr. which has been deducted from the original historical cost and revalued cost of assets.

Table- 6
Reduced Historical Cost and Reduced Revalued Cost

(Rs. Cr.)						
Sl. No.	Name of Power Station	Historical cost of asset as on 01.04.1996.	Revalued cost of asset as on 01.04.1996.	Reduction of assets during the FY 2011-12 to FY 2013-14	Historical Cost as on 31.03.2014.	Revalued Cost as on 31.03.2014.
1	2	3	4	5	6 = 3 – 5	7 = 4 – 5
1	RHEP	91.09	259.01	0.00	91.09	259.01
2	UKEHP	108.31	307.96	0.09	108.22	307.87
3	BHEP	115.42	334.66	0.26	115.16	334.40
4	HHEP	72.75	130.16	6.07	66.68	124.09
5	CHEP	92.23	165.01	0.70	91.53	164.31
Total (Old PS)		479.80	1196.80	7.12	472.68	1189.68

13. The project cost of OHPC power stations considered for computation of ARR for the FY 2015-16 is given in the table below:

Table- 7
Capital Cost proposed for FY 2015-16

(Rs. Cr.)

Sl. No.	Name of the power stations	Historical Cost as on 31.03.2013.	Revalued Cost as on 31.03.2013.	Approved New additions up to 31.03.2013	New additions for FY 2013-14(audited) & CWIP for 2014-15 & 2015-16	Project cost considered for Tariff Calculation based on historical cost	Project Cost considered for Tariff calculation based on revalued cost
1	2	3	4	5	6	7=3+5+6	8=4+5+6
1.	RHEP	91.09	259.01	55.57	9.06	155.72	323.64
2.	UKHEP	108.22	307.87	15.79	33.60	157.61	357.26
3.	BHEP	115.16	334.40	212.42	2.46	330.04	549.28
4.	HHEP	66.68	124.09	204.94	41.34	312.96	370.37
5.	CHEP	91.53	164.31	45.24	6.02	142.79	215.57
	Sub Total	472.68	1189.68	533.96	92.48	1099.12	1816.12
6.	UIHEP	Approved project cost Rs 1194.79 Crore		1194.79	45.54	1242.90	1242.90
7	Total	472.68	1189.68	1728.75	140.59	2342.02	3059.02

Withdrawal of State Government Support

14. The OHPC has submitted that the State Government has expressed willingness to do away with the financial support to OHPC through various letters from time to time. In the proceedings of a meeting taken by the Chief Secretary of Government of Odisha on 18.03.2014, it was decided that -

Convertible Bonds worth Rs 766.20 Crores has been issued to State Government. These bonds shall not carry any interest up to FY 2014-15.

Part- Rs 383.10 Crores shall be converted to equity from 2015-16.

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

Further the Chhattisgarh State Power Distribution Company Limited (CSPDCL) is placing a demand to pay the energy charge to OHPC at the average tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and which is determined by the Commission, considering the supportive measures extended by the Govt. of Odisha.

Therefore, OHPC prays the commission to fix the tariff for the FY 2015-16 of all the Power Stations under OHPC without considering the Govt. support, so that the average tariff rate derived for HHEP, Burla (without Govt. support) shall be applicable to CSPDCL. In the event the State Govt. further allows its supportive measures and concessions for the FY 2015-16, then subsidized generation tariff (including HHEP) will be applicable for billing to GRIDCO but the tariff of HHEP without the State Govt. support shall be applicable for billing to CSPDCL.

Determination of Annual Fixed Cost for FY 2015-16

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

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

- a) Return on equity (ROE)
 - b) Interest on loan capital
 - c) Depreciation
 - d) Operation and Maintenance (O&M) expenses
 - e) Interest on working capital
- a. **Return on equity (ROE):** Return on equity shall be computed on pre-tax basis at the base rate of 16.5% to be grossed up as per the following formula.

Rate of pre-tax return on equity = 16.5% / (1-t)

Where “t” is the tax rate to be paid by OHPC.

For the FY 2015-16, the income tax rate of 33.99% including surcharge (10%) and cess (3%) as applicable for the FY 2014-15 is considered for computation of RoE for FY 2015-16.

∴ Rate of return on equity = 16.50% / (1 – 0.3399) = 24.9962%

The pre-tax return on equity @ 24.9962% has been considered for FY 2015-16 for OHPC power stations.

Table – 8
RoE Proposed for FY 2015-16 Without Considering Government Support
(Rs. cr.)

Sl. No.	Name of the Power Station	Project Cost	Equity Capital Rate (%)	Value of Equity capital	ROE @ 24.9962% Proposed for 2015-16
1.	RHEP	323.64	30	97.093	24.270
2.	UKHEP	357.26	30	107.177	26.790
3.	BHEP	549.28	30	164.785	41.190
4.	HHEP	370.37	25	92.592	23.144
5.	CHEP	215.57	25 & 30	54.646	13.659
	Sub Total	1816.12		516.293	129.054
6.	UIHEP	1242.90	25 & 30	314.436	78.597
	Total	3059.02		830.729	207.651

N.B.: (i) Equity Capital of CHEP, Chiplima is taken @25% for new capitalization of Rs.200.495 Crs prior to FY 2009-10 and @30% of new capitalization of Rs.15.075 Crs after FY 2009-10 to FY 2012-13 (Approved) & FY 2013-14 (Audited) & CWIP for FY 2014-15 & 2015-16.

(ii) Equity Capital of UIHEP, Mukhiguda is taken @25% for new capitalization of Rs.1194.79 Crs prior to FY 2012-13 and @30% of new capitalization of Rs.48.11 Crs for FY 2013-14(Audited) & CWIP for FY 2014-15 & 2015-16.

Based on the tariff order dtd. 19th April, 2002 and vide notification no. 5302 dtd. 6th May 2003, the RoE to OHPC has been allowed on the new capital

addition made after 1st April, 1996 in different hydro projects under OHPC. The State Government is not taking any RoE on its investments in different hydro projects prior to 1st April, 1996 which is considered as state government support. The RoE with State Government support is given in the table below.

Table – 9
RoE Proposed for FY 2015-16 Considering Government Support

(Rs. Cr.)

Sl. No.	Name of the Power Station	Value of New capital addition from 01.04.1996 to 31.03.2014	Equity Capital Rate (%)	Value of Equity capital	ROE @24.9962% Proposed for 2015-16
1.	RHEP	64.63	30	19.390	4.847
2.	UKHEP	49.39	30	14.816	3.703
3.	BHEP	214.88	30	64.463	16.113
4.	HHEP	246.28	25	61.570	15.390
5.	CHEP	51.26	25 & 30	13.569	3.392
	Sub Total	626.44		173.808	43.445
6.	UIHEP	1242.90	25 & 30	314.436	78.597
	Total	1869.34		488.244	122.042

N.B.: (i) Equity Capital of CHEP, Chiplima is taken @25% for new capitalization of Rs.200.495 Crs prior to FY 2009-10 and @30% of new capitalization of Rs.15.075 Crs after FY 2009-10 to FY 2012-13 (Approved) & FY 2013-14 (Audited) & CWIP for FY 2014-15 & 2015-16.

(ii) Equity Capital of UIHEP, Mukhiguda is taken @25% for new capitalization of Rs.1194.79 Crs prior to FY 2012-13 and @30% of new capitalization of Rs.48.11 Crs for FY 2013-14(Audited) & CWIP for FY 2014-15 & 2015-16.

Based on Post-tax Approach of RoE, the Commission had approved Rs.83.57 Cr. in the tariff of OHPC for the FY 2014-15. This is not in accordance with the CERC approved Tariff Regulations, 2014. Thus, OHPC submits the differential claim of RoE of Rs.28.57 cr. for FY 2014-15.

Due to restructuring of Govt. investment in UIHEP, there is an increase of Rs.1.303 Crs in Equity base from FY 2001-02. OHPC has proposed the

differential claim on RoE for this differential Equity Base of Rs.1.303 Crs from FY 2001-02 to FY 2014-15. Thus OHPC proposes Rs.2.898 cr. towards differential yearly RoE claim of UIHEP.

OHPC prays before the Commission to allow the RoE without considering government support and the differential amount as reimbursement for different power stations of OHPC for FY 2015-16. The prayer for RoE is tabulated below.

Table – 10
RoE Claim by OHPC for FY 2015-16

(Rs. cr.)

Power Stations	Differential claim of FY 2014-15 (as reimbursement)	Diff claim due to resetting of Equity of UIHEP(as reimbursement)	Proposed RoE claim for FY 2015-16
RHEP	1.06	-	24.270
UKHEP	0.306	-	26.790
BHEP	4.063	-	41.190
HHEP	3.259	-	23.144
CHEP	0.86	-	13.659
Sub Total	9.548	-	129.054
UIHEP	19.021	2.898	78.597
	28.57	2.898	207.651

- b. **Interest on Loan:** The loan liabilities of OHPC consists of State Government loans, PFC loans and Normative loans. The State Government loan for the OHPC power stations except the UIHEP has been repaid by the FY 2012-13.

The government loan to UIHEP stands at Rs. 821.47 Cr. as on 31.03.2001 after capitalization. Out of this Rs.300 Cr. is treated as normative equity w.e.f FY 2001-02 and remaining Rs. 521.47 Cr. is treated as loan to UIHEP that carries an interest @7% p.a w.e.f FY 2006-07 onwards. The loan amount is supposed to be repaid by the OHPC in 15 equal annual instalments starting from FY 2010-11. The Commission has allowed depreciation @Rs.30.23 Cr. p.a from FY 2010-11 to FY 2014-15 which has been considered as repayment of loan to the government over the last five years. However, after restructuring of the loan, the depreciation per year turns out to be Rs. 34.76 Cr. (Rs. 521.47 Cr./15). Thus differential depreciation amount of Rs. 22.65 Cr. (Rs. 34.76 Cr. – Rs. 30.23 Cr.=4.53 Cr. p.a., Rs. 4.53Cr. p.a × 5 years) p.a may be approved

as a pass through in the tariff order of FY 2015-16. Moreover, OHPC has claimed Rs. 57.41 Cr. (Rs. 34.76 Cr. + Rs. 22.65 Cr.) as loan repayment to the government during FY 2015-16. Finally, the interest of Rs. 23.91 Cr. on the average outstanding balance for the FY 2015-16 has been claimed. Further the OHPC has proposed to designate the accumulated interest amount of Rs. 302.07 Cr. as on 01.04.2015 as regulatory asset and fix suitable installments as pass through in the ARR for recovery of the same from FY 2015-16 onwards.

Table – 11
Summary of OHPC’s Claim on Govt. Loan to UIHEP

1.	Rs 57.41 Cr towards Loan Repayment.
2.	Rs 23.91 Cr towards Interest.
3.	Accumulated Interest of Rs 302.07 Cr. as on 01.04.2015 on the UIHEP Govt. Loan as the Regulatory Asset.
4.	Pass through of the 1st Installment (to be decided by the Commission) of the above Regulatory Asset in the tariff of 2015-16.

OHPC has considered the interest impact of 50 % convertible bond @ 7% rate of interest and distributed the same across different old power stations based on their share of installed capacity in the total installed capacity. The distribution of interest rate is shown in the table below.

Table – 12
Distribution of Interest on Convertible Bonds Across Different Old Power Stations
(Rs. Cr.)

Sl. No.	Loan/ Interest Component	RHEP	UKHEP	BHEP	HHEP	CHEP	Total
1	Zero Coupon Bond (Convertible Bond) (Rs. Crs.)	69.78	89.32	142.35	61.55	20.10	383.10
2	Interest on Loan @7% (Rs. Crs.)	4.8846	6.2524	9.9645	4.3085	1.407	26.817

OHPC availed PFC loans in connection with R & M projects of HHEP, Burla and extension project of BHEP, Balimela. The PFC loan for UIHEP has already been paid by 2009-10.

Since, 9.8% State Govt. loan has been repaid, but normative loans of the respective units are still pending, the normative loans of CHEP, RHEP &

UKHEP is stated to be considered @ 9.8% as per Clause No. 5 of CERC Regulation, 2014 and @ 9.6% for BHEP, Balimela for FY 2015-16 based on PFC interest rate applicable to BHEP. Similarly, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2015-16 based on PFC interest rate applicable to HHEP, Burla by OHPC.

The OHPC has claimed interest on normative loan @12 % p.a as per the interest rate offered on the loans from PFC/REC.

The Hydro station-wise interest and guarantee commission for FY 2015-16 as claimed by OHPC is presented in Table No 13 & 14 below.

Table – 13
Interest on Loan and G.C for FY 2015-16 (Without Govt. Support)
(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2015-16						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	PFC loan	-	-	1.94	0.23	-	-	2.18
2.	Normative loan	3.23	2.37	0.99	2.43	0.99	7.37	17.38
3.	Govt. Loan	-	-	-	-	-	23.91	23.91
4.	Convertible Bond	4.89	6.25	9.97	4.31	1.41	0.00	26.82
5.	G.C.	-	-	0.64	0.44	-	-	1.08
Total		8.11	8.62	13.53	7.41	2.40	31.28	71.36

Table – 14
Interest on Loan and G.C for FY 2015-16 (With Govt. Support)
(in Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2015-16						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	PFC loan	-	-	1.94	0.23	-	-	2.18
2.	Normative loan	3.23	2.37	0.99	2.43	0.99	7.37	17.38
3.	Govt. Loan	-	-	-	-	-	23.91	23.91
4.	G.C.	-	-	0.64	0.44	-	-	1.08
Total		3.23	2.37	3.57	3.10	0.99	31.28	44.54

c. Depreciation

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

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

OHPC has computed depreciation for the FY 2015-16 @ 5.28% on the revalued project cost as on 31.03.2014 plus additional capitalization w.e.f. 01.04.1996 up to FY 2013-14 plus cost of CWIP & some other capitalizations during the FY 2014-15 & 2015-16.

In case of UIHEP, Rs. 34.76 Cr. has been considered as the annual repayment of government loan for FY 2015-16, Rs. 22.65 Cr. is the differential depreciation due to government loan restructuring and Rs. 6.74 Cr. has been considered as the depreciation amount for additional capitalization during FY 2013-14, FY 2014-15 and FY 2015-16. Thus a total of Rs. 64.17 Cr. is considered as the depreciation for FY 2015-16 for UIHEP.

The depreciation both with and without government support for different plants of OHPC are tabulated below.

**Table – 15
Depreciation without Govt. Support for FY 2015-16**

(Rs. Cr.)

Sl. No.	Name of the power station	Depreciation Claimed	Remark
1	RHEP	20.50	5.28%
2	UKHEP	21.47	5.28%
3	BHEP	40.35	5.28%
4	HHEP	32.56	5.28%
5	CHEP	14.09	5.28%
	Sub Total	128.97	
6	UIHEP	64.17	Equal to loan repayment
	Grand Total	193.13	

Table – 16
Depreciation With Govt. Support for FY 2015-16

(Rs. Cr.)

Sl. No.	Name of the power station	Depreciation Claimed	Remark
1	RHEP	4.68	Equal to loan repayment
2	UKHEP	6.39	Equal to loan repayment
3	BHEP	15.62	Equal to loan repayment
4	HHEP	12.75	Equal to loan repayment
5	CHEP	3.67	2.57%
	Sub Total	43.11	
6	UIHEP	64.17	Equal to loan repayment
Grand Total		107.27	

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

OHPC had calculated the O&M expenses for the FY 2014-15 as per the CERC Tariff Regulations 2009 based on the following formula.

The normalized O&M Expenses after prudence check, for the years 2008-09 to FY 2012-13, was escalated at the rate of 5.17% to arrive at the normalized operation and maintenance expenses for the FY 2008-09 to FY 2012-13 at FY 2012-13 price level respectively and then averaged to arrive at normalized operation and maintenance expenses at FY 2012-13 price level and the averaged O&M was escalated at the rate of 5.72% to arrive at the operation and maintenance expense for FY 2014-15.

However, as per the CERC Regulation, 2014 the escalation rates were changed from 5.17% to 6.04% and 5.72% to 6.64% respectively for block period 2014-2019. Moreover, the O&M expenses for FY 2013-14 was obtained by escalating the O&M expenses for FY 2012-13 at the rate of 6.04% instead of 5.72%.

Considering the new escalation rates a differential O&M expenses for FY 2014-15 amounting to Rs. 8.22 Cr. (Rs. 291.53 Cr. – Rs. 283.31 Cr.) has been proposed in the ARR.

Following the CERC Regulation, 2014, the O&M expenses of OHPC is proposed as below.

- i. The O&M expenses for FY 2015-16 comes to Rs. 310.89 Cr. considering an escalation rate of 6.64% instead of 5.72%.
- ii. Arrear salary and terminal liabilities of corporate office amounting to Rs. 11.15 Cr. has been apportioned to different units and included in the O & M expenses for the tariff proposal for FY 2015-16.

Thus OHPC claims Rs. 322.04 Cr. as the O&M expense for FY 2015-16 and further proposes to reimburse Rs. 8.22 Cr. as differential O&M for FY 2014-15.

Table – 17
Statement of O&M Expenses for FY 2015-16

(Rs. Cr.)									
Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	C.O.	Total
O&M expenses for FY 2015-16 including arrear salary and terminal liabilities	48.53	38.25	73.79	71.95	16.98	249.50	72.54	23.06	322.04
O&M approved for FY 2014-15 including arrear salary and terminal liabilities	44.33	35.03	67.67	65.49	15.65	228.15	66.31	19.65	294.46

Table – 18
Reimbursement Claim of Differential O & M for FY 2014-15

(Rs. Cr.)										
Sl. No	PARTICULARS	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	C.O.	TOTAL
01	O&M Expenses for FY 2014-15(with Escalation @ 6.04% & 6.64%)	41.81	31.44	59.89	63.33	14.40	210.85	60.52	20.1	291.53
2	Approved O&M Expenses for FY 2014-15(with Escalation @ 5.17% & 5.72%)	40.58	30.57	58.16	61.47	14.07	204.86	58.80	19.65	283.31

Sl. No	PARTICULARS	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	C.O	TOTAL
3	Differential Claim of O&M expenses for FY 2014-15	1.23	0.87	1.73	1.86	0.33	5.99	1.72	0.51	8.22
4	Corporate Office expenses apportioned to different units under OHPC based on installed capacity	0.06	0.08	0.13	0.06	0.02	0.35	0.16	0.51	
5	Total claim of Differential O & M for FY 2014-15	1.29	0.95	1.86	1.92	0.35	6.34	1.88		8.22

e. Interest on Working Capital

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

- i. Receivables equivalent to two months of fixed cost.
- ii. Maintenance spares @ 15% of operational and maintenance expenses
and
- iii. Operation and maintenance expenses for one month.

The rate of interest on working capital considered is the SBI base rate @ 10% as on 1st April, 2014 plus 350 basis points which turns out to be 13.5% in line with the CERC (Terms and Conditions of Tariff) Regulations'2014. In accordance with CERC guidelines, the interest on working capital shall be payable on normative basis.

Tables -19 & 20 summarize the station-wise interest on working capital as proposed by OHPC for FY 2015-16.

Table – 19
Interest on Working Capital for FY 2015-16 Without Govt. Support

(Rs. Cr.)

Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	Receivables equivalent to two months of fixed cost	17.55	16.42	29.19	23.42	8.13	94.71	42.43	137.14
2	Maintenance spares @ 15% of O&M expenses	7.28	5.74	11.07	10.79	2.55	37.42	10.88	48.31
3	O&M expenses for one month	4.04	3.19	6.15	6.00	1.42	20.79	6.05	26.84
4	Total working capital	28.88	25.35	46.40	40.20	12.09	152.92	59.36	212.28
5	Interest on working capital calculated @ 13.5%	3.90	3.42	6.26	5.43	1.63	20.64	8.01	28.66

Table – 20
Interest on Working Capital for FY 2015-16 With Govt. Support

(Rs. Cr.)

Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	Receivables equivalent to two months of fixed cost	10.71	8.85	19.00	17.98	4.36	60.90	42.43	103.33
2	Maintenance spares @ 15% of O&M expenses	7.28	5.74	11.07	10.79	2.55	37.42	10.88	48.31
3	O&M expenses for one month	4.04	3.19	6.15	6.00	1.42	20.79	6.05	26.84
4	Total working capital	22.04	17.77	36.21	34.77	8.32	119.12	59.36	178.48
5	Interest on working capital calculated @ 13.5%	2.97	2.40	4.89	4.69	1.12	16.08	8.01	24.09

For the FY 2014-15 Commission had allowed interest on working capital for Rs.14.45 Cr. to OHPC at an interest rate of 10%. In actual, the interest on working capital for the FY 2014-15 would have been Rs 19.51 Cr at an interest rate of 13.5% as per the CERC Regulations 2014.

Therefore, OHPC requests the Commission to approve the differential amount of Rs.5.06 Cr. for FY 2014-15 as reimbursement in the ARR of FY 2015-16.

Table – 21
Differential Interest on Working Capital for the FY 2014-15

(Rs. Cr.)									
Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	Approved Interest on Working Capital calculated @ 10% for FY 2014-15	1.96	1.5	3.27	2.95	0.75	10.43	4.02	14.45
2	Interest on Working Capital calculated @ 13.5% for FY 2014-15	2.65	2.03	4.41	3.98	1.01	14.08	5.43	19.51
3	Differential IoWC claim for FY 2014-15	0.69	0.53	1.14	1.03	0.26	3.65	1.41	5.06

Annual Revenue Requirement (ARR) & Tariff (without Govt. Support)for the FY 2015-16

Based on the above parameters the station-wise ARR and tariff have been calculated for the FY 2015-16 as indicated by OHPC is presented in the tables below.

In determining the ARR and tariff without government support in the form of up valuation of assets, the revalued cost of Rs. 1189.68 Cr. along with new capital addition for Rs. 1869.34 Cr. since 01.04.1996 up to 31.03.2014 (audited) along with CWIP for the FY 2014-15 & 2015-16 has been considered.

Table –22
Station wise ARR and Tariff for the FY 2015-16 Considering Proposed Saleable D.E. & without Govt. Support

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	645.48	305.91	3465.99	1942.38	5408.37
(Rs. Cr.)								
Return on Equity	24.270	26.790	41.190	23.144	13.659	129.054	78.569	207.651
Interest on Loan	8.11	8.62	13.53	7.41	2.40	40.08	31.28	71.36
Depreciation	20.50	21.47	40.35	32.56	14.09	128.97	64.17	193.13
O&M Expenses	48.53	38.25	73.79	71.95	16.98	249.50	72.54	322.04
Interest on working capital	3.90	3.42	6.26	5.43	1.63	20.64	8.01	28.66
Total ARR	105.32	98.55	175.12	140.49	48.76	568.25	254.60	822.85
Average Tariff (p/u)	202.63	119.64	149.53	217.66	159.41	163.95	131.08	152.14

In determining the ARR and tariff with government support, the historic cost of Rs. 472.68 Cr. along with new capital addition for Rs. 1869.34 Cr. since 01.04.1996 up to 31.03.2014 (audited) along with CWIP for the FY 2014-15 & 2015-16 has been considered.

Table – 23
Station wise ARR and Tariff for the FY 2015-16 Considering Proposed Saleable D.E. & With Govt . Support

Details expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	645.48	305.91	3465.99	1942.38	5408.37
(Rs. Crs.)								
Return on Equity	4.847	3.703	16.113	15.390	3.392	43.445	78.597	122.04
Interest on Loan	3.23	2.37	3.57	3.10	0.99	13.26	31.28	44.54
Depreciation	4.68	6.39	15.62	12.75	3.67	43.11	64.17	107.27
O&M Expenses	48.53	38.25	73.79	71.95	16.98	249.50	72.54	322.05
Interest on working capital	2.97	2.40	4.89	4.69	1.12	16.08	8.01	24.09
Total ARR	64.27	53.10	113.98	107.89	26.16	365.39	254.60	620.00
Average Tariff (p/u) with Govt. support.	123.65	64.47	97.32	167.14	85.52	105.42	131.08	114.64

Application Fee and Publication Expenses

16. As per the CERC Tariff Regulation 2014, the application filing fee and the expenses incurred on publication of notices may in the discretion of the Commission, be allowed to be recovered by the generating company directly from the beneficiaries. As per the Commission notification no. 1992 dated 31.08.2009 in the clause no. 17, Commission has fixed a fee of Rs. 5000/- per MW as application fee for determination of tariff of conventional fuel based plant/ hydel plants, subject to maximum limit of Rs. 25,00,000/- (Rupees Twenty five lakhs). As per above provision, the application fee and publication expenses proposed by OHPC for FY 2015-16 are given in table below.

Table -24
Application Fees and Publication Expenses

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

Electricity Duty on Auxiliary Consumption

17. As per the agreed PPA between OHPC and GRIDCO, the taxes and duties including electricity duty (ED) on auxiliary consumption etc. payable by OHPC to the State Government and other statutory bodies shall be passed on to GRIDCO in the shape of supplementary bill raised by OHPC. GRIDCO will make payment accordingly within 30 days of receipt of bills. Moreover, the Commission allowed annual adjustment on reimbursement of ED at the year end limiting to 0.5% of the cumulative actual generation during the financial year instead of limiting to monthly generation in the tariff order for the FY 2014-15. Accordingly, ED on Auxiliary consumption of all the hydro electric projects to the tune of Rs.0.54 Crore has been proposed to be reimbursed to OHPC by GRIDCO. OHPC requests the Commission to approve the same.

License Fee for Use of Water for Generation of Electricity

18. As per the Gazette Notification dtd. 01.10.2010, OHPC has to pay Rs. 0.01/kwh as license fee on water used for generation of electricity from all Hydro Electric Projects to the tune of Rs. 5.376 Cr. and this is to be reimbursed to OHPC by GRIDCO, based on design energy. OHPC further requests that since the above calculation is based on design energy of hydro projects, the actual generation from OHPC power stations may be considered for reimbursement of license fee paid to Govt. of Orissa from GRIDCO. Commission may please approve the same.

SLDC Charges

19. As per CERC (fees & charges of regional load dispatch centre and other related matters) regulations, 2009 SLDC has to levy and collect annual charges from the users towards system operation charges and market operation charges. Commission approved Rs.1.67 Cr. as SLDC charges for the FY 2014-15 which is to be collected by SLDC from OHPC. OHPC proposes Rs.1.78 Cr. (escalated at 6.64% to arrive at the charges payable by SLDC) to be considered provisionally as fees and charges payable by OHPC to SLDC for the FY 2015-16.

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

20. 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 inter state supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Odisha. The proposed tariff of 34.38 P/U of Odisha drawl of Machhkund power for FY 2015-16 has been computed on cost reimbursement basis. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of design energy of Machhkund equivalent to 262.50 MU.

Foreign Exchange Fluctuation Loss of PFC Loan of BHEP

21. OHPC had availed PFC loan in USD for R&M works of Unit#7 & Unit#8 of BHEP, the principal repayment and interest payment of which started from the FY 2007-08. Due to variation in Foreign Exchange Rate, OHPC has incurred a loss of Rs.2.10 Cr. towards payment of interest and Rs.8.09 Cr. towards principal repayment on the PFC loan of BHEP form FY 2007-08 to FY 2014-15. Out of which Commission had approved Rs.5.99 Cr. (i.e. Rs.1.35 Cr. towards interest + Rs.4.64 Cr. towards principal) in the tariff order for the FY 2014-15 for recovering the amount from GRIDCO. OHPC prayed before the Commission to allow the balance Rs. 4.2 Cr. for reimbursement from GRIDCO during FY 2015-16.

Reimbursement of Contribution Made to ERPC

22. OHPC had claimed Rs. 1.10146 Cr towards the ERPC establishment fund and ERPC fund contribution from FY 2006-07 to FY 2013-14 in the ARR of FY 2014-15. However, the Commission only approved claim of Rs.0.15 Cr. for the FY 2014-15. Thus OHPC has claimed Rs.1.10146 Cr. in the ARR for FY 2015-16 for reimbursement from GRIDCO. Moreover, Rs.1 lakh for FY 2014-15 and Rs.16 lakh for FY 2015-16 have been added to the claim. Thus a total of Rs.1.2746 Cr. has been claimed in the ARR of FY 2015-16 as reimbursement from GRIDCO towards ERPC establishment fund and ERPC fund contribution from FY 2006-07 to FY 2015-16.

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

23. In the first meeting of High Power Committee on Catchment Area Treatment Plan on 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.

Details of Reimbursement Cost:

Total reimbursement cost claimed for the FY 2015-16 is given in the table below.

**Table – 25
Details of Reimbursement Claim**

(Rs. Cr.)

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
(a) License fee for use of water for generation of electricity	0.525	0.832	1.183	0.652	0.309	1.962	5.463
(b) ED on Auxiliary Consumption	0.05	0.08	0.12	0.06	0.03	0.20	0.54
(c) SLDC charges							1.78
(d) Application fees and publication expenses							0.26
(e) Institutional cost paid for implementation of CATP programme for FY2013-14 & 2014-15.							4.01
(e) Fluctuation loss of PFC Loan of BHEP			4.20				4.20
(f) ERPC charges							1.2746
(g) Reimbursement of differential RoE claim for FY 2014-15	1.06	0.306	4.063	3.259	0.86	19.021	28.57
(h) Reimbursement of differential RoE claim due to resetting of equity of UIHEP.						2.898	2.898
(i) Reimbursement of differential O&M claim for FY 2014-15	1.23	8.07	1.73	1.86	0.33	1.72	8.22
(j) Reimbursement of differential IoWC claim for FY 2014-15	0.69	0.53	1.14	1.03	0.26	1.41	5.06
Total							62.2756

Two-Part Tariff

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

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

Capacity charge (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.

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

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

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

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

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

Where,

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

As per the CERC Tariff Regulation station-wise capacity charge and energy charge proposed by OHPC for the FY 2015-16 is presented in Table – 26 and Table – 27 below without considering and considering government support.

Table – 26
Capacity Charge and Energy Charge of Power Stations
(Without considering Govt. Support)

Name of the power stations	Annual Fixed Cost (Rs. in Crs.)	Capacity Charge (Rs. in Crs.)	Energy Charge (Rs. in Crs.)	Salable design energy (MU)	Energy Charge Rate(p/u)
RHEP	86.49	43.245	43.245	519.75	83.203
UKHEP	74.50	37.25	37.25	823.68	45.224
BHEP	139.26	69.63	69.63	1171.17	59.453
HHEP	106.70	53.35	53.35	645.48	82.652
CHEP	37.73	18.865	18.865	353.43	79.705
UIHEP	240.30	120.15	120.15	1942.38	61.857

Table – 27
Capacity Charge and Energy Charge of Power Stations
(Considering Govt. Support)

Name of the Power Stations	Annual Fixed Cost (Rs. in Crs.)	Capacity Charge (Rs. in Crs.)	Energy Charge (Rs. in Crs.)	Salable design energy (MU)	Energy Charge Rate in Revised D.E (p/u)
RHEP	62.21	31.105	31.105	519.75	59.846
UKHEP	45.63	22.815	22.815	823.68	27.699
BHEP	113.60	56.80	56.80	1171.17	48.499

Name of the Power Stations	Annual Fixed Cost (Rs. in Crs.)	Capacity Charge (Rs. in Crs.)	Energy Charge (Rs. in Crs.)	Salable design energy (MU)	Energy Charge Rate in Revised D.E (p/u)
HHEP	97.43	48.715	48.715	645.48	75.471
CHEP	25.32	12.66	12.66	353.43	42.76
UIHEP	240.30	120.15	120.15	1942.38	61.857

Normative Plant Availability Factor (NAPAF)

25. 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 – 28
Station-wise Normative NAPAF Proposed for FY 2015-16

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

Capital Maintenance of Different Power Stations

26. The cost for capital maintenance requirement for different power stations of OHPC are mentioned below.

a) Capital Maintenance of Unit – 2 of RHEP, Rengali:

The cost of capital maintenance for unit – 2 of RHEP Rengali is shown in the table below.

Table – 29
Capital Maintenance Cost of Unit – 2 of RHEP

Power Station	Unit No.	Nature of Work	Period of Capital Maintenance	Cost of the CWIP during 2014 – 15 (Rs.) (Approx.)	Cost of the CWIP during 2015-16 (Rs.) (Approx.)
RHEP	# - 2	Capital Maintenance	01.01.2015 to 30.04.2015	70,80,000/-	1,50,00,000/-

b) Capital Maintenance of Unit-1&2 of HHEP, Burla:

The cost of capital maintenance for unit – 1&2 of HHEP, Burla is shown in the table below.

Table – 30
Capital Maintenance Cost of Unit – 1&2 of HHEP

Power Station	Unit No.	Nature of Work	Period of Capital Maintenance	Cost of the CWIP during 2014 – 15 (Rs.) (Approx.)	Cost of the CWIP during 2015-16 (Rs.) (Approx.)
HHEP	# - 1	Capital Maintenance	01.03.2015 to 31.07.2015	6,10,00,000/-	12,29,00,000/-
	# - 2	- do -	15.12.2015 to 30.06.2016	16,00,00,000/-	

c) Capital Maintenance of UIHEP:

• Unit – 3, Mukhiguda:

Spare parts for capital maintenance will be supplied by the OEM (M/s Voith Fuji) which will cost Rs. 1205.78 Lakh. The capital maintenance work will be taken up by OEM. It will require more than 90 days. It has been tentatively programmed to take up the work from October to December 2015. The supervision charges, dismantling, reassembly charges will be Rs. 970 Lakh.

• Capital Maintenance of Unit- 1&2 of UIHEP:

Purchase order has been placed with the OEM M/s Voith Fuji for supply of DVR & Digital Governor for Unit No. 1 & 2 along with mandatory spares for Rs.1110.20 Lakh. Erection and commissioning charges will be Rs. 492 Lakh. The replacement of DVR and Digital Governor will be taken up tentatively during April & May 2015.

To conduct different testing during capital maintenance of Unit No.3, Erection and Commissioning of DVR and Digital Governor for Unit No1 & 2 new testing equipments needs to be procured at a cost of Rs. 55 Lakh.

- **CT, PT & 245 KV SF6 Circuit Breaker:**

It has been programmed to replace the old and obsolete circuit breakers of all 4 nos. of generating units with new ones. The work will be taken up during 2015-16. The cost for procurement of new breakers, removal of old breakers, installation and commissioning of new breakers will cost Rs. 106 Lakh. Further, 0.2 accuracy class CT & PT also needs replacement as all the present CT & PTs are 0.5 class and there is no spare PT & CT available. Cost of new PT & CT will be Rs. 50 Lakh. PT & CTs will be procured during 2015-16.

- **20 MVA Station Transformer:**

Auxiliary power supply for Upper Indravati Power House is drawn from the only one available 20 MVA station transformer. It has been planned to have a second 20 MVA station transformer for alternate auxiliary power supply for Upper Indravati Power House. Tentative Expenditure for procurement, erection, testing and commissioning of 20 MVA, 220/33 KV transformer and 11 KV line will be Rs. 215 Lakh.

- **Office Building & Fuse Call Building:**

The present office building for Upper Indravati Hydro Electric Project at Mukhiguda, Dist : Kalahandi is in dilapidated condition, repairing of which will not improve the condition. Hence it is essential to construct a new office building. Further, a new building is required for fuse call activities. The provisional expenditure for office building during 2015-16 has been kept at Rs. 215.50 Lakh. Total expenditure for construction of fuse call building will be Rs. 23 Lakh. The construction work will be taken up during 2015-16.

- **Store Yard Lighting:**

It has been proposed to install three no. of high mast lighting towers each having the height of 18 meters at Central Store yard of Upper Indravati Hydro Electric Project. The total cost involvement for it will be Rs. 16.20 Lakh. The work will be taken up during 2014 & 2015.

- **Colony Lighting:**

The safety and security of Upper Indravati Hydro Electric Project employees are being endangered due to poor lighting inside sector -1 of colony area. Hence it has been programmed to take up the lighting work of colony area during 2015 at a cost of Rs.50 Lakh.

Loss of Energy Charges on Account of Hydrology Failure:

27. OHPC requested for approval of the net loss of Energy Charges for the period from FY 2001-02 to FY 2013-14 to the tune of Rs. 169.07 Cr. on account of hydrology failure in the corresponding period. OHPC requested that this amount may be considered as pass through in Tariff in suitable installments.

28. **PRAYER**

OHPC prayed that the Commission may kindly approve Rs.822.85 Cr. as annual fixed cost & average tariff @ 152.14 p/u without considering both the state government support & saleable design energy (5408.37 MU). In case state govt. support is extended, the annual fixed cost of Rs. 620 Cr. & average tariff @ 114.64 p/u has been sought for approval of the Commission considering both the state government support & saleable design energy (5408.37 MU).

VIEWS OF THE OBJECTORS (Para 29 to 64)

Functioning and due R&M activity of Chiplima, Hirakud and Balimela HEPs

29. No action has been taken for RM&U of very old 9 units of BHEP, HHEP and CHEP.

Unit #6 of HHEP and unit 3 of CHEP are under forced outage without generating power since long and the RM&U of these units have not been carried out in a timely manner. Hence, GRIDCO should not pay capacity charges for these units.

Drawl of Water from OHPC Reservoir and Loss of Generation

30. Objectors submitted that the thermal power plants and the industries requiring water might be instructed to have their own reservoirs and such industries should not be allowed to lift water meant for power generation by OHPC reservoirs. He has further submitted that the Commission may seek for an explanation on charges levied on the industries utilizing water from such reservoirs. Loss of generation (32.4 MU) of the Burla and Chiplima power house is due to diversion of water for industrial use and

maintaining the MDDL at 595 feet instead of 590 feet as per design. As suggested by the Technical Expert Committee appointed by Govt. of Odisha in July 2006, OHPC should claim the amount from the industries on account of loss of generation at the rate of procurement of power by GRIDCO from other sources.

31. The Commission along with the Government of Odisha should consider the silt problem in Hirakud Dam reservoir. Notice to Department of Water Resources is necessary as accumulation of silt in reservoirs needs clearance.
32. Discussion on water level capacity is also required while projecting hydro power availability. Proper examination should be carried out on charges levied on the industries utilizing water from OHPC reservoirs.
33. A detailed report for less generation due to loss of head at Chiplima HEP may be called from OHPC.
34. An objector submitted that the Commission might not allow OHPC for capital maintenance of HHEP units and other HPSs during monsoon season as OHPC lost substantial quantity of power due to opening of gates.
35. The compensation claim of OHPC towards hydrology failure and towards restriction in generation may not be approved by the Commission since OHPC is recovering annual fixed charges availability by machines.

Design Energy vs. Actual Generation of OHPC Stations

36. Design Energy of 5408.37 MU for the FY 2015-16 is not acceptable on account of FRL of 1516.01 ft. seen in Balimela and FRL of 641.48 Mts. seen in Indravati which would generate 7000 MU (+) electricity if the available live storage is used optimally.
37. Objectors submitted that the proposal of OHPC to consider a reduced Design Energy due to reduction of Design Energy of HHEP and CHEP might be rejected as the same had been done by the Commission in its order dated 30.01.2013 in case no. 121/2009.
38. GRIDCO submitted that the reduction in design energy of HHEP and CHEP may not be accepted by the Commission as OHPC may explore the possibility of pumping water to the canal for irrigation so that there is no requirement for reduction of Design Energy of HHEP, Burla and CHEP, Chiplima.

39. The tariff of OHPC may be approved considering existing saleable Design Energy instead of reduced saleable Design Energy as it was done by the Commission in its order dated 30.01.2013 in case No. 121/2009.

Interest on Govt. Loan and Normative Loan of UIHEP

40. OHPC's claim to pass on the interest on loan for Rs. 14.30 crore towards Pottero project is highly objectionable.
41. DISCOMs observed that the conversion of zero coupon bonds to 7% bond might not be considered in the ARR for FY 2015-16 as this would put upward pressure on retail supply tariff. They have also proposed Rs. 13.83 Cr. of interest on loan instead of Rs. 71.36 Cr as proposed by OHPC.

Return on Equity

42. DISCOMs submitted that ROE should be considered at the rate of 25% instead of 30% on the approved cost of UIHEP.
43. An objector submitted that Commission might approve the ARR and Tariff of OHPC hydro power stations without considering RoE as the State Government was not taking any RoE prior to 01.04.1996.
44. The claim of OHPC for reimbursement of differential RoE and differential amount due to resetting of equity of UIHEP may not be allowed by the Commission.

O& M Expenses

45. DISCOMs have not agreed with the O&M expenses proposed by OHPC and demanded prudence check of actual O&M expenses incurred from FY 2008-09 to FY 2013-14. Further, the DISCOMs suggested to calculate O&M expenses for FY 2015-16 considering 5.72% escalation rate over the previous year's approved O&M expenses.
46. OHPC's claim for differential O&M expenses for FY 2014-15 may be rejected. In the case of FY 2015-16, the O&M expenses may be approved by applying CERC escalation rate over the Commission approved O&M expenses of FY 2014-15.
47. The differential O&M expenses claim for FY 2014-15 and the revised O&M expenses claim for FY 2015-16 may not be approved.

48. The O&M expenses for Machhkund Hydro Electric (Joint) Scheme with 6.64% escalation may not be accepted as the tariff for the Machhkund Hydro Electric is calculated on cost reimbursement basis.

Depreciation:

49. DISCOMs have considered the depreciation of UIHEP as Rs.30.23 Cr. as approved by the Commission.

Development of New Hydro Projects

50. Despite reduction in Design Energy over the last 18 years, OHPC has not been able to take up either any new project or any pump storage facility which is deplorable.
51. Another objector has submitted that they have repeatedly raising the issue of submission/publication of VISION DOCUMENT by OHPC and Commission has directed OHPC to prepare & publish the VISION DOCUMENT 2025, but no action seems to have been taken by the petitioner till date.

ARR & Truing Up Exercise

52. DISCOMs requested for completion of truing up exercise of OHPC ARR of previous years based on audited accounts before approving ARR for FY 2015-16.

Employees of GEDCOL

53. An objector submitted that OHPC should furnish information on the expenditure incurred in FY 2014-15 in respect of GEDCOL which is a 100% subsidiary of OHPC. Proposed expenditure in FY 2015-16 and the modality of meeting such expenditure along with the list of chairman and members of the board of directors and employee on roll in GEDCOL may also be furnished.

Interest on working capital

54. DISCOMs suggested that OHPC should not be allowed to claim interest on working capital in the ARR for FY 2015-16. The working capital proposed by OHPC should be met from existing cash balance of OHPC.
55. The reimbursement claim of differential interest on Working Capital for FY 2014-15 may not be approved by the Commission.

Tariff for FY 2015-16

56. DISCOMs submitted that average tariff for OHPC stations would be 54.43 paisa/unit as against 114.64 paisa/unit claimed by OHPC for FY 2015-16.
57. The tariff for FY 2015-16 may be calculated by considering minimum generation of 7462 MU instead of design energy used by OHPC in its ARR application.

NAPAF

58. Reduction of installed capacity for computation of PAFM and recovery of capacity charges may not be allowed as OHPC is able to recover the capacity charges.
59. An objector submitted that the NAPAF for the period from FY 2014-15 to FY 2018-19 may be corrected by the OHPC as this does not obey the Commission's approval of NAPAF.

Other Issues:

60. The balance sheet of last six years, net profit and cash revenue in various banks and financial institutions along with interest accrued in each of the last six years may be furnished by OHPC.
61. The functioning of Chiplima Power House, water management and figures were not properly placed. Although the transformer used for supplying power to the colony at Chiplima is of the Chiplima powerhouse and it is maintained by the powerhouse, the billing is done by WESCO. This dispute needs to be resolved.
62. Rebate to be availed by GRIDCO and payment mechanism may not be approved as this has been already addressed in the PPA.
63. OHPC's claim towards ERPC contribution may not be approved as the same has not been approved in the ARR for FY 2014-15.
64. The claim of reimbursement cost for Catchment Area Treatment Plan (CATP) is not acceptable as it is not clear whether the CATP has been approved by the Commission

REJOINDER OF OHPC TO QUERIES RAISED DURING HEARING (Para 65 to 100)

65. 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 furnished herewith:

Inadvertent error in Reduction in Design Energy of HHEP, Burla & CHEP, Chiplima due to restriction in Generation beyond 595 Ft. in Hirakud Reservoir by DoWR

66. After filing of the ARR & Tariff application for FY 2015-16, OHPC has received clarification of revision of rule curve of Hirakud Reservoir vide Lr No. 277 Dtd. 18.11.2014 from Chief Engineer & Basin Manager, Upper Mahanadi Basin, Burla for generation of electricity below 595 ft which had been endorsed by EIC, DoWR, Odisha vide letter Dtd. 25.11.2014. According to DoWR, 0.233 M.Ac.ft. of water between RL 595 ft to RL 590 ft can be utilized for power generation, which can generate only 31 MU. In view of the above, 14.81 MU shall be reduced from the D.E of HHEP, Burla instead of 32 MU considered earlier and 15.95 MU from D.E of CHEP, Chiplima instead of 24 MU considered earlier due to restriction of generation below 595 ft RL of Hirakud Reservoir. Accordingly the Design Energy proposed for HHEP, Burla shall be 669.19 MU and saleable D.E shall be 662.50 MU. For CHEP, Chiplima the corresponding figures shall be 317.05 MU & 313.88 MU respectively. Therefore, the Design Energy Proposed by OHPC for the FY 2015-16 will accordingly be revised and given in the table below.

Table - 31
Revised Design Energy of OHPC Power Stations for the FY 2015-16

(in MU)

Sl. No.	Name of the Power Station	Design Energy approved for FY2014-15	Design Energy for sale for FY 2014-15	Design Energy proposed for FY 2015-16	Design Energy for sale for FY 2015-16
1	RHEP	525.00	519.75	525.00	519.75
2	UKHEP	832.00	823.68	832.00	823.68
3	BHEP	1183.00	1171.17	1183.00	1171.17
4	HHEP	684.00	677.16	669.19	662.50
5	CHEP	490.00	485.10	317.05	313.88
Sub Total of Old Power Stations		3714.00	3676.86	3526.24	3490.98
6	UIHEP	1962.00	1942.38	1962.00	1942.38
Total		5676.00	5619.24	5488.24	5433.36

Inadvertent error in Reduction in Depreciation claim of OHPC without Govt. Support

67. OHPC has committed an inadvertent error in computation of its Depreciation claim without Govt. Support, the Revalued cost as on 01.04.1996 has been erroneously

taken inclusive of new addition upto FY 2015-16. The revised and the corrected value for depreciation claim is given below.

Table – 32
Depreciation claimed by OHPC

Sl. No.	Power Stations	Loan Repayment Amount	Depreciation @ 2.57% (With Govt. Support)	Depreciation @ 5.28% (Without Govt. Support)
1.	RHEP	4.68	4.00	17.09
2.	UKHEP	6.39	4.05	18.86
3.	BHEP	15.62	8.48	29.00
4.	HHEP	12.75	8.04	19.56
5.	CHEP	3.48	3.67	11.38
6.	UIHEP	64.17	Up to Loan Repayment	Up to Loan Repayment

Table – 33
Depreciation without Govt. Support

(Rs Cr)

Sl. No.	Name of the power station	Depreciation Claimed	Remark
1	RHEP	17.09	5.28%
2	UKHEP	18.86	5.28%
3	BHEP	29.00	5.28%
4	HHEP	19.56	5.28%
5	CHEP	11.38	5.28%
	Sub Total	95.89	
6	UIHEP	64.17	Equal to loan repayment
Grand Total		160.06	

Table – 34
Depreciation for the FY 2015-16 (without Govt. support)

(Rs cr)

Sl. No.	Name of the power station	Revalued cost	Capital addition from 01.04.1996 to FY 2015-16	Total Base Value	Depreciation @ 5.28%	Loan Re-payment	Depreciation Claimed
1	2	3	4	5 = 3+4	6 = 5*5.28%	7	8
1	RHEP	259.01	64.63	323.64	17.09	4.68	17.09
2	UKHEP	307.87	49.39	357.26	18.86	6.39	18.86
3	BHEP	334.40	214.88	549.28	29.00	15.62	29.00
4	HHEP	124.09	246.28	370.37	19.56	12.75	19.56
5	CHEP	164.31	51.26	215.57	11.38	3.48	11.38
	Sub Total	1189.68	626.44	1816.12	95.89	42.92	95.89
6	UIHEP	1194.79 (Approved project cost)	1242.91	1242.91		64.17	64.17
	Total	2384.47	1869.35	3059.03	95.89	107.08	160.06

Recalculated Annual Revenue Requirement of OHPC

68. Considering the corrections made in the Design Energy, and Depreciation mentioned above, OHPC has recalculated the Annual Revenue Requirement of OHPC without the Govt. Support and with Govt. support which has been furnished below.

Table - 35

Station wise ARR and Tariff for the FY 2015-16 with revised Saleable Design Energy of HHEP, Burla & CHEP, Chiplima and without Govt . Support

Parameters	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Saleable Design Energy (MU)	519.75	823.68	1171.17	662.50	313.88	3490.98	1942.38	5433.36
(Rs. Crs.)								
Return on Equity	24.270	26.790	41.190	23.144	13.659	129.054	78.597	207.651
Interest on Loan	8.11	8.62	13.53	7.41	2.40	40.08	31.28	71.36
Depreciation	17.09	18.86	29.00	19.56	11.38	95.89	64.17	160.06
O&M Expenses	48.53	38.25	73.79	71.95	16.98	249.50	72.54	322.04
Interest on working capital	3.82	3.36	6.00	5.13	1.57	19.88	8.01	27.90
Total ARR	101.83	95.88	163.52	127.19	45.99	534.41	254.60	789.01
Average Tariff (p/u)	195.92	116.40	139.62	191.99	146.53	153.08	131.08	145.22

Table - 36

Station wise ARR and Tariff for the FY 2015-16 with revised Saleable Design Energy of HHEP, Burla & CHEP, Chiplima and with Govt . Support

Parameters	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Saleable Design Energy (MU)	519.75	823.68	1171.17	662.50	313.88	3490.98	1942.38	5433.36
(Rs. in Crs.)								
Return on Equity	4.847	3.703	16.113	15.390	3.392	43.445	78.597	122.04
Interest on Loan	3.23	2.37	3.57	3.10	0.99	13.26	31.28	44.54
Depreciation	4.68	6.39	15.62	12.75	3.67	43.11	64.17	107.27
O&M Expenses	48.53	38.25	73.79	71.95	16.98	249.50	72.54	322.04
Int. on working capital	2.97	2.40	4.89	4.69	1.12	16.08	8.01	24.09
Total ARR	64.27	53.10	113.98	107.89	26.16	365.39	254.60	620.00
Average Tariff (p/u) with Govt. support.	123.65	64.47	97.32	162.85	83.35	104.67	131.08	114.11

Summary of revised tariff proposal

69. OHPC has recomputed the Tariff for its different power stations after necessary corrections of the inadvertent error and given in the tables below.

Table - 37
Revised average Tariff Rate (p/u) proposed by OHPC

	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Without Govt. Support	195.92	116.41	139.62	191.98	146.54	153.08	131.08	145.22
With Govt. Support	123.65	64.47	97.32	162.85	83.35	104.67	131.08	114.11

Table - 38
Capacity charge and energy charge of power stations (without Govt. Support)

Name of the power stations	Annual Fixed Cost (Rs. in Crs)	Capacity Charge (Rs. in Crs)	Energy Charge (Rs. in Crs)	Salable design energy (MU)	Energy Charge Rate(p/u)
RHEP	101.83	50.915	50.915	519.75	97.961
UKHEP	95.88	47.94	47.94	823.68	58.202
BHEP	163.52	81.76	81.76	1171.17	69.811
HHEP	127.19	63.595	63.595	662.50	95.993
CHEP	45.99	22.995	22.995	313.88	73.261
UIHEP	254.60	127.30	127.30	1942.38	65.538

Table - 39
Capacity charge and energy charge of power stations (with Govt. support)

Name of the Power Stations	Annual Fixed Cost (Rs. in Crs)	Capacity Charge (Rs. in Crs)	Energy Charge (Rs. in Crs)	Salable design energy (MU)	Energy Charge Rate in Revised D.E (p/u)
RHEP	64.27	32.135	32.135	519.75	61.828
UKHEP	53.10	26.55	26.55	823.68	32.233
BHEP	113.98	56.99	56.99	1171.17	48.661
HHEP	107.89	53.945	53.945	662.50	81.426
CHEP	26.16	13.08	13.08	313.88	41.672
UIHEP	254.60	127.30	127.30	1942.38	65.538

Inadvertent error for Claim of NAPAF of different Power Stations of OHPC

70. OHPC during its filing of its original Tariff application for the FY 2015-16 has inadvertently proposed the NAPAF of BHEP as 87% instead of actual proposal of

83% and that of UKHEP as 83% instead of actual proposal of 87%. So, OHPC submitted before the Commission for kind consideration of NAPAF of different power stations of OHPC as per the approval of FY 2014-15.

Projected additional capitalization under CWIP

71. OHPC has rightly considered the projected additional capitalization under CWIP for the FY 2014-15 and 2015-16 as per the provisions of the CERC/OERC Tariff Regulations, 2014.

Functioning and due R&M activity of Chiplima, Hirakund and Balimela HEPs

72. Commission has accorded in principle approval to carry out the R&M works of the generating Unit of # 3 of CHEP, Chiplima Unit # 1 to 6 of BHEP, Balimela and Unit # 5&6 of HHEP, Burla vide its order dtd 31.03.2014. The proposed R&M works with complete replacement of Turbine and Generator (T&G) sets along with associated auxiliary of aforesaid generating units were taken up through tendering process. The evaluation of pre-qualification bid have been finalized on 05.12.2014 for CHEP, Chiplima and 27.12.2014 for BHEP, Balimela and HHEP, Burla. Presently tender evaluation (techno-commercial) is under progress.
73. Regarding proper maintenance of reservoirs, the Department of Water Resources (DOWR) shall create a corpus as annual maintenance fund, to be utilized for removal of shoals/silt etc. through periodical dredging as directed by Hon'ble High court of Odisha vide WPC No-8409 of 2012 at para 24.

Drawl of Water from OHPC Reservoir and Loss of Generation

74. The shortfall in annual generation of a power station due to industrial drawal of water of that reservoir should have treatment in the similar way as that of shortfall due to hydrology failure of that power station. Assuming analogous treatment of revenue generated from industrial consumption of water OHPC proposes that this revenue will be a part of Secondary Fund of respective power stations in line with treatment for Hydrology Failure at Para 143 of OHPC Tariff order for FY 2014-15.
75. In spite of best effort put in by OHPC, some of the generating units could not be made available during the rainy seasons of the FY-2014-15 due to the following reasons.

- As the repair of Unit No-3 needed some underwater cutting and welding works it was not possible to be done during the rainy season when the water in the reservoir was muddy with no visibility under water.
 - Also, it requires shutdown of the adjoining Units to carry out underwater repair work of any Unit.
 - The available head for generation decreases with increase in tailrace level resulting in reduction in generation from other available units.
 - Unit -5 & 6 have already served for more than 50 years and have outlived their useful service life. OHPC is putting its best effort to generate 20 MW out of these two Units Combined as per the directions of Commission.
 - After several failures in Repair and rectification of the problems of the Unit-1&2 of HHEP, Burla have been repaired temporarily and now in operation. The purchase order/ work order have been placed on the OEM for undertaking the capital maintenance of these two units.
76. OHPC has planned to take up the Capital Maintenance of the different Units of OHPC as these maintenance works would definitely enhance the life, increase efficiency, reliability and availability of the units and help in providing uninterrupted cheapest power to the state of Odisha.
77. Hydrology failure can no way be linked with recovery of capacity charges. Commission in the final tariff order of OHPC has clarified that the Hydrology Failure claims to be adjusted through Secondary Fund of OHPC. Considering the replenishment of compensation due to hydrology failure from 2001-02 to FY 2013-14 the negative balance due to Secondary Energy Fund will be Rs169.07Cr. Since the fund has a negative balance OHPC requested to recognize the same as Regulatory Asset and approve its realization in suitable installments.

Operation of CHEP

78. CHEP is a base load Power Station. The generation depends upon the water at forebay level and corresponding level of water at Tailrace. Accordingly, there will be variation in head leading to variation in generation. During monsoon, the Tailrace level increases due to opening of sluice gate at Hirakud reservoir as the same is directly connected to the main river which reduces the generation of CHEP, Chiplima.

79. As the discharge capacity of the hill channel leading to Forebay of the Chiplima Power House is restricted to 12,500 Cu.sec, thus, the maximum generation from CHEP is limited to 63.5MW only.
80. The 33/11 KV system of CHEP is maintained by OHPC as the station consumption is being fed from the same 33/11 KV system. From this system, the CHEP colony & other distribution loads leading to Gosala and Dhama area are being supplied. OHPC raised bill to GRIDCO based on joint meter reading at 132KV Chiplima switchyard after reduction of recorded station auxiliary consumption. Therefore, WESCO being the retail licensee is raising bill to the consumers residing in the Chiplima colony. WESCO agreed in the 10th GCC meeting to have its own 33/ 11KV substation at Chiplima. Hence WESCO is urgently required to provide the supply to the distribution load from its own sub-station, after which OHPC shall disconnect the local feeders.

Design Energy V/s. Actual Generation of OHPC Stations

81. The drawal of water from different hydro power reservoirs for the remaining period of the FY 2014-15 and from 1st April' 2015 to 30th June 2015 during the FY 2015-16 have been finalized by the Dept. of Water Resources, Govt. of Odisha in co-ordination committee meeting of Hydro Electric Projects. However the total anticipated generation for the FY 2014-15 shall be around 6368.95 MU. The extra generation beyond the design energy of the respective Power Stations shall be accounted towards the secondary energy fund as per Order of the Hon'ble Commission. The present deficit of the secondary energy fund of OHPC as a whole is about Rs.169.074 Crs.
82. The Generation estimation of 7200 MU made by the DISCOM is not at all realistic and has no merit due to the fact that the rainfall during FY 2015-16 cannot be forecasted and in the past, Generation beyond the Design Energy never happened in consecutive for a period of 3 years due to lean period of hydrology. Therefore, OHPC assumed that during 2015-16 that there would be a Normal hydrology condition, thus approved Design Energy is considered except HHEP and CHEP where OHPC proposed to revise the Design Energy.
83. In the Case No. 121/2009 OHPC had made a claim for reduction in Design Energy based on the previous 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 and submitted the report before the Commission for approval of the same but the same was deferred for the time being. In the same order Commission had also made a provision that any shortfall in Generation due to Hydrology failure shall be recovered in the subsequent years as per CERC Tariff Regulations. But in the present case the reduction in Design Energy of HHEP, Burla & CHEP, Chiplima due to restriction in generation from HHEP, Burla below 595ft RL is not for failure of Hydrology condition but for restriction imposed by DoWR to facilitate irrigation which has got priority over generation. Similarly, reduction of proposed D.E of CHEP, Chiplima is based on realistic Design parameters of the water conduit system as the approved D.E has never been achieved in spite of best Hydrology condition and availability of machines above approved NPAFM. So, both the cases are in no way related to the direction of the Commission in Case No. 121/2009.

Interest on Govt. Loan and Normative Loan of UIHEP

84. In view of the decision of the Govt. the interest @ 7% amounting to Rs.23.91 Cr for the FY 2015-16 on reducing balance has been considered in the tariff. Similarly the Principal repayment for the FY 2015-16 has been computed as Rs.34.76 Cr along with differential repayment of Rs.22.65 Cr, thus totaling to Rs.57.41 Cr. The accumulated interest on Govt. Loan of Rs.521.47 Cr and normative loan of Rs.53.22 Crs are day by day pounding up, whose impact may be around Rs.576.46 Cr by the time the Govt. Loan is fully repaid by the end of FY 2026-27. Therefore, OHPC has considered the 7% interest on Normative Loan of Rs.53.32 Cr and 12% interest on Debt portion of Additional Capitalization as it is proposed to avail from Commercial Banks/ Financial Institutions. Obeying to the direction of Govt. of Odisha, the 7% interest on 50% of the Zero Coupon Bond has been considered in the tariff.

Return on Equity

85. The projected additional expenses in shape of CWIP for the FY 2014-15 & FY 2015-16 has been considered as per the CERC & OERC Tariff Regulations, 2014. Accordingly, without Govt. support, the total capital cost of OHPC comes to Rs.3059.02 Crs and corresponding equity capital comes to Rs.830.729 Crs. Similarly with Govt. support, the total capital cost comes to Rs.1869.34 Crs and corresponding

equity capital comes to Rs.488.244 Crs. As per the provision of the CERC Regulation, 2014, the pre-tax rate of return @ 24.9962 % has been considered for computation of the RoE, which comes to Rs.207.651 Crs without the Govt. support and Rs.122.042 Crs with the Govt. support. In case this is not capitalized then the expenses to be charged upfront to O&M expenses by which the tariff of OHPC shall go up substantially. Therefore, to reduce the upfront tariff impact, OHPC preferred to capitalize the CWIP capital expenses as per the provisions of the CERC/OERC Tariff Regulations, 2014.

86. Based on Post tax Approach of RoE, the Commission had approved Rs 83.57Crs (Rs.71.78Crs on RoE + Rs.11.79 Crs on reimbursement of IT for FY 2012-13) in the tariff of OHPC for the FY 2014-15. This is not in accordance with the CERC approved Tariff Regulations, 2014. Thus, OHPC has submitted the differential claim of RoE for FY 2014-15 in the present ARR amounting to Rs 28.57 Crs.
87. Due to restructuring of Govt. investment in Upper Indravati Hydro Electric Project as per Lr. No. 4323 Dtd. 31.05.2014, the Govt. of Odisha has identified Rs.300.00 Crs as investment towards equity from FY 2001-02 onwards. In the earlier Tariff years OHPC has computed RoE considering Equity base as 25% of Project Cost amounting to Rs.298.697 Crs. So, there is an increase of Rs.1.303 Crs in Equity base from FY 2001-02. Thus, OHPC has proposed the differential claim on RoE for this differential Equity Base of Rs.1.303 Crs from FY 2001-02 to FY 2014-15. The total differential claim amounting to Rs.2.898 Crs has been computed and proposed as reimbursement claim.

O&M Expenses

88. The escalation rate which was considered earlier for calculation of O&M Expense of OHPC for FY 2014-15 was @5.17% & 5.72% based on CERC Tariff norms for block period 2009-14 in the absence of new CERC Tariff Regulation 2014. This escalation rate was changed to 6.04% and 6.64% respectively for block period 2014-19 in the CERC (Terms & Conditions of Tariff) Regulations, 2014. Accordingly, OHPC proposed to reset the approved O&M expenses for FY 2014-15 at this escalated rate of 6.04% and 6.64% in line with the CERC Tariff regulation, 2014.
89. For Machhkund, OHPC has considered the escalation rate of 6.64% as per the O&M Expense escalation rate of CERC (Terms & Conditions of Tariff) Regulations, 2014.

Since, the tariff for the above project is calculated on cost reimbursement basis OHPC will accept the decision of the Commission.

Depreciation

90. After restructuring of the UIHEP Govt. Loan and conversion of 50% zero coupon bond to interest bearing debenture w.e.f 2015-16, it will be concluded that the State Govt. is no more going to provide its supportive measures for the FY 2015-16. Accordingly, OHPC has computed the depreciation claim of Rs 160.06Cr, which has been wrongly computed as Rs 192.33Cr in the Original application.

Steps Taken for Development of New Hydro Projects

91. From a capacity of 1237.50 MW during transfer of assets from Govt. of Odisha and OSEB, OHPC at present has an installed capacity of 2062 MW.
92. The new project related activities are given below.
- Work order placed in favour of WAPCOS for preparation of DPR for Pumped Storage Scheme at UIHEP, Mukhiguda on dt. 15.01.2014. WAPCOS has submitted the conceptual layout plan of the project. The clearance from DoWR is waited.
 - Work order placed in favour of WAPCOS for preparation of DPR of Kanapur (3 MW) and Jambhira (2.4 MW) dam toe SHEP in Keonjhar and Mayurabhanja district respectively. WAPCOS has submitted the final DPR of Jambhira SHEP & Draft DPR for Kanpur SHEP.
 - Final PFR of Bhimkund H. E. Project (39 MW) and Baigundi H. E. Project (27 MW) submitted by M/s. WAPCOS. Work order issued in favour of WAPCOS to prepare the DPR. However the decision is pending at Govt. level.
 - Work order issued in favour of WAPCOS for preparation of PFR for 18 nos. of SHEP on behalf of GEDCOL which is a 100% subsidiary of OHPC. WAPCOS has submitted PFR for 09 nos. of SHEP.

ARR and Truing Up Exercise

93. The tariff of electricity is computed considering the saleable design energy but not based on the anticipated generation during FY 2015-16. The Commission in previous tariff years has always fixed the tariff of OHPC power stations based on saleable design energy. Any generation beyond the design energy is carried to the secondary energy fund as per the directives of the Commission.

94. Commission has not approved the ARR of OHPC for the FY 2014-15 as per the CERC Tariff Regulation as agreed upon between GRIDCO & OHPC in the PPA. So OHPC has again raised the differential claims towards O&M, RoE, Depreciation, Interest on Working Capital etc. for the FY 2014-15 in the ARR & Tariff application of 2015-16. This may be considered as a truing up exercise and the Commission may kindly approve the same for OHPC. However final truing up of the ARR & Tariff for the FY 2014-15 shall be filed before the Commission after the end of the FY 2014-15 and finalization of accounts by the Audit.

Potteru HEP

95. OHPC has submitted a detailed report to Dept. of Energy, Govt. of Odisha for approval for disposal of Potteru SHEP, with all relevant documents. OHPC has never capitalized the Potteru HEP, so the question of loan recovery and passing of interest does not arise.

Interest on working Capital

96. The entire fund in form of Cash and Bank balance of Rs.862.34 Cr upto end of 31.03.2014, shall be utilized towards equity investment, principal payment & interest of the UIHEP Govt. Loan. OHPC has already initiated the Renovation & Mordenization work of Unit-3 of CHEP, Chiplima; Unit-5 & 6 of HHEP; Burla and Unit- 1 to 6 of BHEP, Balimela. The total project cost of these R&M work will be around Rs.1087.22 Cr. OHPC has to invest 30% of this amount i.e. Rs.326.16 Crs as Equity from these Bank balance. Similarly, Rs.208.58 Cr & Rs.325.99 Cr shall be paid to State Govt. towards principal repayment & interest on UIHEP Govt. Loan. Besides Rs.48 Cr has been provided to GEDCOL during the FY 2014-15 and proposed to invest about Rs.50 Cr during FY 2015-16. Similarly, OHPC invested Rs.10 Cr during FY 2014-15 in OTPCL and investment expected of Rs.50 Cr. Considering the above payments during FY 2014-15 and onwards OHPC will be at deficit.
97. Even if a generating company has not taken loan from outside agency and invests its own fund then also that generating company is entitled to get IoWC as per CERC norms. The OERC (Terms & Conditions of Determination of Generation Tariff) Regulations, 2014 also stipulates the same as CERC Tariff Regulations, 2014. Thus,

OHPC should not be deprived of getting this benefit and accordingly OHPC has made a differential claim of IoWC over and above the approval amount for FY 2014-15.

Rebate

98. There are provisions in the agreed & vetted PPA between OHPC & GRIDCO for adopting any changes/ amendment in Rules/ Regulations/ Directives. OHPC has always claimed Tariff as per Schedule-5 of PPA which is based on CERC Tariff Regulation. The provisions of Rebate & Surcharge are present in CERC Tariff Regulation, 2014. OHPC submitted before the Commission to include the provisions of Rebate & Late Payment Surcharge in the Tariff Order of OHPC for FY 2015-16.

Reimbursement of ERPC cost (FY 2006-07 to 2013-14)

99. The Commission had not disapproved the OHPC claim of ERPC for the period FY 2006-07 to FY 2013-14 in the tariff order for FY 2014-15, but had deferred the OHPC claim. Further, both OHPC & GRIDCO have agreed at Clause No. 11.5.2 (Levies, Taxes, Duties, etc.) of the long term PPA that any payment made to the Statutory Bodies/Authorities of Electricity shall be reimbursed by GRIDCO. So, OHPC has made these claims in the present tariff for FY 2015-16.

Reimbursement of Catchment Area Treatment Plan

100. 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. The institutional cost of Rs.16.512 Cr shall be met by Odisha Hydro Power Corporation Ltd. OHPC has decided to reflect Rs.2.411 Cr (Rs.0.402 Cr for the year 2013-14 & Rs.2.009 Cr for year 2014-15) in the ARR of FY 2015-16. Further OHPC proposes to consider the Institutional cost of Rs.1.599 Crs as reimbursement for the FY 2015-16 towards CATP contribution. This expense has a long term benefit for the consumer of the State of Odisha like natural resource conservation, productivity enhancement and livelihoods interventions, ensuring equity and sustainability in outcomes.

VIEWS OF CONSUMER COUNSEL

101. On behalf of WISE, Pune the Consumer Counsel made a presentation on the Analysis of ARR and tariff filing of OHPC for FY 2015-16. The Consumer Counsel's observations/suggestions are elaborated below.

- (i) Comparative analysis of ARR approved by the Commission for FY 2014-15 to that of the proposed ARR for FY 2015-16 reveals that the ARR for FY 2015-16 (with government support) of OHPC HEP excluding Machhkund is proposed to be increased by 38.09% in comparison with the approved ARR for FY 2014-15.
- (ii) OHPC has proposed a reduction in Design Energy for FY 2015-16 to 5408.37 MU from approved Design Energy of 5881.74 MU for FY 2014-15 which is a reduction of about 8%. This proposal for reduction in Design Energy should be scrutinized before approval of Design Energy for FY 2015-16.
- (iii) OHPC has proposed a pre-tax RoE which may be approved. However, RoE on capital work in progress (CWIP) may be approved only after verifying the actual status of CWIP for FY 2014-15. Further, OHPC may be asked to provide documentary evidence showing withdrawal of government support since FY 2015-16 if RoE without government support is considered.
- (iv) The consumer counsel noted that the OHPC has claimed interest on normative loan for its various power stations. Normative loans are notional loans and thus the consumer counsel requests the commission to defer some of the loans to reduce OHPC tariff.
- (v) Interest on PFC/REC loans on account of CWIP for FY 2014-15 may be considered after verifying the actual status of CWIP for FY 2014-15. Further, OHPC may be asked to provide documentary evidence showing withdrawal of government support since FY 2015-16 if interest on loan without government support is considered.
- (vi) The consumer counsel requested the Commission to direct OHPC to match the repayment of loan with the depreciation claimed as mentioned in OERC and CERC tariff regulations.
- (vii) The differential O&M expenses claimed by OHPC may not be approved and the already approved O&M expenses may be upheld by the Commission.
- (viii) OHPC has claimed interest on working capital on normative basis as per provision under CERC Tariff Regulation 2014. The same may be approved for FY 2015-16. The OHPC's claim on differential interest on working capital may not be allowed.

- (ix) Reimbursement of contribution to catchment area treatment plan may be approved after seeking clarification from OHPC on the actual contribution made by it for the same purpose.

OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC)

102. The Commission convened the State Advisory Committee (SAC) meeting on 28.02.2013. The Members of SAC deliberated on different issues related to power sector and the Annual Revenue Requirement of various licensees. However, no specific view was offered related to Annual Revenue Requirement and Tariff filing of OHPC.

VIEWS OF GOVT. OF ODISHA

103. Govt. of Odisha communicated its suggestions/views/comments on various issues involving tariff setting for the year 2015-16 including subsidy / subvention and other important matters having a direct bearing on fixation of tariff for the year 2015-16 vide their letter No.1808 dated 28.02.2015.

1. Tariff for Kutir Jyoti/BPL category of consumers –

The practice of fixing of tariff below 50% of average cost of supply should be continued. The difference between average cost of supply and tariff for this category is being adjusted through cross subsidy. These consumers may be granted 30 units (or so as may be fixed) at subsidized rate as fixed earlier and beyond that at normal tariff. Appropriate monitoring of metering/consumption etc., may be made by DISCOMs for these consumers.

2. Keeping in abeyance of upvaluation of assets, moratorium of debt services etc.,

(a) Zero coupon bond (convertible bonds) of OHPC

The convertible bonds worth Rs.766.20 crore issued to Govt. of Odisha which shall not carry interest upto 2014-15 (50% of the bond shall be converted to equity from 2015-16 and 50% shall remain as loan carrying interest @ 7% per annum w.e.f. 2015-16 until repayment). The interest impact of the zero coupon bond in respect of different old power stations should be considered in ARR of 2015-16.

(b) **Moratorium of Debt Services**

As regards moratorium of debt services of OHPC, Govt. has allowed the same for repayment of loan and payment of interest for UIHEP Govt. loan as per notification dt.06.01.2010. The Commission may include both payment of interest and repayment of principal in the ARR of UIHEP. Interest for the period 2006-07 to 2014-15 may be kept as regulatory asset of OHPC to be paid in future tariff.

3. Tariff for Irrigation, Pumping and Agriculture

Govt. has been doing huge investment in the form of ODAFF and DDUGJY for agricultural consumers. Hence, there should not be any separate and special subsidy for class of consumers. Barring of some cultivators in NAC areas from coming into agriculture category may be examined again by the Commission. The practice of allowing tariff below 50% of average cost of supply and adjusting the revenue deficits by way of cross subsidy to these consumers should be continued.

4. Issue of State Govt. loan to UIHEP

Govt. desires to restructure the amount of Govt. investment in UIHEP as Rs.821.47 crore including IDC as on 31.3.2001 and OHPC has considered the same as revised baseline figure in tariff application for 2015-16. Approved project cost at Rs.1194.79 crore of UIHEP however remain fixed and equity and loan components have been adjusted accordingly and submitted in ARR of 2015-16 by OHPC. The same may be considered.

COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL

(Para 104 - 158)

104. The Commission has carefully examined and analysed the proposal of OHPC. The written and oral submissions of the objectors have been considered while deciding the various parameters for determining tariff. The tariff proposal of OHPC contains technical parameters such as type of hydro stations, Normative Annual Plant Availability Factor (NAPAF), potential of energy generation and financial details like loans, capital cost, calculation of depreciation, interest etc. OHPC has furnished the technical and financial details in respect of each of the old power stations as well as of UIHEP. The station-wise apportionment of capital cost in respect of all these stations has also been provided along with tariff calculations.

105. During the course of public hearing, the objectors had raised certain pertinent issues having direct impact on tariff of OHPC. Issue-wise response was submitted by OHPC. Commission's analysis to the following pertinent issues related to tariff of OHPC are discussed as under:

- Power Procurement from OHPC
- Annual Fixed Cost
- Two-part Tariff (Capacity Charge & Energy Charge)
- Tariff for Chhatisgarh State Power Distribution Company Limited (CSPDCL)
- Issues relating to Machhkund Hydro Electric Project

106. **The Clause 2.1 of OERC (Terms and Conditions of Determination of Generation Tariff) Regulations, 2014 stipulates that “Notwithstanding anything contained in these Regulations, the Commission shall at all times have the authority, either on suo motu basis or on a Petition filed by the applicant, to determine the tariff, including terms and conditions thereof, of any generating company”. Further, as per Clause 4.4 of the Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014, the annual fixed cost for OHPC will be determined by the Commission by taking into account the notification(s) issued by the Govt. of Odisha from time to time. Accordingly the Annual Revenue Requirement of OHPC power stations for FY 2015-16 has been determined.**

Power Procurement from OHPC

107. The installed capacity of various Hydro Stations owned by Orissa Hydro Power Corporation (OHPC) was 2062 MW as on 1st of April 2013 including Odisha share of Machhkund. Subsequently, for the FY 2013-14 after 15.06.2013 the installed capacity has been reduced to 2007.00 MW due to reduction of installed capacity of HHEP, Burla from 275.5 MW to 220.5 MW due to derating of the capacities of Unit No. 5 & 6 in line with Commission's order dt.26.12.2012 and 02.07.2013 passed by the Commission in Case No.31/2011 & Case No.09/2013 wherein the total installed capacity of both the units were considered as 20 MW together in place of original installed capacity of 75 MW (2x37.5 MW). So, OHPC has considered 220.5 MW as the Installed Capacity of HHEP, Burla.

108. OHPC had earlier been considering the installed capacity of 30% share of Machhkund as 34.50 MW. However, of late it was confirmed from Machhkund Authorities that the actual Installed Capacity of MHEP is 120 MW(i.e. 17 MW x 3 = 51 MW and 23 MW x 3 = 69 MW) and therefore the 30% Odisha Share from MHEP is coming to 36 MW, which has been considered for computation of total Installed Capacity of OHPC. Accordingly, 2008.50 MW is considered as total Installed Capacity of OHPC for the calculation of Tariff for FY 2015-16.
109. Accordingly, the approved installed capacity of different generating stations of OHPC for the FY 2014-15 and the proposed revised installed capacity for FY 2015-16 is given in the table below, consequent upon adoption of the de-rated combined capacity of 20MW for Unit 5 & Unit-6 of HHEP, Burla and rectification of Installed Capacity of MHEP.

Table – 40
Installed Capacity (in MW) for computation of PAFM

Sl. No.	Name of the Power Station	Installed Capacity Approved for FY 2014-15	Proposed Installed Capacity for FY 2015-16
1	Rengali (RHEP)	250.00	250.00
2	Upper Kolab (UKHEP)	320.00	320.00
3	Balimela (BHEP)	510.00	510.00
4	Burla (HHEP)	220.50	220.50
5	Chiplima (CHEP)	72.00	72.00
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhkund (30% Orissa share)	34.50	36.00
Total		2007.00	2008.5

The Commission approves the Installed Capacity of OHPC as 2008.5 MW for the FY 2015-16.

110. Auxiliary energy consumption for surface hydro electric power generating stations with static excitation system is to be determined at 0.5% of energy generated and transformation loss from generation voltage to transmission voltage is to be calculated at 0.5% of energy generated. Accordingly, energy sent out from the generating stations in respect of OHPC should be determined deducting 1% on gross generation treating 0.5% towards auxiliary consumption and 0.5% towards transformation loss. Accordingly, GRIDCO has considered 5501.66 MU of availability from OHPC hydro stations including Machhkund as per the generation plan submitted by OHPC after

deduction of 16.60 MU of allocations to CSEB from Hirakud Power Station and 0.5% auxiliary consumption and 0.5% transformation loss.

111. OHPC has furnished a tentative monthly generation programme for its different units. The same has also been furnished by OHPC to GRIDCO in regard to generation during FY 2015-16. GRIDCO has projected the power purchase from OHPC stations based on the latest generation plan submitted by OHPC for different stations. The design energy of OHPC old stations as proposed by OHPC is 3465.99 MU for FY 2015-16 on account of reduction of design energy in case of HHEP, Burla and CHEP, Chiplima. The Commission does not accept the proposal for reduction in design energy proposed by OHPC in case of HHEP, Burla from 684.00 MU to 652.00 MU and of Chiplima from 490.00 MU to 309.00 MU. The Commission has already rejected the proposal of OHPC for reduction of design energy vide its order dtd. 30.01.2013 in Case No.121/2009.
112. Further, it is premature to predict the rainfall at this point of time. The Commission cannot accept a figure of 7200 MU as suggested by the DISCOMS as generation depends on hydrological condition, reservoir levels and water use by other agencies. Acceptance of such a high figure would mean reduced drawal from high cost energy sources, which in turn would affect the power purchase cost of GRIDCO in case of reduced hydro generation. As such, the Commission considers it appropriate to accept and approve a figure of 3676.86 MU as net energy available from the Old Stations and 1942.38 MU in case of UIHEP for the year 2015-16 after deduction of auxiliary consumption and transformation loss based on design energy. However, the Commission advises OHPC to have optimal operation of its generating stations to maximize generation not to spill water during monsoon months, unless it becomes absolutely necessary for dam safety. The Commission reiterates its direction that OHPC should maintain and test its generating units which are capable of their rated capacity including margin of over generation during pick time (Continuous operation of 3hours at a time in a day) one by one and keep all its units ready for optimal generation during the monsoon time for maximizing the secondary generation.

Machhkund

113. This hydro power station is a joint venture of Government of Odisha and Andhra Pradesh with an installed capacity of 120 MW (i.e.17 MW x 3 = 51 MW and 23 MW

x 3 = 69 MW) and therefore the 30% Odisha share from MHEP is coming to 36 MW which has been considered for computation of total Installed Capacity of OHPC and the design energy of 525 MU. Machhkund is in operation in synchronization with Southern Grid and power from Machhkund is being availed by Odisha through radial load. Based on the 50% drawal by GRIDCO, the quantity comes to 262.50 MU. GRIDCO has projected drawl of 262.50 MU for the FY 2015-16. The Commission approves 262.50 MU to be drawn from this station during 2015-16.

114. The Commission's approval of power to be purchased by GRIDCO for FY 2015-16 from various stations of OHPC is given in the table below:-

**Table - 41
Hydro Drawal and Projections for 2015-16**

Sl. No	Name of the HE Project	Installed Capacity (MW)	Design Energy (MU)	Commission's Approval for 2014-15 (MU)	Commission's Approval 2015-16 (MU)
1	Hirakud	220.50	684.00	677.16	677.16
2.	Chiplima	72.00	490.00	485.10	485.10
3.	Balimela	510	1183.00	1171.17	1171.17
4.	Rengali	250	525.00	519.75	519.75
5.	Upper Kolab	320	832.00	823.68	823.68
	Total (Old Stations)	1372.50	3714.00	3676.86	3676.86
6.	UIHEP	600	1962.00	1942.38	1942.38
7.	Machhkund (Odisha Share)	36.00	262.50	262.50	262.50
	Total Hydro	2008.50	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 as per the design energy of the power stations as determined by the Commission.

Annual Fixed Cost:

115. Determination of annual fixed cost of OHPC stations includes interest on loan, depreciation, return on equity, O&M expenses and interest on working capital. These factors in turn are again based on the total loan liabilities of OHPC, the equity components and the total fixed assets of OHPC power stations. In this context, the Commission vide its letter No.JT(FN)-175/02/4617 dtd.28.12.2012 had written to the Govt. regarding keeping in abeyance the upvaluation of assets, moratorium of debt services etc.

Keeping in abeyance the upvaluation of assets, moratorium of debt services etc.

The Commission have advised the State Govt. to take the following steps vide their letter No. DIR(T)-344 / 2008 (Vol-III) -4440 dated 19.7.2010.

- (i) GRIDCO/OPTCL and OHPC would be entitled to depreciation on the assets prior to revaluation, calculated at pre-92 norms notified by Govt. of India, as per the direction of Hon'ble High Court of Orissa.
- (ii) Moratorium on debt servicing by GRIDCO and OHPC to the State Govt. would be allowed till the power sector turns-around except the amount in respect of loan from the World Bank to the extent the State Govt. is required to pay to the Govt. of India.
- (iii) GRIDCO & OHPC shall not be entitled to any RoE till the sector become viable on cash basis. The State Govt. investment actually made in Upper Indravati Project, excluding the normative equity, should yield return to the State Govt. with effect from FY 2010-11 after clearance of loan liabilities of PFC. However, interest at the rate of 7% should be charged and paid on this investment from FY 2006-07 onwards. Return on Equity on the old Hydro Power Plants may be allowed to OHPC, in respect of new projects commissioned after 01.04.1996.
- (iv) The concessions/Govt. support, indicated above are subject to the following stipulations:
 - The State owned utilities viz. OHPC, GRIDCO and OPTCL earning accounting/book profit are made to utilize the same for capital investment, servicing of Govt. loan and payment of dividend.

The State Govt. in response to the letter of Commission vide No.4440 dtd.19.07.2010 have extended the following concession in their letter No.2404 dtd.21.03.2011. The extract of the letter is given below for ready reference:

- i) Moratorium on debt servicing by GRIDCO & OPTCL and OHPC to the State Government till the power sector turns around except the amount in respect of loan from the World Bank to the extent to the State Government is required to pay to Government of India.

- ii) Keeping in abeyance the effect of up-valuation of assets of OHPC and GRIDCO/OPTCL till the sector turns around.
- iii) The OHPC, GRIDCO & OPTCL shall not be entitled any RoE till the Sector becomes viable on cash basis.
- iv) Government in Finance Department, after careful examination of the issues, have observed that “an open ended commitment by the State Government to extend this supportive measures would be undesirable. At the first stage these supports may be continued till 2012-13 after which a review should be made by the State Government and on that basis a view could be taken on the need for further extension of these measures”.

The Commission in its letter No. 2502 dtd. 06.01.2012 again requested for following amendment.

The Commission would therefore like to request the State Govt. to issue the amended notification as suggested by the Commission vide their letter No.4440 dtd.19.07.2010, so that this would appropriately be reflected while determining the annual revenue requirement of the distribution licensees for the year 2012-13. In absence of specific communication in this regard by 31.01.2012, the Commission would assume the extension of the benefit notified on 29.01.2003 & 06.05.2003 till the sector as a whole turns around.

In reply to the Commission’s letter dated 06.1.2012, the Department of Energy in their letter dated 19.3.2012 have mentioned the following:-

“The suggestions of the Hon’ble Commission to keep the support of govt. in the matter of keeping the effect of upvaluation of assets of GRIDCO / OPTCL & OHPC, allowing the moratorium on debt services to the State Govt.’s till the sector turn around and not allowing ROE to GRIDCO/OPTCL and OHPC till the sector becomes viable on cash basis has not been agreed to by the Govt. in Finance Department. However, steps have been taken in regard to other recommendations of the Hon’ble Commission in their letter No.4440 dated 19.7.2010 and the proposal will be placed before the Cabinet for approval after which required notification will be issued.”

The Commission vide letter No.Dir(T)-175/02/77 dtd.16.01.2014 intimated that the Commission has not yet received the detailed notification of the State Govt. The

concession was given only upto the financial year 2012-13. The same concession may be continued for FY 2014-15 and onwards so that the effect of upvaluation is not considered while determining the tariff for the ensuing year.

116. The Commission vide letter No.Dir(T)-175/12/57 dt.13.01.2015 intimated the State Govt. that certain important issues as under, but not limited to, need to be addressed by the Govt., the impact of which is likely to be considered by the Commission while determining the Annual Revenue Requirement as well as designing the Retail Supply Tariff for the FY 2015-16 for the consumers of the State. The issues are discussed as under:-

XXX

1. Keeping in abeyance of Up-valuation of assets, Moratorium of Debt services etc.:

Govt. of Odisha extended the benefit upto FY 2012-13 vide letter No.2404 dated 21.3.2011. Thereafter, the Commission made correspondence with Govt. to extend the same benefit from the FY 2013-14 onwards so that the effect of up-valuation is not taken into consideration while determining the tariff. The letter No. in which the Commission intimated the govt. are given as follows:-

- (i) Letter No.4617 dated 28.12.2012
 - (ii) Letter No.77 dated 16.01.2014
 - (iii) Letter No.428 dated 13.3.2014
2. The State Govt. in their letter No.4323 dated 31.5.2014 sought information from the Commission on the impact of up-valuation of assets on tariff which had been kept in abeyance. The Commission gave the supporting details i.e summary sheet of up-valuation impact vide letter No.862 dated 12.6.2014. The reply from the State Govt. is still awaited. On this issue, decision of the govt. is important for the ensuing tariff period 2015-16.
 3. **Issue of State Govt. Loan to Upper Indravati Hydro Electric Project**

The Govt. vide letter No.4323 dated 31.5.2014 in connection with the Upper Indravati Hydro Electric Project has stated the following:-

“The UIHEP Debt and Equity 'position is given below for kind consideration of Hon'ble Commission

- a) Rs.132.14 Cr. shall be interest free perpetual loan on account of 50% dam sharing of UIHEP as on 01.04.1996.*
- b) Rs.497.86 Cr shall be 'interest bearing loan @13% during the commissioning period and shall be capitalized. After capitalization, the Govt loan stands at Rs.821.47 Cr as on 31.3.2001.*
- c) Rs.821.47 Cr shall be treated as .Govt investment. Rs 300.00 Cr shall be treated as Normative Equity w.e.f 2001-02 and ROE to be extended as applicable from time to time. However the balance Govt investment of Rs 521.47 Cr shall not carry any return during 2001-02 to 2005-06.*
- d) Rs.521.47 Cr shall be treated as loan to UIHEP 'and shall carry interest @ 7% p.a w.e.f 2006-07 onwards.*
- e) The loan of Rs.521.47 Cr shall be repaid by OHPC with 15 "equal Annual installments w.e.f. 2010-11.*

Hon'ble Commission has suggested allowing, repayment of principal through tariff and interest after recovery of principal. However the interest accrued reducing balance is proposed to be allowed in tariff in suitable manner as per the usual practice of recovery of Govt loan.

The above suggestion contradicts the normal principle of debt servicing which includes both interest and repayment of principal. Govt desires that the interest on UIHEP Govt. loan of Rs.521.47 Cr @ 7% may be allowed w.e.f 2006- 07 along with the repayment of principal in 15 equal installments w.e.f 2010-11. The Commission may include both interest and repayment of loan in the ARR of UIHEP.

Commission may follow the normal principles of debt servicing. However, commission may give concrete suggestion to Government towards avoiding Tariff shocks without harming the growth of OHPC and interest of Government in a medium term. A specific time frame may be worked out and the proposed road map may be submitted' to Government, to take a final view on the matter. “

In this connection Commission would like to observe the following:-

OHPC had raised the issue of payment of interest on Govt. loans in respect of UIHEP bearing interest of 7% (for the first time) during the public hearing for approval of ARR of OHPC for FY 2013-14. Contrary to the break-up now furnished by the Govt, on the issue, OHPC had furnished the breakup of the financial pattern of UIHEP as detailed below:

Capital cost of UIHEP (approved by the Commission) : Rs.1194.79 Cr.

Break up

Equity (25% of project cost) : Rs. 298.70 Cr.

PFC loan (already repaid) : Rs. 320.00 Cr.

Govt. Loan @7% (not paid) : Rs. 497.86 Cr.

Normative loan : Rs. 78.23 Cr.

Total : Rs.1194.79 Cr.

OHPC is yet to make repayment of the principal on Govt, loan of Rs 497.86 Crs as moratorium was allowed upto 2006-07 by the Govt. Thereafter, the OHPC had not brought this fact to the notice of the Commission in any of its tariff filing upto 2012-13. During 2013-14 public hearing the OHPC brought this fact to the notice of the Commission for the first time. The Commission has allowed depreciation @Rs.30.23 Crs. to OHPC from 2010-11 to 2012-13 and continued the same stand for FY 2013-14 & 2014-15.

The Commission has examined the proposal of OHPC towards payment of interest on Govt. loan of RS.497.86 Crs. and the interest on normative loan of Rs.78.23 Crs. The Commission has observed that the repayment of Govt. loan be made phase-wise i.e. firstly the principal repayment will be made and then the interest component will be paid as is the usual practice in the case of Govt. loans. The Commission has analysed the proposal of OHPC and observed that the principal repayment has already been passed on in the tariff of 2010-11, 2011-12 and 2013-14 @ Rs.30.23 Cr. per year. The same amount is allowed in the tariff of 2014-15 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 2014-15 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 2014-15.

Regarding the revised loan component of Rs.521.47 crs. as mentioned in the Govt. letter stated above, the Commission is not inclined to consider the same for determination of tariff for the ensuing year 2015-16 as the earlier figure of Rs.497.86 Crs. has been arrived and agreed to by OHPC in its earlier filings.

4. **Zero Coupon Bond (convertible bonds) of OHPC**

The OHPC in its ARR and Tariff filing for the FY 2015-16 had made a mention of the proceedings of the meeting at Govt. level dated 18.3.2014 the extract of which is reproduced as below:-

“Convertible Bonds worth Rs.766.20 Crores has been issued to State Government. These bonds shall not carry any interest upto FY 2014-15.

Part – Rs.383.10 Crores will be converted to equity from 2015-16.

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

In this connection, the Commission would like to mention that Rs.766.20 Cr. pertains to the upvalued amount allocated to OHPC for which the Commission has requested the Govt. time and again to keep in abeyance the effect of upvaluation for determination of tariff. The Govt. vide its letter No.4323 dated 31.5.2014 in item (3)(i) requested the Commission to provide a detailed analysis of facts and figures and raw data to support the same at the earliest for the consideration of the Govt. The Commission in response to the letter of the Govt. had given a reply vide letter No.862 dated 12.6.2014 in which a summary sheet of the impact of the upvaluation of GRIDCO and OHPC was mentioned. The same is attached herewith for ready reference. The reply from the govt. is still awaited. In view of the above, the Commission is not inclined to consider the impact of upvaluation of OHPC asset for determination of tariff for the FY 2015-16.

5. The views of the Govt. on all the above issues are very vital which can be considered during ensuing tariff proceeding for FY 2015-16. It is therefore, requested that the State Govt. may take a timely decision and convey the same

to the Commission latest by 31.01.2015 for due consideration by the Commission.

117. The Govt. of Odisha has responded to the above issues vide its letter No.1808 dt.28.02.2015. In the said letter the Govt. has asked the Commission to include both payment of interest and repayment of principal in the ARR of UIHEP and also to restructure the equity component of UIHEP. Regarding the restructuring of equity and loan component of UIHEP, the Commission do not agree with the figure mentioned in the Govt. letter dtd.28.02.2015 (Item 4). The Commission scrutinized the audited accounts of OHPC for FY 2013-14, wherein in Note-4 under the head Long-Term Borrowing an amount of Rs.497.86 cr. is shown as principal amount of UIHEP loan. Hence the Commission do not recognize the loan amount of Rs.521.47 cr. as mentioned in the Govt. loan as stated above.

In item-3 of Govt. letter dtd.28.02.2015 it was mentioned that interest impact of zero coupon bond (as a result of up-valuation of assets) in respect of different old power stations as submitted by OHPC in its ARR for FY 2015-16 should be considered. The Commission is of the view that keeping in abeyance of up-valuation of assets is a composite issue applicable to both GRIDCO & OHPC. It cannot be treated in isolation for OHPC only. The Commission advises the Govt. of Odisha to reconsider this as it would have an impact on the overall tariff. In view of this, the Commission would assume the extension of benefit notified by the Govt. on 29.01.2003 and 06.05.2003 to continue till the sector as a whole turns around.

118. **Interest on Loan:**

The loan liabilities of OHPC consist of State Govt. loan, PFC loans and the Normative Loan.

- **State Govt. Loan**

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

OHPC has submitted that, the State Govt. vide their Notification Dt.06.01.2010 at Para (v) mentioned that;

“The State Govt. investment made in Upper Indravati Project, excluding the normative equity, should yield return to the State Govt. with effect from FY 2010-11 after clearance of loan liabilities of PFC. However, interest at the rate of 7% should be

charged and paid on this investment from FY 2006-07 onwards.” *The Commission has accepted the interest element on UIHEP Govt loan since 2006-07 but could not pass the same to avoid tariff burden on Consumers. Hence the matter has been crystallized in the Tariff Order for FY 2013-14. Therefore, OHPC is required to book the interest on UIHEP Govt Loan @ 7% w.e.f 2006-07 on accrual basis based on the Tariff Order dated 20.3.2013”.*

Based on the above observations and the Commission’s letter No.Dir(T)-175/02/77 dtd.16.01.2014 to the Government, the Commission did not allow interest on loan for UIHEP for the purpose of tariff for FY 2014-15.

Further OHPC has cited the Govt. letter No.4323 dtd.31.05.2014 regarding restructuring of state Govt. loan in respect of UIHEP wherein Rs.521.47 cr. is taken as Govt. loan to Upper Indravati Hydro Electric Project in place of Rs.497.86 cr. and Rs.300 cr. shall be treated as normative equity with effect from 2001-02.

Although State Govt. indicated to charge and pay interest @ 7% w.e.f. FY 2006-07, the Commission has not allowed the same in the ARR of OHPC since FY 2006-07 onwards. The detailed Statement of State Govt. loan of UIHEP is given below:

Table - 42

(Rs. Cr.)

Original Approved Project Cost	1195.42
Project cost deducting the infirm power cost	1194.79
25% Equity	298.70
Loan outstanding as on 01.04.2014	497.86
Depreciation allowed from 2010-11 to 2014-15 @ Rs30.23 Crore	151.15
Loan Repayment made till FY 2014-15	151.15
Balance Outstanding Loan as on 01.04.2014	346.71
Interest claimed for the year 2015-16@ 7%	23.91

- OHPC has claimed cumulative interest to be recovered from FY 2006-07 to FY 2014-15 @7% on Rs.521.47 cr. to the extent of Rs.302.07 Crs towards UIHEP Govt. loan.
- OHPC submits to approve Rs.23.91 Crs towards interest on Govt loan of UIHEP in the Tariff for the FY 2015-16.

II) PFC Loan

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

Table - 43
PFC loan outstanding

Sl. No.	Name of the Units	Outstanding loan as on 01.04.2015	Loan Repayment for FY 2015-16
1.	Unit #3 & #4, Burla	6.47 Crs (INR)	6.47 Crs (INR)
2.	Unit #7 & #8, Balimela	4241999.87 (USD)	9.60 Crs (INR)

The interest on PFC loan is calculated to be Rs.0.234 Crs. & Rs.1.94 Crs. for Burla & Balimela respectively. On account of repayment of Principal & Interest in Indian rupees in respect of PFC Loan availed in USD for Unit 7 & Unit 8 of BHEP, Balimela, OHPC has incurred a loss of Rs.8.09 Crs towards payment of principal and Rs.2.10 Crs towards payment of interest from FY 2007-08 to FY 2014-15 due to fluctuation Loss. The total loss amounting Rs 10.19Crs (Principal+ Interest) is due by the end of FY 2014-15, out of which Rs 5.99Cr have already been approved by the Commission in FY 2014-15. Balance Rs 4.20 Crs is claimed as FERV reimbursement for FY 2015-16 by OHPC.

III) Normative Loan

The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% as per Clause No. 5 of CERC Regulation, 2009. The normative loan of BHEP, Balimela is considered @ 9.6 % for FY 2015-16 based on PFC interest rate applicable to BHEP.

As far as repayment of normative loan of UIHEP amounting to Rs.53.32 Crs is concerned, the Commission in the para 131 of Compendium of Tariff Order of OHPC for FY 2013-14 had observed that **“after the total repayment of Govt. loan as approved above, this loan repayment may start at the same rate of Rs.30.23 Crs. 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”**.

OHPC has submitted that if the repayment of Normative Loan & interest is not allowed, the normative loan principal & interest on normative loan from FY 2015-16 onwards then the financial impact shall be around Rs.576.46 Crs. (Interest on Govt. Loan @7% from FY 2006-07 to FY 2024-25 as Rs 424.56Crs. + Interest on

Normative Loan @7% from FY 2001-02 to FY 2027-28 as Rs.98.58 Cr + Principal of Normative Loan Rs. 53.32Cr) after the repayment of Govt. Loan of UIHEP.

OHPC has submitted to designate the accumulated interest amounting to Rs 57.77 Crs from the FY 2001-02 to Fy 2014-15 on Normative Loan of Rs 53.32 Crs as Regulatory Asset and fix suitable installment as pass through in the tariff for the FY 2015-16.

Abstract of Interest and GC

As summarized in Table-7, the Unit wise interest on loan and guarantee commission as proposed by OHPC is scrutinized by the Commission.

The Commission has examined the proposal of OHPC towards payment of interest on Govt. loan and in view of the letter No. DIR(T) 175-12/57 dtd.13.01.2015, the Commission considers Govt. loan of UIHEP as Rs.497.86 cr. and interest on normative loan of Rs.78.23 crs. The Commission has already dealt with the matter in Case No.100/2012 and as per para 131 of the compendium of tariff orders for FY 2013-14 directed as follows. The extract is reproduced below:

“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 circumstances 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.Rs.78.23 Crs. is concerned, the Commission feels that after the total repayment of Govt. loan as approved above, this loan repayment may start at the same rate of Rs.30.23 Crs. 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.

119. The Commission has examined the proposal of OHPC to consider the interest on Govt. loan of Rs.497.86 Crs. from the FY 2006-07 to 2013-14 and the interest on normative loan of Rs.78.23 Crs. from the FY 2001-02 to 2013-14. The Commission observed that the depreciation has already been allowed in the tariff of 2010-11 to 2014-15 @ Rs.30.23 Cr. per year. The same amount is also allowed in the tariff of 2015-16 towards principal repayment of UIHEP Govt Loan. Thus OHPC is required to make Principal repayment of Rs.30.23 Crs. against the depreciation allowed during the FY 2015-16. The Commission may consider the interest accumulated on Govt Loan and Normative loan of UIHEP in the ARR of OHPC after completion of the Principal repayment of the Govt loan and Normative loan as per our observations above.

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

120. The Unit-wise interest on loan and Guarantee Commission(GC) as described above and approved by the Commission for the FY 2015-16 is as given below:

Table - 44

(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2013-14						
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	PFC loan	-	-	1.94	0.23	-	-	2.18
2.	Normative loan	2.72	0.46	0.91	0.24	0.68	0.11	5.21
3.	Govt. loan of UIHEP						0.00	0.00
4.	G.C.	-	-	0.64	0.44	-	-	1.08
	Total	2.72	0.46	3.49	0.92	0.68	0.11	8.38

The Commission accepts and approves interest payment of Rs.8.38 crore for all stations of OHPC for the FY 2015-16 as against Rs.11.02 Cr. allowed in the tariff for the FY 2014-15.

Depreciation:

121. From FY 2003-04 onwards, as per the directions of the Hon'ble High Court of Odisha, depreciation was calculated at pre-1992 norms notified by Govt. of India on the book value of the assets. During 2004-05 again, the Commission calculated 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 2015-16. The same principle is also mentioned in the Generation Tariff Regulation, 2014. However, in case of BHEP & HHEP where loan repayment is more than the computed depreciation @2.57%, the actual loan repayment has been considered and the depreciation amount has been extended to meet full repayment of principal loan for the FY 2015-16. In case of UIHEP, the Commission has allowed recovery of depreciation from balance depreciable value of the project spread equally over the balance life period of the project. Therefore, depreciation of Rs.30.59 Crs. has been considered for FY 2015-16 for recovery through tariff.

122. The details of repayment of loan as submitted by OHPC for all power stations is as under:

Table – 45
Statement of Repayment of Loans
(Rs. cr.)

Power Stations	2014-15	2015-16
HHEP	7.01	7.20
CHEP	2.63	2.77
BHEP	15.27	15.43
RHEP	3.41	3.53
UKHEP	1.68	2.06
UIHEP	30.23	30.59
Total	60.23	61.58

123. For the year 2015-16, depreciation is claimed in the tariff applying 2.57% in case of RHEP, UKHEP and CHEP whereas for BHEP and HHEP the requirement for actual loan repayment is considered for recovery through depreciation as approved by the Commission which is as summarized below:

Table – 46
Depreciation approved for 2015-16

Name of the Power Station	Approved Depreciation (Rs. Cr)	Remark
HHEP	7.20	Equal to loan repayment
CHEP	3.54	2.57%
BHEP	15.43	Equal to loan repayment
RHEP	3.79	2.57%
UKHEP	3.26	2.57%
Sub-Total	33.22	
UIHEP	30.59	Spread over useful life of the plant
Grand Total	63.81	

The amount of depreciation of Rs.33.22 Crore is approved by the Commission for the FY 2015-16 for the old power stations of OHPC. In respect of UIHEP, the depreciation is 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. This comes to Rs.30.23 Crore as determined during FY 2010-11 and Rs.0.36 cr. towards repayment of principal of Normative loan installment for FY 2015-16. Thus Rs.30.59 cr. is allowed towards depreciation requirement of UIHEP.

Thus the Commission approves a total amount of Rs.63.81 cr. on account of depreciation for tariff purpose in ARR of FY 2015-16, as against Rs.107.27 cr. proposed by OHPC in its application.

Return on Equity

124. In regard to the equity base of OHPC, the same was already 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.
125. Based on the contents of the above order and subsequent Govt. Notification dtd.29.01.2003, the Return on Equity for the year 2004-05 was allowed to OHPC on new investments made only after 01.04.1996. Further, the State Govt. vide its Notification dtd. 06.01.2010 has extended the same upto the year 2010-11. Based on the observation of the State Govt. as mentioned above the supportive measures will be continued till 2012-13, and on the basis of the letter written to Govt. of Odisha to extend the supportive measures, the Commission would therefore, accept the equity base as the investments made after 01.04.1996.

126. As stated earlier the tariff for 2015-16 is determined on the basis of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014. As per this regulation return on equity shall be computed at the rate of 16% of the equity amount.
127. The Commission is of the view that actual tax paid can be allowed as a pass through but not a notional calculation of the tax on normative basis. Accordingly the Commission decides to allow return on equity at 16% with new capital addition with a provision to reimburse the actual income tax paid during the FY 2013-14 which is subject to change after the actual tax paid during the FY 2015-16. Since there is chance of under recovery or over recovery of income tax if it is inbuilt to tariff the Commission feels to pass on the income tax as a reimbursement to be recovered from the beneficiary i.e. GRIDCO. Income tax paid during FY 2013-14 as per audited accounts is Rs.2.33 cr. and the same amount should be considered for reimbursement from GRIDCO during the year 2015-16. Accordingly the details of ROE of OHPC power stations for the FY 2015-16 is furnished below:

Table - 47

Sl. No.	Name of the Power Station	Value of New capital addition	Equity Portion (%)	Amount of Equity	ROE Proposed by OHPC @24.9962% for FY 2015-16	ROE approved by the Commission for FY 2015-16 @ 16%
1.	RHEP	56.41	30	16.923	4.847	2.708
2.	UKHEP	18.51	30	5.552	3.703	0.888
3.	BHEP	213.56	30	64.069	16.113	10.251
4.	HHEP	206.61	25	51.653	15.390	8.264
5.	CHEP	46.17	25% & 30%	12.042	3.392	1.927
6.	UIHEP	1197.36	25% & 30%	299.471	78.597	47.915
Total					122.042	71.953

128. **The Commission approves return on equity for all the OHPC stations amounting to Rs.71.954 Cr. for the FY 2015-16 as summarized in the table above.**

O&M Expenses

129. The Commission has calculated the O&M expenses as per the new generation tariff Regulations, 2014 and escalation @5.72% is allowed on the previous years approved O&M expenses. By applying this principle the O&M expenses comes to Rs.310.66 Cr. for FY 2015-16. It is observed from the application that approximately 20% of the total O&M expenses is spent towards repair and maintenance of OHPC Stations

which comes to Rs.64.46 cr. for 2015-16 considering the Commission's approval figure of Rs.310.66 cr. This amount is the total R&M expenses including dam maintenance share of DOWR which is supposed to be reimbursed from DOWR. The dam maintenance cost receivable from DOWR for last three years as submitted by OHPC is Rs.11.05 cr. for the FY 2011-12, Rs.11.20 cr. for FY 2012-13 and Rs.12.74 cr. for the FY 2013-14. From the above trend the Commission assumes an amount of Rs.10.00 cr. to be received from DOWR towards UIHEP for the FY 2015-16. The same amount is deducted from the approved O&M expenses of UIHEP of Rs.69.95 cr. resulting in the net O&M expenses of Rs.59.95 cr. for calculation of ARR of UIHEP for the FY 2015-16. Thus the Commission after due scrutiny approves total O&M expenses at Rs.300.66 cr. for FY 2015-16 as against the proposal of Rs.322.04 cr. proposed by OHPC. Station-wise O&M expenses approved for FY 2015-16 is presented in the table below:

Table – 48
Statement of O & M Expenses for 2015-16

(Rs. Crs.)										
Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses for FY 2014-15 with escalation @ 5.72% over FY 2013-14 (as decided by the Commission)	40.58	30.57	58.16	61.47	14.07	204.86	58.80	19.65	283.31
2	O & M expenses for FY 2015-16 with escalation @ 5.72% over FY 2014-15	42.90	32.32	61.49	64.99	14.88	216.58	62.16	20.77	299.51
3	Corporate Office expenses apportioned to different units under OHPC based on Installed Capacity	2.63	3.37	5.37	2.32	0.76	14.45	6.32	20.77	
4	Total O & M Expenses for the FY 2015-16	45.54	35.69	66.86	67.31	15.63	231.03	68.48		299.51
Add: Arrear salary and terminal liabilities										
5	Arrear terminal liabilities of Rs.78.01 Cr as on 31/03/2009 claimed over a period of seven years starting from FY 2010-11	1.03	0.98	3.96	1.84	0.79	8.60	0.99	1.56	11.15
6	Arrear terminal liabilities Corporate Office expenses apportioned to different units under OHPC based on Installed Capacity	0.20	0.25	0.40	0.17	0.06	1.09	0.47	1.56	
7	Total Arrear Salary and Terminal Liabilities	1.23	1.23	4.36	2.01	0.85	9.69	1.46		11.15
8	Less : Income to be received from DOWR towards dam maintenance of UIHEP							(-) 10.00		10.00
9	Total O&M Expenses for the FY 2015-16 including terminal liabilities	46.76	36.92	71.22	69.32	16.48	240.72	59.95		300.66

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

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

The interest on working capital for the existing generation plants of OHPC shall be on normative basis and shall be equal to the SBI Base Rate plus 300 basis points as on 1st April of the year for which the application for determination of tariff is being made. The Commission has adopted this principle which is equivalent to 13% for FY 2015-16 considering 10% as the prevailing SBI Base Rate. The detailed calculation of Working Capital approved by the Commission is presented in the Table below:

Table – 49
Interest on Working Capital for FY 2015-16

(Rs. Cr.)									
Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
1	O&M Expenses for One Month	3.90	3.08	5.94	5.78	1.37	20.06	5.00	25.06
2	Maintenance spares @15% of O&M Expenses	7.01	5.54	10.68	10.40	2.47	36.11	8.99	45.10
3	Receivable equivalent to Two Months of Annual Fixed Cost	9.78	7.26	17.47	14.96	3.95	53.42	23.39	77.35
4	Total Working Capital	20.69	15.88	34.09	31.13	7.79	109.59	37.92	147.50
5	Interest on Working Capital calculated @ 13%*	2.69	2.06	4.43	4.05	1.01	14.25	4.93	19.17

- SBI base rate for 01.04.2014 is 10% + 300 basis points = 13%

Thus, the Commission approves an amount of Rs.19.17 cr. as interest on working capital for the year 2015-16 as against the OHPC proposal of Rs.24.09 cr. which was calculated @14.75% rate of interest. The interest of Working Capital approved by the Commission for FY 2014-15 was Rs.14.45 Cr.

Total Annual Fixed Cost

131. Based on the above parameters the station-wise ARR and tariff calculated for the year 2015-16 is indicated in the table below:

Table – 50
Station-wise Tariff Approved For 2015-16

Details of expenses	(Rs. Cr.)							
	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
Return on Equity	2.708	0.888	10.251	8.264	1.927	24.079	47.915	71.95
Interest on Loan	2.72	0.46	3.49	0.92	0.68	8.27	0.11	8.38
Depreciation	3.79	3.26	15.43	7.20	3.54	33.22	30.59	63.81
O & M expenses	46.76	36.92	71.22	69.32	16.48	240.72	59.95	300.66
Interest on Working Capital	2.69	2.06	4.43	4.05	1.01	14.25	4.93	19.17
Total ARR	58.67	43.59	104.83	89.75	23.64	320.48	143.49	463.98
Average Tariff (p/u)	112.89	52.92	89.51	132.54	48.73	87.16	73.87	82.57
Average Tariff for the FY 2014-15 (p/u)	108.08	49.84	88.21	127.64	48.06	84.39	80.42	83.02

ARR & Tariff Application Fees and related Publication Expenses

132. As per Regulation 42 of CERC Tariff Regulations, 2009, the application filing fee and the expenses incurred on publication of notices in the application for approval of tariff, may in the discretion of the Commission, be allowed to be recovered by the generating company or the transmission licensee, as the case may be, directly from the beneficiaries or the transmission customers, as the case may be. Accordingly, OHPC has claimed for reimbursement of Rs.0.26 cr. from GRIDCO towards ARR

and tariff application fees and related publication expenses. The Commission approves the said amount of Rs.0.26 cr. as pass through in the ARR of GRIDCO for the year 2015-16 .

License fee for use of water for generation of Electricity:

As per the gazette Notification Dt. 01.10.2010, OHPC has to pay Rs.0.01/kWh as Licence Fee on water used for generation of electricity from all Hydro Electric Projects to the tune of Rs.5.376 cr. which is to be reimbursed to OHPC by GRIDCO, based on design energy.

133. OHPC has proposed that since the above calculation is based on design energy of Hydro Projects, the actual generation from OHPC Power Stations may be considered for reimbursement of licence fee paid to Govt. of Odisha from GRIDCO.
134. The Commission considered the above proposal of OHPC and since the Commission does not change the design energy of OHPC power stations, license fee is accordingly approved for reimbursement. However, the Commission provisionally approves an amount of Rs.5.676 cr. to be reimbursed from GRIDCO in the FY 2015-16 based on the design energy of OHPC power stations @ Rs.0.01 per KWh. The station-wise details is summarized in the table below:

Table - 51

(Rs. Cr.)

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

Electricity Duty on Auxiliary Consumption

135. 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 has proposed that ED on Auxiliary consumption of all Hydro Electric Projects to the tune of Rs.0.54 Crs. as shown in the table below is to be reimbursed to OHPC by GRIDCO for the FY 2015-16 considering the reduction in design energy of HHEP and CHEP.

Table - 52
OHPC Proposal for ED on Auxiliary Consumption

(Rs. Crs.)

Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub total	UIHEP	Total
ED on Auxiliary Consumption	0.05	0.08	0.12	0.05	0.04	0.34	0.20	0.54

The Commission examined the proposal of OHPC and in view of unaltered design energy of OHPC stations approves ED on auxiliary consumption of all hydro electric projects to the tune of Rs.0.57 cr. to be reimbursed to OHPC by GRIDCO. Considering the proposal of OHPC the Commission allows annual adjustment on reimbursement of ED at the year end limiting to 0.5% of the cumulative actual generation during the financial year instead of limiting to monthly generation. The detail of reimbursement provisionally approved for the FY 2014-15 is presented in the table below:

Table – 53
Commission approval for ED on Auxiliary Consumption

(Rs. Crs)

Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	Total
ED on Auxiliary Consumption	0.05	0.08	0.12	0.07	0.05	0.37	0.20	0.57

SLDC Charges

136. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2015-16 in Case No.66/2014, 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.8969.64 /MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 2008.5 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC charges of OHPC comes to Rs.1.80 cr. for the FY 2015-16, 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.1.80 Cr. as pass through in the ARR of GRIDCO for the FY 2015-16 towards power purchase related cost of OHPC.

Foreign Exchange Fluctuation loss of PFC Loan of BHEP

137. OHPC had applied for fluctuation loss on account of Foreign Exchange Variation towards PFC loan of BHEP during FY 2012-13. The Commission had observed that “to the extent the generating company is not able to hedge the Foreign Exchange exposure, the extra rupee liability towards interest payment and loan repayment corresponding to the normative foreign currency loan in the relevant year shall be permissible provided it is not attributable to the generating company or its supplier or contractor.”

The Commission had directed OHPC to furnish the details of payment both principal and interest on this account from the beginning so that the net amount could be determined and the same will be considered in the ARR of GRIDCO for the FY 2013-14.

Accordingly, OHPC has calculated the details of payments of principal and interest on PFC Loan of BHEP for R&M works of Unit#7 & Unit#8. Total claim towards FERV claim of PFC Loan of BHEP is Rs.10.19 Cr. (i.e. Rs.2.10 Cr. towards interest + Rs.8.09 Cr. towards principal) from FY 2007-08 to FY 2014-15. Out of which the Commission in the tariff order for the FY 2014-15 had approved Rs.5.99 Cr. (i.e. Rs.1.35 Cr. towards interest + Rs.4.64 Cr. towards principal). The balance Rs.4.20 Cr. is to be reimbursed from GRIDCO as FERV claim of PFC loan for FY 2015-16.

The Commission has examined the documents furnished by OHPC and approves Rs.4.20 Cr. towards Foreign Exchange Fluctuation loss of PFC loan of BHEP.

Reimbursement of contribution made to ERPC

138. OHPC has proposed to approve a total reimbursement claim for an amount of Rs.1.10 Cr. towards ERPC contribution from FY 2006-07 to FY 2013-14 and Rs.0.16 cr. for FY 2015-16 from GRIDCO. The Commission does not approve the reimbursement claim of OHPC for the period from FY 2006-07 to FY 2013-14 at present and only approves Rs.0.16 Cr. contribution to ERPC for the FY 2015-16.

139. **Reimbursement of contribution made to Catchment Area Treatment Plan(CATP)**

OHPC has submitted that in the 123rd meeting of Board of Directors of OHPC held on 27th September 2014 the Board has decided to reflect Rs.2.411 Cr. (Rs.0.402 Cr. for

the year 2013-14 & Rs.2.009 Cr. for year 2014-15) in the ARR of FY 2015-16. The document is furnished in their tariff filing. Further OHPC has proposed to consider the Institutional cost of Rs.1.599 Cr. as reimbursement for the FY 2015-16 towards CATP contribution. Thus OHPC has proposed to approve Rs.4.01 Cr. to be reimbursed from GRIDCO in the FY2015-16. The Commission after due scrutiny has approved Rs.4.01 Cr. to be reimbursed from GRIDCO towards contribution made to Catchment Area Treatment Plan.

Income Tax

140. As discussed in para 124 of this order, income tax paid during FY 2013-14 to the extent of Rs.2.33 cr. as per audited reports is to be treated as reimbursement and is to be recovered from GRIDCO during FY 2015-16.
141. The details of expenses on account of application fee, and publication expenses, ED on auxiliary consumption, license fee for use of water for generation of electricity, SLDC charges, Foreign Exchange fluctuation loss of PFC loan of BHEP, Institutional cost paid for implementation of CATP programme, and Reimbursement of contribution made to ERPC for FY 2014-15 of OHPC are summarized in the table below:

Table – 54

(Rs. Cr.)

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
(a) License fee for use of water for generation of electricity	0.525	0.832	1.183	0.684	0.490	1.962	5.676
(b) ED on Auxiliary Consumption	0.05	0.08	0.12	0.07	0.05	0.20	0.57
(c) SLDC charges							1.80
(d) Application fees and publication expenses							0.26
(e) Institutional cost paid for implementation of CATP programme for FY 13-14 & 14-15							4.01
(f) Fluctuation loss of PFC loan of BHEP			4.20				4.20
(g) Reimbursement of contribution made to ERPC							0.16
(h) Income tax paid during FY 2013-14							2.33
Total							19.006

Thus, the Commission approves the miscellaneous reimbursement of Rs.19.006 Cr. as against OHPC proposal of Rs.62.2756 crore. The above expenditure has been

included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing.

Two-Part Tariff

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

As per Central Electricity Regulatory Commission (Terms and conditions of Tariff) Regulation 2009, the annual fixed cost of a power station shall be recovered through capacity charge (inclusive of incentives) and energy charge to be shared on a 50:50 basis as per the formula indicated at below.

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

$$\text{Capacity charge (C.C)} = \text{AFC} \times 0.5 \times \text{NDM/NDY} \times \text{PAFM/NAPAF} \text{ in Rupees.}$$

Where

AFC = Annual Fixed Cost specified for the year in rupees

NAPAF= Normative Annual Plant Availability Factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

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

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

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

Where

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC_i = Declared Capacity (in ex-bus MW) for the ith day of the month which the station can deliver for at least (3) hours, as certified by the nodal load dispatch centre after the day is over.

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.

143. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2015-16 as summarized in the table below:

Table - 55
Energy Charge and Capacity Charge for 2015-16

Name of the Power Stations	Annual Fixed Cost (Rs. Cr.)	Capacity Charge (Rs. Cr.)	Energy Charge (Rs. Cr.)	Design Energy (MU)	Energy Charge Rate (P/U)
Rengali HEP	58.67	29.335	29.335	519.75	56.441
Upper Kolab HEP	43.59	21.795	21.795	823.68	26.461
Balimela HEP	104.83	52.415	52.415	1171.17	44.754
Hirakud HEP	89.75	44.875	44.875	677.16	66.269
Chiplima HEP	23.64	11.82	11.82	485.10	24.366
Upper Indravati HEP	143.49	71.745	71.745	1942.38	36.937

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)

144. 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 - 56

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 2015-16 and directs that the monthly capacity charge of each OHPC stations shall be computed for the FY 2015-16 based on the above NAPAF.

145. 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

146. OHPC has submitted that as per the MoM the long term customer, the erstwhile Chhatisgarh State Electricity Board (CSEB), presently Chhatisgarh State Power Distribution Company Limited (CSPDCL) having 5MW share from Hirakud generation is taking a plea to pay the energy charges to OHPC at the average tariff of HHEP, Burla, which is actually applicable for the consumers of Odisha, and which is determined by the Commission, considering the supportive measures extended by the Govt. of Odisha. This is because the average tariff of HHEP, Burla (which is being fixed by the Commission for the consumers of Odisha, considering the supportive measures and concessions provided by the Govt. of Odisha for a sustainable tariff) is less than the cost of generation of HHEP, Burla being the ECR (energy charge rate) at which OHPC bill to CSPDCL for the energy drawl by CSPDCL from Hirakud generation as per the MoM 24.12.2004. OHPC submits that the Commission may fix the tariff for CSPDCL at 149.81 paise p/u without the State Govt. support and it shall be applicable for billing to CSPDCL. The details for arriving at the average tariff for HHEP is as follows:

Table - 57
Tariff for CSPDCL for 2015-16
(Rs. Cr.)

Details of Expenses	HHEP
Return on Equity	13.228
Interest on Loan	6.10
Depreciation	8.50
O & M expenses	69.32
Interest on Working Capital	4.30
Total ARR	101.45
Average Tariff (p/u)	149.81

The Commission approves average tariff of 149.81 p/u for HHEP for billing to CSPDCL for FY 2015-16.

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

147. 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 inter state supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Odisha.
148. The proposed tariff of 34.38 Paise/KWh of Odisha drawl of Machhkund power for FY 2015-16 has been computed on cost reimbursement basis. Provisional O&M Expenses of Rs. 7.1962 Crs. for the FY 2013-14 has been escalated @ 6.64% per year to arrive at O & M Expenses of Rs. 8.18 Crs for FY 2015-16. The power purchase cost comes to Rs. 0.84 Crs. for additional 20% share (105 MU) computed @ 8 p/u. The total expected annual expenditure calculated to be Rs. 9.02 Cr for FY 2015-16. The cost per unit is 34.38 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 2013-14 is furnished by OHPC in its application.
149. Since, all the Units of Machhkund project are more than 50 years old, it has been proposed to go for R&M of all the six units and up-gradation wherever possible taking in to account of the existing water conductor system.

150. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of D. E. of Machhkund equivalent to 262.50 MU. The projected tariff calculation is given in the table below:

Table - 58
Projected Tariff of Machhkund H. E. (J) Scheme For FY 2015-16

Installed Capacity (MW)	120.00 MW
Odisha share as per Original Agreement (30%)	36.00 MW
Net. 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. Cr)</u>
1. O&M Exp. (Odisha share of Provisional O&M Exp. For FY 13-14)	7.1962
2. O&M Exp for FY 2015-16 with escalation of 6.64% for 2014-15 & 2015-16	8.18
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	9.02
5. Tariff (Paise/Kwh)	34.38
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.	

151. The Commission approves the above rate of 34.38 Paise per Unit for FY 2015-16 as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.

Capital Maintenance of Generating Units

152. The Commission in its order dt. 01.05.2012 in Case No-5 of 2012 has clarified that “ a generator should not suffer from non- recovery of capacity charges due to capital maintenance of a generating unit which takes around three months and normally taken in each 3 or 5 Years as per the manufactures guidelines”.

Further the Commission at Para-137 of its order dated 22.03.2014 while passing the ARR and Tariff of the OHPC for FY 2014-15 has mentioned as quoted below:

“However, the capacity of the generating units under Renovation and Modernization shall not be considered in installed capacity while computing the plant availability

factor. Further, while computing the plant availability, the capacity of the generating units under capital maintenance requiring maintenance period of more than 45 days may also be deducted from installed capacity after due approval of the Commission.”

Accordingly OHPC in this ARR & Tariff application for FY 2015-16 has sought approval of the Commission to carry out the capital maintenance of the following generating units of its different generating stations.

1. Unit-II of Rengali HE Project for a period of **122 days**. Important work is for Replacement of Runner Disc.
2. Unit-III of Rengali HE Project for a period of **46 days**. Normal Capital Maintenance as per manufacturer’s guidelines and overhauling of generator transformer.
3. Unit-I of Hirakud HE Project, Burla for a period of **153 days**. Replacement of existing Governor System with OPU, Protection Control System, Rebitting of TGB & replacement of shaft seal.
4. Unit- II of Hirakud HE Project, Burla for a period of **198 days**. Replacement of Runner Assembly, Replacement of existing Governor System with OPU, Protection Control System, Rebitting of TGB & replacement of shaft seal.
5. Unit-III of Upper Indrabati HE Project for a period of **123 days**. Replacement of the bottom ring alone with facing plate and other accessories.
6. Unit-I of Upper Kolab HE Project for a period of **181 days**. Replacement of Stator, Installation of DVR, Break assembly, H.P Lub oil pump, etc.

After scrutiny the Commission advised OHPC to take up the Capital Maintenance of the generating units which are due for capital maintenance as per the operating manual/manufactures guidelines and also with due approval of OHPC Board. The zero date for taking up the capital maintenance of the generating units should be fixed in consultation with SLDC. However, the capital maintenance of the generating units shall not be taken during rainy season where there is a possibility of spillage of water from the reservoir.

Additional Capitalization in Project Cost

153. OHPC in its tariff application has considered a total amount of Rs.130.72 Crore as additional capitalization during the period from FY 2014-15 and 2015-16 including

Capital Works in Progress (CWIP) which is not admitted by the Commission. For any additional capitalization in the project cost of the generating station, OHPC may file a petition before the Commission separately as per Regulation 3.3 & 3.4 of OERC (Terms and Conditions for Determination for Generation Tariff) Regulations, 2014.

ARR and Approval of Tariff

154. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2015-16 as follows:

Table – 59

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
Approved for 2014-15								
Total ARR (Rs. Crore)	56.18	41.05	103.31	86.43	23.31	310.28	156.20	466.49
Average cost (P/U)	108.08	49.84	88.21	127.64	48.06	84.39	80.42	83.02
Approval for 2015-16								
Total ARR (Rs. Crore)	58.67	43.59	104.83	89.75	23.64	320.48	143.49	463.98
Average cost (P/U)	112.89	52.92	89.51	132.54	48.73	87.16	73.87	82.57

155. Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2015-16. The Capacity charge and the rate of Energy charge as approved at para 140 above and the corresponding approved rates for the FY 2014-15 are summarized in the table below :

Table – 60

Energy Charge and Capacity Charge for 2014-15 & Approval for 2015-16

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	14-15	15-16	14-15	15-16	14-15	15-16	14-15	15-16
Rengali HEP	56.18	58.67	28.09	29.335	28.09	29.335	54.045	56.441
Upper Kolab HEP	41.05	43.59	20.525	21.795	20.525	21.795	24.918	26.461
Balimela HEP	103.31	104.83	51.655	52.415	51.655	52.415	44.105	44.754
Hirakud HEP	86.43	89.75	43.215	44.875	43.215	44.875	63.818	66.269
Chiplima HEP	23.31	23.68	11.655	11.84	11.655	11.84	24.025	24.366
Upper Indravati HEP	156.20	143.49	78.10	71.745	78.10	71.745	40.208	36.937

The unit cost of energy from Machhkund is approved at 34.38 paise for 2015-16 as against 41.68 paise per unit approved for 2014-15.

Capacity Addition

156. We subscribe to the view that hydro energy is a source of clean energy contributing to reduced environmental pollution. Govt. of India emphasizes on establishing new hydro power stations where scope is available. Agreeing with concerns of objectors,

we observe that OHPC should pursue installation of new hydro power projects on major rivers of the state where scope is available in spite of earlier failed attempts. Simultaneously, they should strive to achieve greater availability of units and increased peak load capacity in the interest of the state.

157. The tariff now approved shall be effective from 01.04.2015 and shall be in force until further orders.
158. The application of OHPC in Case No.65 of 2014 for approval of its Annual Revenue Requirement and fixation of generation tariff of different stations for the FY 2015-16 is disposed of.

Sd/-
(A. K. DAS)
MEMBER

Sd/-
(S. P. SWAIN)
MEMBER

Sd/-
(S. P. NANDA)
CHAIRPERSON