

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

**Present:** Shri S.P. Nanda, Chairperson  
Shri K.C. Badu, Member  
Shri B. K. Misra, Member

**Case No.90/2011**

**DATE OF HEARING** : 21.02.2012  
**DATE OF ORDER** : 23.03.2012

**IN THE MATTER OF :** Application for approval of Annual Revenue Requirement and Generation Tariff of OHPC stations for the FY 2012-13 under Section 86 of the Electricity Act, 2003 read with related provisions of OERC (Terms and Conditions for Determination of Tariff) Regulations, 2004 and OERC (Conduct of Business) Regulations, 2004.

**ORDER**

The Orissa Hydro Power Corporation (OHPC) has filed an application before the Commission for determination of Annual Revenue Requirement (ARR) and fixation of Generation Tariff for its different power stations for the financial year 2012-13.

**PROCEDURAL HISTORY (Para 1 to 8)**

1. The OHPC is a “Generating Company” under the meaning of Sec.2 (28) of the Electricity Act, 2003 (herein after referred as ‘the Act’). After the unbundling of the Odisha State Electricity Board (OSEB) in the year 1996, the assets, liability and personnel of the Board were transferred to this generating company to carry out the business of generation of hydro-electricity. The entire power produced by OHPC through its various generating stations is fully dedicated to the State of Odisha. Thus, OHPC is supplying its entire power to GRIDCO, who in turn is supplying the same to the Distribution Licensees of the State. After the Electricity Act, 2003 came into force and promulgation of the Government of Odisha Transfer Scheme, 2005, GRIDCO as the deemed trading licensee was entrusted with the bulk supply business and the existing Bulk Supply Agreements and Power Purchase Agreements (PPAs) have been assigned to it. Under the existing legal set up, GRIDCO is evacuating the powers from the generating stations of OHPC and delivering it to the Distribution Licensees.
2. As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, a generating company is required to file an application by 30<sup>th</sup> 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 30.11.2011 OHPC, as a

generating company, had filed the Annual Revenue Requirement (ARR) and fixation of tariff i.e. Capacity and Energy Charge application in respect of each of its generating stations separately before the Commission for the FY 2012-13.

3. After due scrutiny and admission of the aforesaid application, the Commission directed OHPC to publish its application in the approved format. In compliance to the same; public notice was given in leading and widely circulated newspapers and was also posted in the Commission's website, in order to invite objections from the general public. The applicant was also directed to file its rejoinder to the objections filed by the objectors. In response to the aforesaid public notice the Commission received 8 nos. of objections from the following persons/organizations:

(1) Sri G.N. Agrawal, Convenor-cum-Gen. Secy, Sambalpur District Consumers Federation, Balajee Mandir Bhawan, Khetrampur, Dist-Sambalpur-768003,(2) ) Shri Ramesh Ch. Satpathy,Secretary, National Institute of Indian Labour, Plot No.302(B), Beherasahi, Nayapalli, Bhubaneswar-751012, (3) Shri Prasanta Kumar Panda, authorized representative of Odisha Consumer Association Devajyoti Upabhokta Kalyan Bhawan, Biswanth Lane, Cuttack-2 (4) Shri Prasanta Kumar Panda , General Secretary, Federation of Consumers organization (FOCO), Odisha , Biswanath lane, Dist – Cuttak. (5) Shri Prasanta Kumar Panda, authorized representative of Keonjhar Navnirman Parisad, Chandin Chowk , Cuttak (6) Shri M.K.Das, GM (PT), CSO, NESCO, WESCO & SOUTHCO, Regd. Office- Plot No. N-1/22, IRC Village, Nayapalli, Bhubaneswar (7) Shri R.P. Mahapatra, Retd. Chief Engineer & Member (Gen., OSEB), Plot No.775(Pt.), Lane-3, Jayadev Vihar, Bhubaneswar- 751013, (8) Shri Laxmidhar Mohapatra, GM, GRIDCO, Janpath, Bhubaneswar - 10 and Shri S.Pradhan, Jt.Secretary, Dept. of Energy, GoO are present. All the above named objectors were present during tariff hearing and their written submissions filed before the Commission were taken into record and also considered by the Commission.

4. The applicant submitted its reply to issues raised by the various objectors.
5. 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 Annual Revenue Requirement and tariff proposal. The Consumer Counsel presented his views on the matter in the hearing.
6. The date of hearing was fixed as 21.02.2012 and was duly notified in the leading and widely circulated newspapers mentioning the list of objectors. The Commission also issued notice to the 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 the views/suggestion/proposal of the Govt. as a stakeholder.
7. In its consultative process, the Commission conducted a public hearing at its premises on 21.02.2012 and heard the Applicant, Objectors, Consumer Counsel and the Representative of the Dept. of Energy, Government. of Odisha at length.
8. The Commission convened the State Advisory Committee (SAC) meeting on 29.02.2012 at 11 A.M to discuss about the ARR application and tariff proposal of the generating company. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission.

## ARR PROPOSAL OF OHPC FOR FY 2012-13 (Para 9 to 23)

### Installed Capacity

9. The installed capacity of various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) is 2062 MW for FY 2012-13 including Odisha's share of Machkund.

The installed capacity of different generating stations for the FY 2012-13 is given in the table below.

**Table – 1**

#### Installed capacity of OHPC stations

Sl. No.	Name of the Power Station	Installed Capacity (MW)	
		2011-12	2012-13
1	Rengali (RHEP)	250.00	250.00
2	Upper Kolab(UKHEP)	320.00	320.00
3	Balimela(BHEP)	510.00	510.00
4	Hirakud (HHEP)	275.50	275.50
5	Chiplima (CHEP)	72.00	72.00
6	Upper Indravati (UIHEP)	600.00	600.00
7	Machhakund (30% Odisha share)	34.50	34.50
<b>Total</b>		<b>2062.00</b>	<b>2062.00</b>

### Design Energy of OHPC Stations

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

**Table – 2**

#### Design Energy for FY 2012-13

Sl. No.	Name of the Power Station	Design Energy (DE) (In MU)	Design Energy for sale (MU)
1	RHEP	525.00	519.75
2	UKHEP	832.00	823.68
3	BHEP	1183.00	1171.17
4	HHEP	684.00	677.16
5	CHEP	490.00	485.10
	SUB TOTAL	3714.00	3676.86
6	UIHEP	1962.00	1942.38
<b>Total</b>		<b>5676.00</b>	<b>5619.24</b>

### Reservoir Level and Anticipated Generation for FY 2012-13

11. The Full Reservoir Level (FRL), Minimum Draw Down Level (MDDL) and actual reservoir level of Power stations of OHPC as on 01.11.2011 vis-à-vis on 01.11.2010 is given below

**Table – 3**  
**Reservoir Level**

Sl No.	Reservoirs	FRL	MDDL	As on 01.11.2010	As on 01.11.2011
1.	Rengali	123.5 mtr	109.72 mtr	118.81 (m)	123.26 (m)
2.	Kolab	858 mtr	844 mtr	855.94 (m)	849.76 (m)
3.	Balimela	1516 ft.	1440 ft.	1505.90 (ft)	1463.00 (ft)
4.	Hirakud	630 ft.	590 ft.	629.08 (ft)	627.31 (ft)
5.	Indravati	642 mtr	625 mtr	639.50 (m)	630.70 (m)

The actual generation of different power stations under OHPC up to 31.10.2011 and anticipated generation up to 31st March 2012 is also provided as given below in table-4, taking into consideration irrigation requirements.

**Table -4**  
**Actual /anticipated energy generation FY 2011-12**

Sl. No.	Name of the power stations	Actual generation from 01.04.11 up to 31.10.11 (MU)	Anticipated generation from 01.11.11 up to 31.03.12 (MU)	Total
1.	RHEP	631.99	245.00	876.99
2.	UKHEP	487.32	114.00	601.32
3.	BHEP	876.55	154.00	1030.55
4.	HHEP	522.16	157.00	679.16
5.	CHEP	231.14	115.00	346.14
6.	UIHEP	1222.13	310.00	1532.13
<b>Total</b>		<b>3971.29</b>	<b>1095.0</b>	<b>5066.29</b>

**Project Cost**

- The revalued cost of RHEP, UKHEP, BHEP, HHEP, CHEP (old power stations of OHPC) 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 Odisha. 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 station of OHPC is Rs.479.80 crore. Further, the Commission, in its Order dated 20.03.2008 has approved Rs.1195.42 crore as final capital cost of UIHEP for the purpose of determination of tariff. The project cost of OHPC power stations reported for computation of ARR for the FY 2012-13 is given in the table below:

**Table- 5**  
**Capital Cost proposed for FY 2012-13**

(Rs. Cr.)

Sl. No.	Name of the power stations	Historical cost of asset as on 01.04.96	Revalued cost of assets as on 01.04.96	New additions up to 2011-12	Project Cost based on revalued cost	Project cost considered for Tariff Calculation based on original cost
1	2	3	4	5	6=4+5	7=3+5
1.	RHEP	91.09	259.01	51.37	310.38	142.46
2.	UKHEP	108.31	307.96	14.15	322.11	122.46
3.	BHEP	115.42	334.66	210.61	545.27	326.03
4.	HHEP	72.75	130.16	201.71	331.87	274.46
5.	CHEP	92.23	165.01	43.31	208.32	135.54
	Total	479.80	1196.80	521.15	1717.95	1000.95
6.	UIHEP	Approved project cost			1195.42	

**Determination of Annual Fixed Cost for FY 2012-13**

13. Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 specifies methodology for computation of tariff for supply of electricity from a hydro generating station. The tariff shall comprise of capacity charge and energy charge to be shared on 50:50 basis for recovery of annual fixed cost.

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

- a. Return on equity (ROE)
  - b. Interest on loan capital
  - c. Depreciation
  - d. Operation and Maintenance 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 15.5% to be grossed up as per following formula.

Rate of pre-tax return on equity=  $15.5\% / (1-t)$

Where “t” is the MAT rate payable by OHPC.

For FY 2012-13 it is 18.50%.

The minimum alternate tax rate payable by OHPC is 20.00775%, including surcharge (7.5%) and Cess (3%).

∴ Rate of return on equity =  $15.50\% / (1 - 0.2000775) = 19.3768\%$

The pre-tax return on equity @ 19.3768% has been considered for FY 2012-13 for OHPC power stations.

Based on the order of the Commission vide case no. 64/2008 dated 20.03.09 at clause no. 181, the historical cost of assets as on 01.04.96 has not been considered for ROE. The new capital additions made by OHPC from 01.04.96 up to 31.03.2012 has been taken for calculation of ROE with an equity base 25% for HHEP and 30% for all other old power stations. For RHEP, the approved R&M cost of unit-1 has been considered for capitalization & computation of ROE. For UIHEP equity base of 25% on approved project cost minus infirm power cost has been considered for computation of ROE as given in the Table-6 below.

**Table – 6**  
**RoE proposed for FY 2012-13**

(Rs. cr.)

Sl. No.	Name of the power station	New capital addition up to 31.03.2012	Equity capital	Proposed for 2012-13 ROE @19.3768 %
1.	RHEP	51.37	15.41	2.99
2.	UKHEP	14.15	4.25	0.82
3.	BHEP	210.61	63.18	12.24
4.	HHEP	201.71	50.43	9.77
5.	CHEP	43.31	12.99	2.52
	SUB TOTAL	521.15	146.26	28.34
6.	UIHEP	Project cost 1194.79	298.70	57.88
Total				86.22

- b. **Interest on loan:** The loan liabilities on OHPC consists of state Government loans and PFC loans. The State Government loan outstanding as on 01.04.2011 at Rs.4.19 Cr has been repaid in the FY 2011-12.

As indicated in the order of the Commission dated 20.03.2010 in case no. 147/2009, the Commission vide its letter dated 27.01.10 has advised the State Government that the effects of up-valuation of asset and moratorium on debt services of State Govt. loans may be kept in abeyance till end of FY 2012-13. i.e. end of Control Period of Business plan instead of 2010-11. The Government has agreed to modify the notification in line with the OERC suggestion. The revalued cost of the project has not been considered pending decision at Govt. level.

The OHPC has also availed PFC loans in connection with R & M projects of HHEP, Burla and extension project of BHEP.

Based on Para 117 and Para 118 of OERC tariff order for the FY 2011-12 for OHPC, the 7% interest bearing State Govt. loan for Upper Indravati has not been proposed by OHPC in the tariff application of FY 2012-13.

The State Govt. loan bearing 9.8% interest has been fully repaid. But, normative loans for the units of CHEP, RHEP & UKHEP is still continuing and rate of interest is considered @ 9.8% as per Clause No.5 of CERC Regulation, 2009. Further, PFC loan is also prevailing in case of Balimela HEP where the rate of interest is considered by taking an weighted average of 8.69% for FY 2012-13.

The station-wise interest payable on government / PFC loan and guarantee commission for FY 2012-13 is presented in Table No. 7 below.

**Table – 7**

**Interest on loan and G.C for FY 2012-13**

(Rs. cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2012-13						
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	PFC loan	-	-	4.86	1.95	-	-	6.80
2.	Normative loan	3.10	0.64	2.18	-	1.19	-	7.11
3.	G.C.	-	-	0.64	0.44	-	-	1.08
Total		3.10	0.64	7.67	2.39	1.19	0.00	14.99

**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 2009-14 has specified rates for calculation of depreciation based on the capital cost admitted by the Commission.

OHPC has computed depreciation @ 2.57% on the historical project cost plus additional capitalization up to 2011-12 for FY 2012-13.

In case of HHEP and BHEP, since the loan repayment is more than computed depreciation @ 2.57%, the actual loan repayment has been considered to meet the requirement for repayment of principal loan installment. For 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. 30.23 Crs. has been considered for FY 2012-13 for recovery through tariff. Table 8 below presents the station-wise depreciation proposed by OHPC for FY 2012-13.

**Table -8**

**Depreciation claimed for FY 2012-13**

(Rs. Crs)

Sl. No.	Name of the power station	Depreciation	Remark
1	RHEP	3.66	2.57%
2	UKHEP	3.15	2.57%
3	BHEP	16.71	Equal to loan repayment
4	HHEP	7.05	2.57%
5	CHEP	3.48	2.57%
	<b>Sub Total</b>	<b>34.05</b>	
6	UIHEP	30.23	Spread over useful life of the Plant.
<b>Grand Total</b>		<b>64.28</b>	

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

As per CERC Tariff Regulations 2009, normative O&M expenses shall be calculated with escalation of @5.72% per annum. O&M as proposed by OHPC for FY 2012-13 is as follows:

- i. O& M expenses allowed for the year 2011-12 escalated @ 5.72% to arrive at O & M expenses for the FY 2012-13.
- ii. Corporate Office expenses amounting to Rs.13.09 Crs. have been apportioned to different Units under OHPC based on Installed Capacity and included in the O & M expenses for FY 2012-13.
- iii. 30% arrear salary and terminal liabilities of Corporate Office amounting to Rs. 2.67 Crs. has been apportioned to different units and included in the O & M Expenses for the Tariff proposal for FY 2012-13.

**Table - 9**

**Statement of O&M Expenses for 2012-13**

(Rs. cr.)

Description	RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	Total
O&M expenses for FY 2012-13 including arrear salary and terminal liabilities	33.10	24.08	46.17	40.75	17.08	161.18	60.00	221.18
O&M approved for 2011-12	31.60	23.00	44.14	38.82	16.28	153.84	57.13	210.97

**e. Interest on Working Capital**

As per CERC Tariff Regulation 2009, the basis for calculation of working capital shall include the following:

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

The rate of interest on working capital considered is the short-term prime-lending rate of SBI i.e. 14.75% for FY 2012-13. In accordance with CERC guidelines, the interest on working capital shall be payable on normative basis.

The station wise interest on working capital as proposed by OHPC for FY 2012-13 is summarized in the Table below:



**Table -10**  
**Interest on Working Capital for FY 2012-13**

(Rs Cr)

Sl. No.	Description	RHEP	UKHEP	BHEP	HHEP	CHEP	SUB TOTAL	UIHEP	Total
1	Receivables equivalent to two months of fixed cost	7.51	5.04	14.42	10.49	4.25	41.71	25.66	67.37
2	Maintenance spares @ 15% of O&M expenses	4.96	3.61	6.93	6.11	2.56	24.18	9.00	33.18
3	O&M expenses for one month	2.76	2.01	3.85	3.40	1.42	13.43	5.00	18.43
	Total working capital	15.24	10.66	25.19	19.99	8.24	79.32	39.66	118.98
	Interest on working capital calculated @ 14.75%	<b>2.25</b>	<b>1.57</b>	<b>3.72</b>	<b>2.95</b>	<b>1.21</b>	<b>11.70</b>	<b>5.85</b>	<b>17.55</b>

**Application fee and the publication expenses:**

14. As per the CERC tariff regulation 2009, 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 clause no.17, the 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 2012-13 are given in table - 11 below.

**Table -11**

Sl. No.	Application fee (lakhs)	Publication expenses (lakhs)	Total (lakhs)
<b>1</b>	<b>25.00</b>	<b>1.00</b>	<b>26.00</b>

**Total Annual Fixed Cost :**

15. Based on the above parameters the station wise ARR and tariff calculated for the FY 2012-13 as indicated by OHPC is presented in table -12 below.

**Table -12**  
**Station-wise ARR and Tariff for FY 2012-13**

(Rs. cr.)

<b>Details expenses</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Subtotal</b>	<b>UIHEP</b>	<b>Total</b>
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
Return on Equity	2.99	0.82	12.24	9.77	2.52	28.34	57.88	86.22
Interest on Loan	3.10	0.64	7.67	2.39	1.19	14.99	00.00	14.99
Depreciation	3.66	3.15	16.71	7.05	3.48	34.05	30.23	64.28
O&M expenses	33.10	24.08	46.17	40.75	17.08	161.18	60.00	221.18
Interest on working capital	2.25	1.57	3.72	2.95	1.21	11.70	5.85	17.55
Total ARR (Rs. in Crs.)	45.09	30.26	86.51	62.91	25.49	250.26	153.96	404.22
<b>Average Tariff (p/u)</b>	<b>86.75</b>	<b>36.73</b>	<b>73.87</b>	<b>92.91</b>	<b>52.55</b>	<b>68.06</b>	<b>79.26</b>	<b>71.93</b>

**Electricity duty on Auxiliary Consumption:**

16. As per the agreed PPA between OHPC and GRIDCO, 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. Accordingly, ED on Auxiliary consumption of all the hydro electric projects to the tune of **Rs.0.57 Crore is to** be reimbursed to OHPC by GRIDCO. OHPC have requested the Commission to approve the same.

**License fee for use of water for generation of Electricity:**

17. As per the gazette notification dt.01.10.2010 of Water Resources Department, OHPC has to pay Rs.0.01/kwh as license fee on water used for generation of electricity from all Hydro Electric Projects to the tune of Rs.5.676 Crs. which is to be reimbursed to OHPC by GRIDCO, based on design energy. OHPC has further requested that since the above calculation is based on design energy of Hydro Projects, the actual generation from OHPC Power Stations may be considered for reimbursement of license fee paid to Govt. of Odisha from GRIDCO. Hon'ble Commission may approve the same.

**SLDC charges**

18. 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. Hon'ble Commission has allowed Rs.1.762 Crs. as SLDC charges for the Financial Year 2011-12 to be collected from OHPC. OHPC proposes Rs.1.86 Cr. provisionally to consider as fees and charges payable by OHPC to SLDC for the FY 2012-13.

### Differential PFC Dues of BHEP

19. Due to variation in exchange rate OHPC is loosing 0.76 Crs. towards payment of principal and 0.85 Crs. towards interest on the PFC loan repayment of BHEP for the financial year 2011-12. As per clause no 41 (Recovery of cost of hedging and foreign Exchange Rate Variation) of CERC regulation 2009, recovery of cost of hedging and foreign exchange rate variation shall be made directly by the generating company from the beneficiaries. Hence the Commission may approve the same to be reimbursed by GRIDCO.

### 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% share with option of Government of Odisha to draw an additional 20% power at a cost of Rs. 0.08 P/U as per the inter state supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Odisha. The proposed tariff of 30.51 P/U of Odisha drawl of Machhkund power for FY 2012-13 has been computed on cost reimbursement basis. The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of design energy of Machhkund equivalent to 262.50 MU.

**Table -13**

**Proposed Tariff for Machhkund HEP (Jt scheme) FY 2012-13**

Installed Capacity (MW)	114.50
Odisha share as per Original Agreement (30%)	34.50 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 @ 5.72% per year for 2 years	1.1177
	<b>(Rs. Cr.)</b>
1. O&M Exp. (Odisha share of Actual O&M Exp. For FY 10-11)	6.414
2. O&M Exp for FY 2012-13	7.169
3. Power purchase cost of additional 20% above 30% Odisha Share @8 paise per unit	0.84
4. Total Annual Expenditure (2 +3)	8.009
5. Tariff (Paise/Kwh)	30.51

### Two-Part Tariff

21. 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.

- 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:

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

Where

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC<sub>i</sub> = Declared Capacity (in ex-bus MW) for the i<sup>th</sup> day of the month which the station can deliver for at least (3) hours, as certified by the nodal load dispatch centre after the day is over.

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

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

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

- 3) Energy charge rate (ECR) in Rupees per Kwh on ex-bus plant basis for a hydro generating station shall be determined up to three decimal places based on the following formula, subject to provisions in clause(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.

As per the CERC Tariff regulation station wise capacity charge and energy charge proposed by OHPC for FY 2012-13 is presented in table -14 below.

**Table -14****Capacity charge and energy charge of power stations**

Name of the power stations	Annual Fixed Cost (Rs. in Crs)	Capacity Charge (Rs. in Crs)	Energy Charge (Rs. in Crs)	Energy Charge Rate (p/u)
Rengali HEP	45.09	22.545	22.545	43.38
Upper Kolab HEP	30.26	15.13	15.13	18.37
Balimela HEP	86.51	43.255	43.255	36.93
Hirakud HEP	62.91	31.455	31.455	46.45
Chiplima HEP	25.49	12.745	12.745	26.27
Upper Indravati HEP	153.96	76.98	76.98	39.63

**Normative Plant Availability Factor (NAPAF)**

22. The Commission in the order dated 02.11.2010 vide case no. 65/2010 has approved the NAPAF of OHPC Stations for the control period from 01.04.2009 to 31.03.2014 as given in the table -15 below. OHPC proposes to consider the same NAPAF for FY 2012-13.

**Table – 15****Station wise Normative NAPAF proposed for FY 2012-13**

Name of Power Stations	HHEP	CHEP	BHEP	RHEP	UKHEP	UIHEP
NAPAF (%)	78	75	85	75	85	88

**Prayer**

23. OHPC has proposed an annual revenue requirement of Rs.404.22 Crs. for the FY 2012-13 with an average tariff of 71.93 paise/unit for consideration by the Commission. This is against Rs.382.18 Crs. annual fixed cost approved for 2011-12 with an average tariff of 68.01 paise/unit.

**VIEWS OF THE OBJECTORS (Para 24 to 45)****De-silting of the reservoir**

24. One of the objectors has stated that Notice to Department of Water Resources is necessary because accumulation of silt in reservoirs need clearance of Department of Water Resources. He further reiterate the opinion of the Commission and other experts during seminar held on 11 Dec 2009 that produce more hydel power by clearing silt from reservoir and make power more cheaper both in production and sale needs proper consideration

**Functioning of Chiplima HEP**

25. One of the objectors, pointed out that functioning of the Chiplima Power house, water management and figures were not properly placed by the concerned authorities .He also submitted that since the OHPC reservoir levels are improved in comparison to last year, Chiplima is functioning well so BST need no enhancement in FY 2012-13. He further opined that some encouragement may kindly be given to OHPC staff responsible for effective operation of Chiplima HEP.

26. One objector opined that OHPC should furnish the status report about Chiplima weed problem and the expenditure made on this since 2005 to Jan 2012 before the Commission.
27. One objector suggested that OHPC may be asked to explain the reasons for low energy generation by Chplima when Hirakud generation is normal.

**Colony electricity consumption from OHPC hydro stations**

28. One of the objectors pointed out that the colony of Balimela and Rengali Power house are getting electricity supply from OHPC hydro stations. OHPC need to credit amount towards colony consumption as per order of Ministry of Power and OERC. The amount on this account from 1.11.08 can be furnished and adjusted against the ARR by OHPC.
29. One of the objectors opined that the issue of supply of electricity to colony from OHPC power station or WESCO needs to be resolved.

**Drawl of water from OHPC reservoir:**

30. One of the objector stated that , OHPC never asked the Government /appropriate authority to make the reservoir level intact for maximum generation of electricity. OHPC is responsible for the excess water drawl of water from its reservoir by the industries and the subsequent loss in generation. The amount so lost should be recovered from the public servant who are in charge of the duty and responsibility.
31. One of the objectors submitted that the revenue earned by OHPC on account of Rathi Steel drawl of water from pond II of Chiplima HEP should be considered as mis receipt in ARR

**R&M work of OHPC HEP**

32. The R&M cost of Unit 1 of Rengali HEP shall not be capitalized in the ARR of OHPC for FY 11-12, unless the unit is commissioned after renovation. Further as per CERC Tariff Regulation 2009, the R&M cost of Rengali HEP would be capitalized after deducting the accumulated depreciation availed so far by the OHPC
33. One of the objector suggested that OHPC should be asked to furnish all details about R&M work of all units at Rengali, Upper Colab, Balimela and Burla power projects from the year 2008-09 to 2011-12 and the quantum of extra energy generated after R&M work.
34. One of the objectors opined that OHPC may be asked to furnish action taken report on R&M and up rating of Machkund HEP.

**Return on Equity:**

35. Chief Executive Officer (Comm), NESCO,WESCO, SOUTHCO submitted that Return of equity should be computed at a rate of 19.0184 considering MAT rate equal to 18.50 for FY 2012-13. Equity base should be consider equal to that was approved by OERC upto 31 March 2011. DISCOMs suggest RoE of 80.76 cr against 86.22 Cr claimed by OHPC

**O & M Expenses**

36. Chief Executive Officer (Comm), NESCO, WESCO & SOUTHCO submitted that O&M expenses may be allowed by applying escalation of 5.72% on O &M expenses approved by OERC for Fy 2011-12. He submitted that proposal of 30% areal salary

paid by OHPC during FY 2011-12 as truing up exercise is not been carried for previous year.

**Interest on loan and working capital**

37. Chief Executive Officer (Comm), NESCO, WESCO & SOUTHCO submitted that OHPC should not be allowed to claim interest on normative loan as the same is notional in nature. The CEO further submitted that OHPC should not be allowed to claim interest on working capital in the ARR for FY 2012-13. The working capital proposed by OHPC should be met from existing cash balance of OHPC.
38. GRIDCO submitted that OHPC claim for PFC dues of Balimela HEP needs to be verified. OHPC should furnish rate of interest with the foreign rate variation on yearly basis to ascertain excess / shortfall in payment if any.
39. GRIDCO submitted that OHPC may be asked to submit explanation on why the interest on loan paid in FY 2009-10 & 2010-11 is less than the approved by OERC.

**Depreciation:**

40. GRIDCO submitted that the repayment of loan claimed by OHPC in respect of Rengali, U Kolab & Chiplima HEP should be made equal to the depreciation claimed by OHPC in ARR of FY 2012-13.

**Additional capitalization in FY2011-12**

41. OHPC should furnish item-wise details of the additional capitalization proposed for the hydro stations in ARR of FY 2012-13.

**Peaking capacity of Balimela HEP**

42. One objector submitted that due to increase in peaking capacity of Balimela HEP the fixed cost and ECR of the station is increased substantially and therefore the benefit on account of the UI shall be passed on to the consumer.

**Profit earned by OHPC**

43. One of the objector pointed out that the profit earned by OHPC is over Rs 400 cr and it should be spent for the benefit of the consumers during FY 2012-13 instead of increasing the OHPC tariff

**Operation of Hirakud HEP**

44. One of the objectors submitted that OHPC is losing 32.5 MU by operating Hirakud reservoir upto RL of 595 ft. Hon Commission may determine the tariff of OHPC based on the design RL of 590 ft.

**Status of development of New Hydro projects**

45. One of the objectors suggested that OHPC should furnish the status of development of new hydro projects.

**Status of Potteru HEP**

One of the objectors requested to know the status of Potteru HEP from OHPC.

## **REJOINER AND REPLY OF OHPC TO QUERIES RAISED DURING HEARING (Para 46 to 74)**

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:

### **De-silting of the reservoir**

46. OHPC has sought expert views on de-silting of storage type reservoir from Bhakranagal Project & Karnataka Power Corporation but no response has been received. However, the Commission may advise Deptt. of Water Resources, Govt. of Odisha to take action in this regard as the reservoirs except Indravati Dam is under the control of Dept. of Water Resources.

### **Colony electricity consumption from OHPC hydro stations**

47. Due to reform in the energy sector and unbundling of OSEB the hydro generating stations under erstwhile OSEB and Govt. of Odisha were handed over to OHPC in the year 1996. Non-OHPC consumers were also getting power supply from the Power House feeder feeding OHPC colonies. Due to non-segregation of Non-OHPC consumers from the P.H feeder and non-provision of alternative source of power supply to these consumers by distribution companies, OHPC is unable to isolate it's colony feeder from Non-OHPC consumers.
48. Chiplima L.T. distribution system alongwith 33KV Grid system and 220/33KV Transformers (2 nos.) is maintained by Chiplima Power House. Despite repeated persuasion these systems has not been taken over by WESCO at Chiplima. Further also, SOUTHCO at Balimela, CESU at Rengali & SOUTHCO at Khatiguda are not taking over the systems in spite of several persuasions. The Commission may advise all Distcoms to take over their distribution network system and supply electricity from their own source to non-OHPC consumers in line with Hon'ble ATE order Dt.22.02.2011, Appeal No.159/09.
49. Therefore, OHPC prays before the Commission to direct respective distribution companies to segregate the Non-OHPC consumers from OHPC feeder and provide alternate power source to these consumers.
50. After completion of segregation work, OHPC consumption can be quantified. Also, other factors for higher auxiliary consumption are as follows:
- i) The auxiliary equipments & machines in old power stations of OHPC which were transferred in the reform process are very old in which energy consumption is high.
  - ii) Most of the machines of OHPC are running at reduced load during non-monsoon period and off-peak hours.

### **Drawl of water from OHPC Reservoir**

51. The compensation amount due to power loss incurred by OHPC for drawl of 1000 Cum/hr i.e. 9.81 Cusec of water from Hirakud Power Channel by M/s. Rathi Steel & Power project was fixed @ Rs. 15.00 Lakhs per year in the year 2005 as per Letter No. 24105 Dt. 02.08.2005 of Dept. of Water Resources, Govt. of Odisha and there shall be an escalation of 10% on the above rate annually. However, OHPC has received only Rs. 30 Lakhs. The issue is being taken up with DOWR for clarification regarding the drawl water by Rathi on receipt of communication from DOWR.



52. The CHEP has never been able to achieve ARR due to assessment of design energy at a higher level which has never been achieved. The issue will be mutually discussed with GRIDCO for future course of action.

#### **Return on Equity**

53. Although the MAT rate of OHPC is 18.5% but the MAT rate payable by OHPC including surcharge of 7.5% and Ed. Cess of 3% work out to 20.00778% which has been considered in ARR.
54. The capital addition of each Unit is considered on the audited figures of FY 2010-11. The new addition of 47.5 Crs. is considered towards R&M of Rengali Unit #1 which was also approved by the Commission is proposed to be considered in the ARR of 2013-14.

#### **O & M Expenses**

55. The amount of 30% arrear salary due to 6<sup>th</sup> Pay revision is an additional payment beyond the normal escalation of 5.72%. As such, it is included in ARR as earlier years.

#### **Interest on loan and working capital**

56. Besides PFC loans for BHEP & HHEP all the other loans deemed/normative relates to BHEP, CHEP, UKHEP and RHEP. As per CERC Regulations, 2009 Clause 12; if equity deployed is more than 30% of the Capital Cost, equity in excess of 30% shall be treated as normative loan. Accordingly, all the deemed loan are considered in the tariff proposal. Also, CERC Tariff Regulation 2009 has allowed the generators to recover interest on normative loans as per norms. In the earlier years, interest on normative loan has been allowed in the tariff by Hon'ble Commission. Hence, interest on loan is a pass through in the tariff.
57. OHPC has calculated the Interest on Working Capitals in accordance with the CERC Tariff Regulations 2009. It is a pass through in Tariff

#### **Depreciation:**

58. As the practice followed in the previous years, the depreciation is taken at 2.57% of the historical cost of transferred asset plus capital additions since, 01.04.1996 till date. Whenever, the repayment of principal installment is more than the depreciation calculated as above, advance depreciation is considered by the Commission. It may be noted that the cumulative depreciation is limited to 90% of the value of the assets.

#### **Additional capitalization in FY2011-12**

59. Additional Capitalization:-

Additional Capitalization for the projects of OHPC are as follows:

RHEP – Unit #1 R&M Works = Rs. 47.5 Crs.

(To be considered for tariff of FY 2013-14)

Miscellaneous capital addition of RHEP = Rs. 0.26 Crs.

UKHEP – Unit #4 Retrofitting of new stator = Rs. 10.29 Crs.

Miscellaneous capital addition of UKHEP = Rs. 0.04 Crs.

Miscellaneous capital addition of BHEP = Rs. 0.99 Crs.

HHEP – Procurement of Recommended Spare = Rs. 9.46 Crs.

Parts from M/s.VOITH.

Miscellaneous capital addition of HHEP = Rs. 0.51 Crs.

Miscellaneous capital addition of CHEP = Rs. 0.49 Crs.

### **Peaking capacity of Balimela HEP**

60. The 7th & 8th units are set up to meet Peaking demand and also to meet the generation gap when units 1 to 6 are taken for RM&U in phases two units at a time. The peaking capacity of Balimela 7th & 8th units is for the consumers of the state of Odisha.

The reason of simultaneous breakdown of the four Units of Balimela HEP has been investigated & proper remedial action has already been initiated. The Capacity Charge is not claimed for the period under shut down. The entire power of OHPC is sold to GRIDCO. The UI charge is the benefit of GRIDCO, the state power utility

### **Operation of Hirakud**

61. Hirakud Reservoir is a multipurpose dam project with priorities for irrigation & flood control. The MDDL of Hirakud is 590fts. The district administration has not allowed to reduce the RL of Hirakud Reservoir beyond 595fts for irrigation of Khariff crops in Hirakud command areas. This matter has already been intimated to Hon'ble Commission

### **Status of development of new HEP**

62. For development of new Hydro Electric Projects “Inter-department Technical Co-ordination Committee” with the members from WR Department and Energy Department has been constituted by Government of Odisha to sort out the issue relating to the development of new projects. The following 09 (Nine) Nos. of new identified projects with total Installed Capacity of about 1100 MW has been identified which are as follows.

<u>Sl. No.</u>	<u>Name of the Projects</u>
i)	Middle Kolab Hydro Electric Project
ii)	Tel Integrated Project
iii)	Lower Vansadhara Project
iv)	Balijori Hydro Electric Project
v)	Salki Hydro Electric Project
vi)	Khadago Dam Project
vii)	Uttei – Raul Integrated Project
viii)	Mahanadi – Bramhani River Link
ix)	Barmul Hydel Project

63. Out of the above 09 (Nine) projects OHPC has started preliminary ground works for preparation of PFR (Pre Feasibility Report) for Balijori Hydro Electric Project, Khadago Dam Project & Uttei – Raul Integrated Project. For development of new Hydro Electric Projects “Inter-development Technical Co-ordination Committee” with members from Water Resource Department and Energy Department of Govt. of Odisha.

### **Renovation & Modernisation:-**

64. OHPC has initiated the process for taking up Renovation & Modernisation of all the old Units of the Hydro Power Stations in a phased manner to extend the useful life of the Units and operate the Units to its rated capacity.

At present Renovation & Modernisation work of Unit #1, Rengali Hydro Electric Project is in advanced stage of completion and is likely to be synchronized in April' 2012. The delay in completion of R&M work against the original schedule is due to delay in delivery of critical spares by M/s. BHEL.

The Project Approval Committee (PAC) approval for R, M & U of Unit #5 & #6 of HHEP, Burla was obtained on Dt. 20.10.2011 and evaluation of the offers received through tendering is under process. The R, M & U work of these two Units are likely to be completed by 2015.

The Work Order for consultancy services has already been placed for R&M works of Unit #3, CHEP, Chiplima; the Unit is in operation for 47 yrs against useful life of 35 yrs. Also, the R & M work of all Six old Units of BHEP, Balimela will be taken up in a phased manner. Selection of the firm for consultancy services for the R & M work is in process.

Additional benefit from Unit #1 to #4, HHEP will be 40 MW. During monsoon, additional generation will be 4.8 MU.

65. R&M of Machhkund:- The agreement for 50:50 energy sharing has not yet been signed by both OHPC & APGENCO. The agreement is pending with APGENCO for their clearance. After signing of this agreement, the R&M of Machhkund will be taken up.

### **New Projects taken up by OHPC**

66. OHPC is exploring the possibility of taking up few nos. of new projects already identified by CEA.

The Work Order for preparation of PFR for Bhimkund Hydro Electric Project and Baigundi Hydro Electric Project has already been awarded to WAPCOS on 08.02.2012. It is expected, the firm will submit the PFR by 16.06.2012.

Also, Preliminary study is under progress for small hydro electric projects like Kanupur Dam toe (1.5 X 2 = 3 MW) and Bargarh Main Canal (4.5 X 2 = 9 MW).

OHPC is also taking initiatives to construct pump storage Power House at UIHEP, BHEP and UKHEP. The Work Order for preparation of PFR has already been awarded on 13.02.2012 to THDC.

### **Disposal of Potteru Hydro Electric Project**

67. The Potteru Small Hydro Electric Project (2 X 3 MW) was initially taken up with an approved cost of Rs. 546.00 Lakhs by the Govt. The transferred cost of the unfinished project to OHPC is Rs 2359 lakhs. Now, the total cost has reached Rs 4003 Lakhs. The cost of energy will be Rs. 3.89/KWh which appears higher for Hydro Power Plant.

From the past experiences, it is observed that required quantity of water is not available to run the machine at rated capacity. Water shall be available annually for breakup periods for 210 days. Also, there is an embankment problem in the water conductor system. The embankment is failing with full flow of water in the canal.

With all this constraints, OHPC has submitted a detailed report to the State Govt. in DOE for disposal of Potteru small Hydro Electric Project on as-is-where-is basis. Offers shall be invited on receipt of approval from the State Govt.

#### **Successful operation of Trash Rack Cleaning Machine (TRCM) at Chiplima**

68. The generation from CHEP was reduced considerably for last several years due to the perennial weeds problem in the power channel & pond area of CHEP and choking of Trash rack. After taking up nos. of alternatives to get rid of the weed menace, the Trash Rack Cleaning Machine (TRCM) was installed and successfully commissioned at a cost of Rs. 6.80 Crs. in the month of June' 2010 for arresting the choking of weeds in the trash rack. The installation of TRCM facilitated:

- i) online cleaning of accumulated weeds from trash rack which ensured operation of the machines without any outage.
- ii) all the machines could be utilized upto full capacity depending upon availability of water at forebay.

There has been substantial improvement in generation from the day of its operation. The average generation of CHEP which was around 120 MU annually in previous years was increased to 255 MU in 2010-11. In the current FY 2011-12, it is expected to generate about 350 MU and upto 20.02.2012, it has generated 316 MU.

#### **Weeds problem in the pond area of CHEP**

69. Chiplima water conductor system is a long power channel starting from tailrace of HHEP, Burla to Chiplima forebay which has three balancing reservoirs comprises of Pond – I, II & III. The growth of weeds & vegetation in the power channel & pond area has resulted in ingress of large amount of weeds to the forebay and trash rack of Chiplima Power House. The disposal of waste from cattle breeding firm alongwith disposal waste of rice mills in Mundghat area has added to the growth of the weeds.

Chemical & Biological treatment of water could not be possible as the water is used for consumptive purpose in the down stream. Amongst the various options, installation of TRCM has solved the weeds problem to a great extent.

In addition, OHPC is in the process of strengthening the power channel embankment & pond areas during power channel closure period from 15<sup>th</sup> May' 2012 to 15<sup>th</sup> June' 2012.

#### **Capitalisation of Stator Core replacement work of Unit #4, UKHEP**

70. The Unit #4, UKHEP which was commissioned on 12.01.1993 developed stator fault on Dt. 19.07.2005. On inspection by M/s. BHEL, the stator bar and core was found to be damaged. On advice of M/s. BHEL, OHPC had preferred for short term solution by going for in-situ repair of damaged core to avoid generation loss for a longer period as replacement of old stator with new stator would take considerable time. In-situ rectification work was completed on 29.09.2006 and machine was running at reduced load of 70 MW (Installed Capacity of 80 MW) due to rise in temp of stator winding. M/s. BHEL advised to replace the complete wound stator with a new one.

OHPC decided to carry out capital maintenance of Unit #4 with the total replacement of stator. The replacement & retrofitting works of Unit #4, UKHEP was taken up on 28.01.2010 with an expenditure of Rs. 8.40 Crs. towards procurement of complete wound stator and 1.89 Cr. towards retrofitting works undertaken by M/s. BHEL, both totaling to Rs. 10.29 Crs. Unit #4 was successfully synchronized to grid on

06.09.2010, which ensured the availability of the machines and contribute to the peaking capacity.

After replacement of new stator, the Unit is running successfully. OHPC has capitalised the cost of procurement and replacement of new stator of an amount of Rs. 10.29 Crs. (audited) in the FY 2010-11 which has been included in the present tariff for FY 2012-13.

#### **Generation of HHEP, Burla beyond 595 ft. RL**

71. Power generation is the last priority in a multipurpose project after flood control, drinking & irrigation. The district administration has not allowed RL to fall below 595 ft. considering water requirement in the Khariff season. The objector was of the view that since RL has not reached the MDDL i.e. 590 ft.; there is loss in generation of 32.4 MU. OHPC had enquired from Executive Engineer, Irrigation Dept. that the irrigation is affected beyond RL 593 ft. Some of the objectors opined that the silting in canal area might be the cause of this obstruction.

The Commission observed that since the de-silting process for storage type reservoir is difficult, de-silting of the intake point of the canals may be undertaken, so that flow of water in the canal can be maintained upto 590 ft. RL. The Commission has advised OHPC to make cost benefit analysis of investment to be made for de-silting of approach channel of canal intake for flow of water into canal upto 590 ft. RL of reservoir and generation from the Power House.

#### **Up-valuation of Assets**

72. Sri R. P. Mohapatra pointed out that while considering ARR & Tariff on OHPC, the up-valuation of fixed assets has been kept in abeyance from FY 2001-02 onwards till FY 2012-13. If the up-valuation of the assets is considered for calculation of tariff at any point of time, then there shall be a substantial rise in the tariff which will be a heavy burden on the consumers of the State. Therefore, the State Govt. should consider not to up-value the assets at all and restore the value of the assets at its original historical cost.

#### **Cash Surplus of OHPC**

73. There was a cash surplus of Rs.830Crs. as on the date of submission of the ARR application i.e.29.11.2011. Some of the objectors stated that the average misc. income of OHPC should be adjusted against the ARR.

OHPC has stated that:

- i) The ARR and Tariff proposal of OHPC is based on the CERC tariff Regulations 2009 and the corrective measures adopted by OERC. The Misc. or interest income is not a component of the ARR or Tariff.
- ii) The cash surplus is mostly due to prudential fund Management and earmarked for specific purposes or project related as presented below:

**Table – 16**

<b>Sl. No.</b>	<b>Particular</b>	<b>Total (Rs.Cr.)</b>
<b>a</b>	Terminal liability Fund (Pension & Leave encashment) to be paid to the trusts.	80.00
<b>b</b>	Loan Repayment Fund	20.00
<b>c</b>	J. V. Fund (OTPCL & BWCCL Rs 100Cr. each)	200.00
<b>d</b>	Machhkund Fund (20% share acquisition & RMU)	100.00
<b>e</b>	Misc. Liability (land acquisition & compensation)	20.00
<b>f</b>	Balance Depreciation fund for R, M & U, replacement of equipments and new projects.	410.00
	<b>Total</b>	<b>830.00</b>

**Corporate office expense of OHPC:-**

74. There are six operating units of OHPC located at different places of Odisha. The O&M expenses of the Corporate Office are spread over the operating stations based on installed capacity of the station. (As per CERC Regulations, 2009 the O&M expenses of Corporate Office is to be apportioned to each operating stations).

**VIEWS OF CONSUMER COUNSEL (Para 75 to 83)**

On behalf of the World Institute of Sustainable Energy, Pune Consumer Counsel, Mr Surendra Pimparkhedkar, Fellow had made a presentation on the Analysis of ARR and tariff filing of OHPC for 2011-12. The Consumer counsel observations / suggestions are elaborated below.

75. Comparative analysis of ARR approved by the Commission for FY 2011-12 to that of the proposed ARR for FY 2012-13 reveals that the ARR for FY 2012-13 of OHPC HEP including Machhkud is proposed to be increased by 6.25% in comparison with the approved ARR of FY 2011-12
76. During FY 2012-13, OHPC proposes to supply an estimated energy of 5619.24 MU at an average rate of 71.93 P/kWh. During FY 2011-12, same unit supply was approved by Commission at an average rate of 68.01 P/kWh. Hence the proposed overall Hike in OHPC tariff will be 5.76% compared to previous year approved tariff. Including Machhakund the increase in tariff will be 6.25%
77. OHPC has reported an expenditure of Rs 69.41 Cr on account of capitalization of assets during FY 2011-12. This needs to be verified on the basis of actual status of work. The expenditure details and the status of the work for the R&M work of Unit -1 of RHEP as well as replacement of stator of Unit- 4 of UKHEP is missing in the ARR & therefore the expenses may not be allowed as pass through. Hon. Commission may consider the RoE on account of additional capitalization in FY 11-12 to pass through in the ARR after verifying the cost and status of the work.
78. The Consumer counsel noticed that the anticipated generation from OHPC Stations for FY 11-12 based on actual generation from April- Oct 11 will be 10% less than what has been approved by the Commission for FY 11-12 (5676 MU). However RHEP is shown to be having 67% more generation than the design energy approved by Commission for FY 11-12.
79. The consumer counsel noted that the OHPC has claimed interest on normative loan with respect to the RHEP, UKHEP, BHEP. This is notional loan and interest is

claimed for equity infusion in excess of 30% by OHPC. The consumer counsel requested to set aside this loan in order to avoid increase in tariff.

80. The consumer counsel noted that OHPC has claimed depreciation as per pre 92 depreciation norms. However, the repayment of loan is substantially lower than the depreciation claimed. 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 regulation.
81. The consumer counsel noticed that OHPC is claiming interest on working capital on normative basis as per provision under CERC Tariff Regulation 2009. The audited account for 2010-11 annexed with OHPC ARR show net profit of Rs 37.57 Cr during FY 2010-11. This implies that OHPC may not require availing loan for working capital requirement therefore it is requested that interest on working capital may not be allowed as pass through in ARR of FY 2012-13.
82. The consumer counsel noticed that the Commission in FY 2011-12 tariff order directed OHPC to seek expert opinion with regard to de-silting of Hirakud reservoir. Therefore it was requested that OHPC may be asked to furnish the action taken report.
83. The consumer counsel noted that the Unit - 1 of RHEP is under R&M since 25.11.2009, still OHPC is claiming full capacity charge and energy charge for RHEP from GRIDCO. Therefore it is requested that as per Hon OERC directives the capacity charge of the RHEP need to be reduced from the annual capacity charge claim of OHPC for the period the unit is kept un-operational.

#### **VIEWS OF GOVERNMENT OF ODISHA RELATED TO OHPC (Para 84 to 85)**

##### **Keeping in abeyance the up valuation of assets, moratorium of debt services etc.**

84. 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 and OHPC, allowing the moratorium on debt services to the State Govt. till the sector turns 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 Deptt. However steps have been taken in regard to other recommendations of the Hon'ble Commission in their letter No.4440 dt.19.07.2010 and the proposal will be placed before the cabinet for approval after which required notification will be issued.

##### **Revised Design Energy of the Hydro Station of OHPC**

85. The Hydro Power Station of OHPC has been supplying power to the State at cheaper rate. Most of the plants are old. The design energy envisaged during commissioning stage has come down in many cases. A detailed study has been done by the OHPC through experts.

Hon'ble Commission may examine this and take decision in the matter of revision of design energy of the Hydro stations.

#### **OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC) (Para 86 to 92)**

86. The State Advisory Committee (SAC) constituted under Section 87 of Electricity Act, 2003 met on 29<sup>th</sup> February, 2012 to debate and deliberate on the Annual Revenue Requirement and Tariff application for the FY 2012-13 of the utilities namely OHPC, GRIDCO, OPTCL, SLDC, CESU, NESCO, WESCO and SOUTHCO. The Committee inter alia discussed the following issues.

### Impact of BSP on Retail Tariff for the year 2012-13

87. Retail tariff is dependent on the cost of hydro generation by OHPC, cost of thermal generation by OPGC, NTPC and other Central Generating Stations, cost of power procurement by GRIDCO from these stations including CGPs, cost of transmission by OPTCL, expenditure required to be incurred by SLDC and the cost of distribution of the distribution companies. Even if the cost of distribution by the distribution companies is kept unchanged, the Retail tariff is bound to increase if there is increase in the cost of generation, cost of power procurement and cost of transmission and SLDC charges.
88. OHPC has proposed 71.93 paise per unit for 2012-13 compared to 68.01 paise approved for 2011-12 (rise 5.76%). GRIDCO has proposed 410.98 paise for 2012-13 against 231.65 paise approved for 2011-12 (rise 77.41%). OPTCL has proposed 54.68 paise towards transmission charges for 2012-13 while 25.00 paise was approved for 2011-12, the proposed rise for 2012-13 being 18.70%. The four distribution companies taken together have proposed revenue requirement for 2012-13 at Rs.9777.25 crore against Rs.7056.53 crore approved for 2011-12 representing a rise of 38.53%. This works out tariff per unit on the average 619.96 paise per unit for 2012-13 compared to 404.31 paise per unit approved for 2011-12 representing a rise of 53.45%. The proposal of the DISCOMs is, however, based on the existing BST of GRIDCO and Transmission charges approved for the year 2011-12.

**Table – 17**

#### Summary of ARR & Tariff Proposals for FY 2012-13

Name of Licensee/Generator	OHPC*	GRIDCO**	OPTCL	SLDC	DISCOMs ***
Appr. ARR for 11-12 (Rs. Cr)	382.18 (387.97)	5952.92	572.50	8.8031	7056.53
Props. ARR for 12-13 (Rs. Cr)	404.22 (412.23)	9835.54	1330.46	10.474	9775.25
% Rise Proposed	5.77 (6.25)	65.22	132.39	18.98	38.53
Approved Tariff (P/U) for 11-12	68.01 (65.96)	231.65	25.00	0.39	404.31
Proposed Tariff for 2012-13 (P/U)	71.93 (70.09)	410.98	54.68	0.43	619.96
% Rise Proposed	5.76 (6.26)	77.41	118.72	10.26	53.45

- (\*) In case of OHPC the figures in the bracket includes the share of Machkund. The average proposed tariff of OHPC for FY 2012-13 is 70.09 p/u (including Machkund share of power), a 6.26% rise over the current year average tariff of 65.96 p/u.
- (\*\*) The proposed ARR of GRIDCO is based on existing tariff of OHPC.
- (\*\*\*) The proposed ARR of DISCOMs is based on existing BSP of 231.65 P/U, Transmission Tariff of 25 P/U & SLDC Charges of 0.18 P/U.
89. The Members of the SAC suggested that Commission should make a prudent check and approve the tariff keeping in view the power purchase cost by GRIDCO and overall interest of the consumers as has been done by the Commission in the previous years. For 2011-12 while the revenue requirement of DISCOMs was projected at



Rs.7875.09 crore, the Commission allowed Rs.7056.55 crore after rigorous scrutiny and keeping in view the tariff impact on the consumers.

90. The major component of retail tariff is power purchase cost by the distribution companies payable to GRIDCO which in turn purchases power from different generating companies. Earlier about 57-60% of the requirement was being met from low cost hydro power and about 40% was being met from relatively costly thermal power. With rising in demand and decline in generation from hydro power because of scanty rainfall and silting of reservoir, now about 24% is being met from hydro power and 76% being met from relatively high cost thermal power. With rise in cost of coal, the power cost is also increasing from year to year. For the year 2010-11 Commission had approved purchase of thermal power from central sector at 243.54 paise/unit but because of rise in coal cost and other reasons GRIDCO has purchased at 309.19 paise/unit. For 2011-12 against rate of purchase of power from central thermal stations approved by the Commission for 2011-12 at 331.05 paise per unit GRIDCO has paid at an average rate of 357.89 paise per unit upto Sept. 2011. When there is rise in cost of purchase power, increase in tariff cannot be avoided if other factors remain the same. However, after taking into account the realistic debt servicing liabilities by GRIDCO for incurring loan to meet the power purchase cost and bare essential expenditure requirement of distribution companies for payment of salary, repair and maintenance, the Commission may fix the tariff keeping in view the overall interest of the consumers and the statutory provision under Sections 61, 62, 65 & 86 of the Electricity Act, 2003 read with para 8.3.2 of the Tariff Policy, 2006 and Para 5.5.2 of the National Electricity Policy, 2005.
91. It is seen that while Commission approved purchase of 20154.00 MU and 22477.00 MU by the DISCOMs from GRIDCO for 2010-11 and 2011-12, the DISCOMs have actually purchased 21132.02 MU and 16103.93 MU (upto December,2011) respectively. The higher quantum of power purchase by DISCOMs has necessitated GRIDCO to purchase additional quantum of power at a rate substantially higher than the rate approved by the Commission which may be seen from the following table.

**Table –18**

**Statement of Revenue Approved by OERC vis-à-vis Actual**

Sl No	Particulars	2010-11		2011-12			2012-13
		Approval	Actual (Prov.)	Proposal	Approval	Actual (upto Dec'11)	Proposal
1	Quantum of power purchase by GRIDCO(MU)	21003.75	22868.95	23689.07	23489.18	17575.26	24887.58
2	Power purchase cost of GRIDCO (Rs in crore)	3666.83	4371.54	5082.37	4940.30	3690.81	6780.91
3	Avg. power purchase cost of GRIDCO (P/U)	174.58	191.16	214.54	210.32	210.00	272.46
4	Quantum of power purchase by DISCOMs (MU)	20154.00	21132.02	22755.20	22477.00	16103.93	23931.85
	CESU	6420.00	7076.81	-	7791.00	5520.61	8532.67
	NESCO	5112.00	5076.94	-	5323.00	3785.78	5469.18
	WESCO	6244.00	6422.63	-	6630.00	4677.59	6500.00
	SOUTHCO	2368.00	2555.64	-	2733.00	2119.95	3430.00
5	Revenue Billed to DISCOMs (Rs. in crore)	3431.22	3597.28	6926.91	5206.80	3595.50	9866.62
6	Avg. BSP (P/U)	170.25	170.23	304.41	231.65	223.27	412.28
	CESU	157.00	-	-	219.00	-	-

Sl No	Particulars	2010-11		2011-12			2012-13
		Approval	Actual (Prov.)	Proposal	Approval	Actual (upto Dec'11)	Proposal
	NESCO	195.00	-	-	262.00	-	-
	WESCO	194.00	-	-	262.00	-	-
	SOUTHCO	90.00	-	-	135.00	-	-
7	Transmission Cost (Rs. in crore)	480.93	519.72	1573.69	572.50	-	1330.46
8	Avg. Transmission Charge (P/U)	23.50	-	68.68	25.00	-	54.68
9	Total DISCOMs					Actual (upto Sept' 11)	
10	Quantum of power sold by DISCOMs (MU)	15676.55	13099.14	-	17597.37	6763.18	15767.41
11	Revenue Billed (Rs. in crore)	-	4912.58	-	-	2946.73	-
12	Avg. RST (P/U)	320.58	375.03	-	404.01	435.70	-
13	Distribution Loss (%)	22.22	38.34	32.95	21.71	38.28	34.69
14	Collection Efficiency (%)	98.00	93.06	98.34	99.00	91.89	97.53
15	AT & C Loss (%)	23.77	42.62	34.06	22.49	43.29	36.30

92. It has been suggested that if the DISCOMs exceed the quantum of power purchase approved by the Commission, the DISCOMs should pay the actual cost of excess quantum of power purchase by GRIDCO and the excess expenditure incurred by the DISCOMs should not be recovered from the consumers. It was, however, clarified that the purchase of power over the quantum approved by the Commission may arise due various reasons like increase in load of the existing consumers, addition of new consumers and also due to higher loss. Since Commission is taking the truing up exercise based on the norms fixed in the Long Term Tariff Strategy (LTTS) and the business plan orders it is not necessary to put such a blanket conditions because the expenditure allowed to the DISCOMs on normative basis/efficiency parameters have to be factored into the tariff recoverable from the end users/consumers.

**COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL (Para 93 to 145)**

93. 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.
94. 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)
- Issues relating to Machhkund Hydro Electric Project

#### Power Procurement from OHPC

95. The installed capacity of various Hydro Stations owned by Orissa Hydro Power Corporation (OHPC) is 2062 MW as on 1<sup>st</sup> of April 2012 including Odisha share of Machhkund. The details of drawal approved by the Commission for 2011-12 and the projections made by GRIDCO for 2012-13 are presented in the following table:

**Table - 19**

#### Hydro Drawal and Projections for 2012-13

Sl. No.	Name of the HE Project	Installed Capacity (MW)	Design Energy (MU)	Commission's Approval for 2011-12 (MU)	Proposed Drawal by GRIDCO for 2012-13 (MU)
1	Hirakud	347.50	1174.00	677.16	767.48
2.	Chiplima			485.10	356.4
3.	Balimela	510	1183.00	1171.17	1173.15
4.	Rengali	250	525.00	519.75	576.18
5.	Upper Kolab	320	832.00	823.68	793.98
	<b>Total (Old Stations)</b>	<b>1427.50</b>	<b>3714.00</b>	<b>3676.86</b>	<b>3667.19</b>
6.	UIHEP	600	1962.00	1942.38	1944.36
7.	<b>Machhkund (Odisha Share)</b>	34.50	<b>262.50</b>	<b>262.50</b>	<b>262.50</b>
	<b>Total Hydro</b>	<b>2062</b>	<b>5938.50</b>	<b>5881.74</b>	<b>5874.05</b>

96. In accordance with Section 61(a) of the Electricity Act, 2003, the Commission is to be guided by the principles and methodologies specified by the CERC Regulations for determination of tariff applicable to generating companies. The new CERC (Terms & Conditions of Tariff) Regulations, 2009 has already come into force w.e.f. 01.04.2009 and shall remain in force for a period of five years from the date of commencement.
97. 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.
98. As indicated in the above table, the design energy of OHPC's old stations is 3714 MU. After deduction of auxiliary consumption and transformation loss, energy sent out to GRIDCO comes to 3676.86 MU. In case of UIHEP, the design energy is 1962.00 MU. After deduction of auxiliary consumption and transformation loss, energy sent out to GRIDCO comes to 1942.38 MU which works out to 5619.24 MU at Design Energy. However, GRIDCO has proposed to draw 5874.05 MU, considering the anticipated energy generation in balance months of 2011-12.

99. 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 2012-13. GRIDCO has projected the power purchase from OHPC stations based on the latest generation plan submitted by OHPC for different stations. GRIDCO has considered 5874.05 MU of availability from OHPC hydro stations including Machhkund as per this generation plan after deduction of 16.60 MU of allocations to CSEB from Hirakud Power Station and 0.5% auxiliary consumption and 0.5% transformation loss.
100. As indicated earlier, the design energy of OHPC old stations being 3676.86 MU, it is premature to predict the rainfall at this point of time. The Commission cannot accept a figure of 5938 MU as suggested by some of the objectors 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 2012-13 after deduction of auxiliary consumption and transformation loss based on design energy. However, the Commission advises OHPC to have optimal operation of its generating station to maximize generation not to spill water during monsoon months, unless it is absolutely become necessary for dam safety.

#### **Machhkund**

101. This hydro power station is a joint venture of Government of Odisha and Andhra Pradesh with an installed capacity of 114.5 MW and 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 2012-13. The Commission approves 262.50 MU to be drawn from this station during 2012-13.
102. The Commission's approval of power to be purchased by GRIDCO for 2012-13 from various stations of OHPC is given in the table below.

**Table - 20**

#### **Drawal From Hydro Stations (2012-13)**

**(In MU)**

<b>Source of Generation</b>	<b>Commission's Approval (2011-12)</b>	<b>GRIDCO Proposal (2012-13)</b>	<b>Commission's Approval (2012-13)</b>
Burla	677.16	767.48	677.16
Chiplima	485.10	356.40	485.10
Balimela	1171.17	1173.15	1171.17
Rengali	519.75	576.18	519.75
Upper Kolab	823.68	793.98	823.68
<b>OHPC (Old stations)</b>	<b>3676.86</b>	<b>3667.19</b>	<b>3676.86</b>
Upper Indravati	1942.38	1944.36	1942.38
Machkund	<b>262.50</b>	<b>262.50</b>	<b>262.50</b>
<b>Total Hydro</b>	<b>5881.74</b>	<b>5874.05</b>	<b>5881.74</b>

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 claimed by OHPC.

**Annual Fixed Cost:**

103. 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)-175/02/2502 dtd.06.01.2012 has written to the Govt. regarding keeping in abeyance the upvaluation of assets, moratorium of debt services etc.

(a) The State Govt. revalued the assets of erstwhile OSEB and vested the revalued assets with OHPC and GRIDCO vide Govt. notification SRO No.256/96 and SRO No.257/96 dtd.01.04.1996 respectively. GRIDCO was vested with the assets of transmission, distribution after revaluation by State Govt. OHPC was vested with the assets of hydro power station after revaluation. GRIDCO again divested its distribution business to four DISTCOMs vide transfer scheme notification No.SRO750/98 dtd.25.11.1998 and transferred the distribution assets to them on the same date. A table showing pre up- valued cost of gross fixed asset of transmission and distribution as per transfer notification apportioned on the basis of audited accounts and transfer notification and up-valued cost of fixed asset is given below:

**Table - 21**

**(Rs. Cr.)**

	<b>Pre up- valued</b>	<b>Up-valued (apportioned)</b>	<b>Impact of up- valuation</b>
GRIDCO	514.32	1036.47	522.15
WESCO	139.87	281.87	142.00
NESCO	137.9	277.90	140.00
SOUTHCO	122.41	246.68	124.27
CESU	188.70	380.27	191.57
Total DISCOM	588.88	1186.73	597.85
Total	1103.20	2223.20	1120.00

(b) The book value of gross fixed asset of OHPC was up-valued by Rs.840.20 cr.

(c) The State Govt. reviewed the power sector reforms in Odisha and after careful consideration and recommendation of the Committee of Independent Experts (Kanungo Committee) and the correctives suggested by OERC, the State Govt. vide notification No.1068 dtd.29.01.2003 have decided to keep in abeyance of the effect of up-valuation of asset of OHPC and GRIDCO from the FY 2001-02 till 2005-06 or the sector turns around whichever is earlier to avoid re-determination of tariff for past years and also redetermination of assets of various DISCOMs. For this purpose, depreciation would be calculated at pre-92 norms notified by Govt. of India. After the expiry of the FY 2005-06 the Commission have recommended to keep in abeyance the effect of up-valuation for a further period of five years.

- (d) Based on the recommendation of the Commission as suggested above, State Govt. in their notification No.R&R-I-15/2009/81, En, dt.06.01.2010 have extended the concession and stipulations as indicated below:-
- (i) The bonds issued by GRIDCO and OHPC, to the State Govt. consequent upon revaluation of assets shall not carry any interest for a further period of five years from FY 2006-07 to FY 2010-11.
  - (ii) The additional equity share, allotted to the State Govt. based on revaluation of assets, should not earn any Return on Equity for a further period of five years from FY 2006-07 to FY 2010-11.
  - (iii) Both GRIDCO/OPTCL and OHPC would be entitled to depreciation on the revalued (pre-92) assets.
  - (iv) Both GRIDCO/OPTCL and OHPC shall repay the principal amount of the loan amount actually taken from the State Govt. along with the interest as per the terms and conditions of loan other than those attributable to the revaluation of assets.
  - (v) 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.
  - (vi) Return on Equity on the old Hydro Power Plants may be allowed to OHPC, in respect of new projects commissioned after 01.04.1996.
- (e) Since there were some omissions and commission and addition of new stipulations in the notification dt.06.01.2010, in deviation of the notification dt.29.01.2003 read with notification dt.06.05.2003, the Commission in their letter No.3235 dt.27.01.2010 has suggested for amendment of the notification dt.06.01.2010 of the State Govt.
- (f) Since the Kanungo Committee had recommended keeping in abeyance the up-valuation of assets, moratorium on debt servicing etc. till the sector as a whole turns around and since the benefits of proposed investment by State Govt. and DISCOMs would be felt only after few years, the Commission have already 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 Odisha.
  - (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.

- (g) The above concessions/Govt. support, indicated in para-6(f) are subject to the following stipulations:
- (i) 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.
  - (ii) The Private Distribution Companies are to service the State Govt. loan relating to World Bank and APDRP assistance passed on to them through an enforceable mechanism approved by OERC.
- (h) 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:
- 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 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.

104. 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”.
105. For the purpose of computation of Annual Fixed Cost of OHPC stations the above observation of the State Govt. will be taken into consideration and the effect of up-valuation and moratorium on debt services etc. will be kept in abeyance for FY 2012-13. As per CERC Regulations, a detailed analysis of the following components has been made as under:

**Interest on Loan:**

106. The loan liabilities of OHPC consists of State Govt. loans and PFC loans. These loan liabilities outstanding as on 01.04.1996 are summarized in the table below:

**Table - 22**

**Statement of State Government Loans**

**(Rs. cr.)**

Sl. No.	Description of Loan	Amount as on 01.04.1996
1	9.8% loan	39.20
2	13% loan (UIHEP)	497.86
3	Interest free loan (UIHEP)	132.14

Sl. No.	Description of Loan	Amount as on 01.04.1996
4	13% loan (Potteru)	14.3
5	Zero coupon Bond-I	383.10
6	Zero coupon Bond-II	383.10
7	Other loan	0.99

As revealed from the above table, the State Government loan of Rs.39.20 crore carries interest rate of 9.8% with repayment period of 15 years. There was a moratorium on principal repayment for five years starting from 2001-02. The Commission during 2001-02 and 2002-03 had allowed the repayment of principal amount of Rs.3.89 crore/annum. The loan outstanding on this account as on 01.04.2011 was Rs.4.19 crore which has been repaid fully in the FY 2011-12.

Based on the State Govt. notification dtd.06.01.2010 Para (v) mentioned above at para 116, the 7% loan on UIHEP has not been considered in the tariff of FY 2012-13.

107. Hence, the Commission does not consider interest on State Govt. loan as a pass through in the revenue requirement of OHPC for the FY 2012-13.
108. The State Govt. loan bearing 9.8% interest has been fully repaid. But, normative loans for the units of CHEP, RHEP & UKHEP are still continuing and rate of interest is considered @ 9.8% as per Clause No.5 of CERC Regulation, 2009. Further, PFC loan is also prevailing in case of Balimela HEP where the rate of interest is considered by taking an weighted average of 8.69% for FY 2012-13.
109. The PFC loans were obtained in connection with projects like Chiplima, Burla, Upper Indravati and for extension of units 7 & 8 of Balimela. The outstanding PFC loan amount as on 01.04.2011 is indicated in the table below:

**Table - 23**  
**PFC Loan Outstanding**

(Rs. cr.)

Name of the Units	As on 01.04.2012	Loan Repayment for FY 2012-13
(a) Unit 3 & 4 Burla	26.03	6.52
(b) Unit 7 & 8 Balimela	55.68	11.14
<b>Total</b>	<b>81.71</b>	<b>17.66</b>

The interest on outstanding loans and guarantee commission payable by OHPC for the FY 2012-13 is given in the table below:-

**Table - 24**

Statement OHPC Loans and Interest on Loan

(Rs. Cr.)

Sl. No	Source of Loan	Loan Outstanding as on 01.04.12	Interest on Loan for FY 2012-13
1.	PFC loan for Unit #3 & #4 Burla @8.75%	26.03	1.95
2.	PFC loan for Balimela #7 & #8 @9.6%	55.68	4.86
3.	Normative loan for Unit 2 Chiplima @ 9.8%	9.52	0.87



Sl. No	Source of Loan	Loan Outstanding as on 01.04.12	Interest on Loan for FY 2012-13
4.	Normative loan for TRCM Chiplima @ 9.8%	3.81	0.33
5.	Normative loan for Unit #7 & #8 Balimela @ 8.69%	27.86	2.18
6.	Normative loan for Unit #1 Rengali @ 9.8%	33.25	3.10
7.	Normative loan for Unit #4 Upper Kolab @ 9.8%	7.23	0.64
8.	GC for Unit #3 & #4 of Burla		0.44
9.	GC for Unit #7 & #8 Balimela		0.64
<b>Total</b>		<b>163.38</b>	<b>14.99</b>

TRCM has been installed and commissioned successfully in the forebay of Chiplima Power House in the month of June, 2010. The total cost of installation, commissioning and pathway to Ghanteswari temple including taxes and duties comes to Rs.6.80 Crs. Normative loan of Rs.4.76 Crs. (70% of total cost) has been considered in the tariff proposal. The R&M work of Unit #1 RHEP at a capital cost of Rs.47.50 Crs. will be completed in the FY 2011-12 & a Normative Loan of Rs.33.25 Crs. has been considered in tariff proposal for FY 2012-13.

The Normative Loan for Unit-1 of Rengali Power House to the extent of Rs.33.25 cr. is not considered for the ARR of 2012-13 since OHPC during hearing has submitted that the capitalization of the unit will be deferred to sometime in 2013, thus the interest impact on this normative loan @8.9% which comes to 3.10 cr. will not be considered for the ARR 2012-13.

The Unit-wise interest on loan and guarantee commission as described above and approved by the Commission for the FY 2012-13 is as given below:

**Table - 25**

(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2012-13						TOTAL
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	
1.	PFC loan	-	-	4.86	1.95	-	-	6.80
2.	Normative loan	0.00	0.64	2.18	-	1.19	-	4.01
3.	G.C.	-	-	0.64	0.44	-	-	1.08
<b>Total</b>		<b>0.00</b>	<b>0.64</b>	<b>7.67</b>	<b>2.39</b>	<b>1.19</b>	<b>0.00</b>	<b>11.89</b>

The Commission approves interest payment of Rs.11.89 crore for OHPC old stations for the FY 2012-13 as against 14.99 cr. proposed by OHPC. The interest on loan allowed for tariff purpose in 2011-12 was Rs.13.24 cr. as against a claim of Rs.51.45 cr. by OHPC in its proposal.

#### **Depreciation:**

110. 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 operating cost of the generating companies and it constitutes between 20 to 25% of the annual expenditure. In the instant case, the capital assets have been re-valued

nearly 3 times of its historical cost. Earlier, upto FY 2000-01, the Commission had calculated depreciation on prevalent norms i.e. post'94 rate, which substantially raised the revenue requirement due to upfront loading. Since 2001-02, as a part of corrective measure depreciation was limited to the principal loan repayment during a particular year. However, during 2003-04, as per the directions of the 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 2012-13. However, in case of Burla and Balimela 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 2012-13. 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. 30.23 Crs. has been considered for FY 2012-13 for recovery through tariff.

111. The details of repayment of loan as submitted by OHPC for old stations is as under:

**Table – 26**  
**Statement of Repayment of Loans**  
(Rs. cr.)

Power Stations	2011-12	2012-13
HHEP	6.86	6.52
CHEP	2.63	2.31
BHEP	16.17	16.71
RHEP	1.11	3.33
UKHEP	1.32	1.45
UIHEP	0.00	0.00
<b>Total</b>	<b>28.09</b>	<b>30.32</b>

112. For the year 2012-13, depreciation is claimed in the tariff applying 2.57% in case of RHEP, UKHEP, HHEP and CHEP whereas for BHEP the requirement for actual loan repayment is considered for recovery through depreciation as approved by the Commission which is as summarized below:

**Table – 27**

Name of the Power Station	Approved Depreciation (Rs. Cr)	Remark
<b>HHEP</b>	7.05	2.57%
<b>CHEP</b>	3.47	2.57%
<b>BHEP</b>	16.71	Equal to loan repayment
<b>RHEP</b>	2.44	2.57%
<b>UKHEP</b>	3.15	2.57%
<b>Sub-Total</b>	<b>32.82</b>	
<b>UIHEP</b>	<b>30.23</b>	Spread over useful life of the plant
<b>Grand Total</b>	<b>63.05</b>	

In case of RHEP, since the renovation and modernization of Unit-1 has been deferred as submitted by OHPC during hearing, the impact of capitalization has not been considered for the ARR. Thus, the loan repayment of RHEP has been reduced to that extent. The amount of depreciation of Rs.32.82 crore is approved by the Commission for the FY 2012-13 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 2011-12. The same amount is also approved for the FY 2012-13.

Thus the Commission approves a total amount of Rs.63.05 cr. on account of depreciation for tariff purpose in ARR of FY 2012-13, as against proposal of 64.28 cr. by OHPC in its proposal.

**Return on Equity:**

- 113. 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.
- 114. 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 at para 116 (i) the supportive measures will be continued till 2012-13, the Commission would therefore, accept the equity base as the investments made after 01.04.1996.
- 115. The new CERC Tariff Regulations for the period 2009-14 provides the following:
  - (a) Return on equity shall be computed on pre-tax basis at the base rate of 15.5% and the rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the year 2008-09 applicable to the concerned generating company.
  - (b) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

Where “t” is the MAT rate payable by OHPC. For FY 2012-13 it is 18.50%.

The minimum alternate tax rate payable by OHPC is 20.00775%, including surcharge 7.5% and cess 3% applicable tax rate.

$$\begin{aligned} \text{Therefore, Rate of return on equity} &= 15.50\% / (1 - 0.2000775) \\ &= 19.3768\% \end{aligned}$$

The pre-tax return on equity @ 19.3768% has been considered for FY 2012-13 for OHPC power stations.

Based on the order of the Commission vide case no. 64/2008 dated 20.03.09 at clause no.181, the historical cost of assets as on 01.04.96 has not been considered for ROE. The new capital additions made by OHPC from 01.04.96 up to 31.03.2012 has been taken for calculation of ROE with an equity base 25% for HHEP and 30% for all other old power stations. For RHEP although OHPC has considered the approved R&M cost of unit-1 for

capitalization & computation of ROE. But during hearing again OHPC has submitted that the capitalization of the said unit will be deferred and thus its impact on ROE will not be considered for FY 2012-13. For UIHEP equity base of 25% on approved project cost minus infirm power cost has been considered for computation of ROE. The station wise ROE considered for FY 2012-13 is given in the Table below.

**Table - 28**

(Rs. Crs.)

Sl. No.	Name of the power station	New capital addition up to 31.03.2012	Equity capital	Proposed for 2012-13 ROE @19.3768 %
1.	RHEP	3.61	1.083	0.22
2.	UKHEP	14.11	4.25	0.82
3.	BHEP	209.62	62.88	12.19
4.	HHEP	201.20	50.30	9.75
5.	CHEP	42.82	12.84	2.49
	SUB TOTAL	471.36	131.353	<b>25.45</b>
6.	UIHEP	Project cost 1194.79	298.70	57.88
<b>Total</b>				<b>83.33</b>

There is a capital addition of Rs. 10.33 Cr. due to replacement of stator of Unit #4 UKHEP, out of which 30% is taken as equity capital and balance 70% as normative loan with a pay back period of 5 Years.

116. Based on the above, RoE for Old Stations is calculated @ 19.3768% on OHPC's own investment of Rs.50.30 crore in case of HHEP and Rs.12.84 Cr in case of CHEP and Rs.62.88 Cr in case of BHEP. Thus RoE comes to Rs.9.75 crore in case of HHEP, Rs.2.49 cr in case CHEP and Rs.12.19 cr in case of BHEP. Similarly, for Rengali and Upper Kolab the RoE on the own investments of OHPC after 01.04.1996 comes to Rs.0.22 crore and Rs.0.82 crore respectively. The total RoE for OHPC old stations comes to Rs.25.45 crore for FY 2012-13.
117. In case of UIHEP RoE is calculated @ 19.3768% on Government equity of Rs.298.70 crore which comes to Rs.57.82 crore. The Commission approves RoE @ 19.3768% in line with new CERC norms to this project with a view to encourage the growth of hydropower in the State. OHPC should make all attempts to explore the possibilities on a long-term basis for utilization of hydro potential in the State. The Commission approves return on equity for all the OHPC stations amounting to Rs.83.33 crore for the FY 2012-13 as summarized in the table below:

**Table – 29**

(Rs. cr.)

Name of the Power Station	Return on Equity 2011-12 (@ 19.358%)	Return on Equity 2012-13 (@ 19.3768%)
HHEP	9.28	9.75
CHEP	2.07	2.49
BHEP	12.17	12.19

<b>Name of the Power Station</b>	<b>Return on Equity 2011-12 (@ 19.358%)</b>	<b>Return on Equity 2012-13 (@ 19.3768%)</b>
<b>RHEP</b>	0.21	0.22
<b>UKHEP</b>	0.22	0.82
<b>UIHEP</b>	57.82	57.88
<b>Total</b>	<b>81.78</b>	<b>83.33</b>

118. **Thus, we approve an amount of Rs.83.33 cr. as ROE of all OHPC stations, as against OHPC proposal of Rs.86.22 cr.**

119. OHPC has proposed total O&M expenses for the year 2012-13 at Rs.221.18 cr. and justified its proposal as under:

As per CERC Tariff Regulations 2009, normative O&M expenses shall be calculated with escalation of @5.72% per annum.

- i) O&M expenses allowed for the FY 2011-12 escalated @ 5.72% to arrive at O & M expenses for the FY 2012-13.
- ii) Corporate Office expenses amounting to Rs.13.09 Crs. has been apportioned to different Units under OHPC based on Installed Capacity and included in the O & M expenses for FY 2012-13.
- iii) 30% arrear salary and terminal liabilities of Corporate Office amounting to Rs.2.67 Crs. has been apportioned to different units and included in the O & M Expenses for the Tariff proposal for FY 2012-13.

120. The Commission has examined the above O&M expenses proposal of OHPC and considering the suggestion of various stake holders and consumer association approves the O&M expenses as under:

- i) O & M expenses allowed for the year 2011-12 escalated @ 5.72% to arrive at O & M expenses for the FY 2012-13 and in addition to it;
- ii) 30% arrear salary paid by OHPC during FY 2011-12 which is to the tune of Rs.15.63 cr. is allowed to be included in the O & M expenses for FY 2012-13;
- iii) Arrear terminal liabilities of Rs.78.01 Cr as on 31/03/2009 claimed over a period of seven years starting from 2010-11
- iv) *30% arrear salary and terminal liabilities of Corporate Office amounting to Rs.2.67 crore has been apportioned to different units and included in the O & M expenses for the tariff proposal for FY 2012-13 - Allowed.*

121. The details of O&M expenses approved by the Commission for the FY 2012-13 is presented in the table below:

**Table – 30**  
**O & M Expenses for the FY 2012-13**

*(Rs. Crs.)*

Sl. No.	Particulars	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	CO	Total
1	O & M expenses by OERC allowed for FY 2011-12	27.47	19.60	36.44	34.57	14.51	132.59	51.30	0	<b>183.89</b>
2	O & M expenses for 2012-13 with escation @ 5.72% over 2011-12	29.04	20.72	38.52	36.55	15.34	140.17	54.23	0.00	<b>194.41</b>
<b>Add: Arrear salary and terminal liabilities</b>										
5	30% Arrear Salary paid by OHPC during FY 2011-12	2.70	1.96	3.02	2.00	0.86	10.54	3.98	1.11	<b>15.63</b>
6	Arrear terminal liabilities of Rs.78.01 Cr as on 31/03/2009 claimed over a period of seven years starting from 2010-11	1.03	0.98	3.96	1.84	0.79	8.60	0.99	1.56	<b>11.15</b>
7	Total Arrear Salary and Terminal liabilities	3.73	2.94	6.98	3.84	1.65	19.14	4.97	2.67	<b>26.78</b>
8	Arrear salary and terminal liabilities of Corporate office apportioned to different units under OHPC on the basis of installed capacity	0.33	0.42	0.67	0.36	0.09	1.88	0.79		
9	Total Arrear Salary and Terminal liabilities	4.06	3.36	7.65	4.20	1.74	21.02	5.76		<b>26.78</b>
10	<b>Total O &amp; M expenses for the year 2012-13 including arrear salary and terminal liabilities</b>	<b>33.10</b>	<b>24.08</b>	<b>46.18</b>	<b>40.75</b>	<b>17.08</b>	<b>161.19</b>	<b>59.99</b>	<b>0.00</b>	<b>221.19</b>

Thus, the Commission approves an amount of Rs.221.19 cr. on account of O&M expenses in the ARR of OHPC for FY 2012-13, as has been proposed by OHPC.

**Interest on Working Capital:**

122. As per the prevailing CERC Regulations 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 shall be the short-term prime-lending rate of State Bank of India. In accordance with CERC guideline, the interest on working capital shall be payable on normative basis as shown in table below:

**Table – 31**  
**Interest on Working Capital for FY 2012-13**

(Rs. cr.)

Description	OHPC Old Stations	UIHEP
Receivables equivalent to two months of fixed cost.	40.48	25.66
Maintenance spares @ 15% of Operational and Maintenance expenses	24.18	9.00
Operation and Maintenance expenses for one month.	13.43	5.00
<b>Total Working Capital</b>	<b>78.09</b>	<b>39.66</b>
<b>Interest on working capital calculated @ 14.75%</b>	<b>11.52</b>	<b>5.85</b>

Thus, the Commission approves an amount of Rs.17.37 cr. as normative interest on working capital as against OHPC proposal of Rs.17.55 cr.

**Total Annual Fixed Cost**

123. Based on the above parameters the station-wise ARR and tariff calculated for the year 2012-13 is indicated in the table below:

**Table – 32**  
**Station-wise Tariff Approved For 2012-13**

(Rs. cr.)

Details of expenses	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-Total	UIHEP	Total
Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	<b>3676.86</b>	1942.38	<b>5619.24</b>
Interest on loan	0.00	0.64	7.67	2.39	1.19	<b>11.89</b>	0.00	<b>11.89</b>
Return on Equity	0.21	0.82	12.19	9.75	2.49	<b>25.45</b>	57.88	<b>83.33</b>
Depreciation	2.44	3.15	16.71	7.05	3.47	<b>32.82</b>	30.23	<b>63.05</b>
O&M expenses	33.10	24.08	46.17	40.75	17.08	<b>161.18</b>	60.00	<b>221.18</b>
Interest on working capital	2.07	1.57	3.71	2.95	1.21	<b>11.52</b>	5.85	<b>17.37</b>
<b>Total ARR (Rs. Crore)</b>	<b>37.83</b>	<b>30.25</b>	<b>86.45</b>	<b>62.89</b>	<b>25.45</b>	<b>242.87</b>	<b>153.96</b>	<b>396.83</b>
<b>Average cost (P/U) 2012-13</b>	<b>72.79</b>	<b>36.73</b>	<b>73.82</b>	<b>92.87</b>	<b>52.47</b>	<b>66.05</b>	<b>79.26</b>	<b>70.62</b>
Average cost (P/U) for 2011-12	<b>69.31</b>	<b>33.36</b>	<b>71.79</b>	<b>89.10</b>	<b>50.07</b>	<b>63.15</b>	<b>77.21</b>	<b>68.01</b>

**ARR & Tariff Application Fees and related Publication Expenses**

124. 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 2012-13.

**License fee for use of water for generation of Electricity:**

125. As per the Govt. of Odisha Gazette Notification dt.01.10.2010, a licence fee @ Rs.0.01/kwh is to be paid to the State Govt. for water used for Hydro power generation. Accordingly OHPC has claimed an amount of Rs.5.676 cr. on the

generation of electricity from its Hydro Electric Projects based on design energy which is to be reimbursed by OHPC from GRIDCO. The station-wise details is summarized in the table below:

**Table - 33**

**(Rs. Cr.)**

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

OHPC has further stated that the above calculation is based on design energy of its Hydro Projects; however, the license fee for water use is to be computed on the actual generation of OHPC Power Stations for the FY 2011-12. Therefore, the Commission may allow for reimbursement of licence fee for water use on the basis of actual amount paid to Govt. of Odisha.

126. The Commission considered the above proposal of OHPC and accordingly approves for reimbursement of license fee for use of water for generation of electricity based on the actual payment made to the State Govt. on this account. However, the Commission provisionally approves an amount of Rs.5.676 cr. to be reimbursed from GRIDCO in the FY 2012-13 based on the design energy of OHPC power stations @ Rs.0.01 per KWh.

**Electricity Duty on Auxiliary Consumption**

127. As per the agreed PPA between OHPC and GRIDCO, 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 such bills.
128. Accordingly, ED on Auxiliary consumption of all the hydro-electric projects to the tune of Rs.0.57 crore is to be reimbursed to OHPC by GRIDCO through separate billing. The Commission approves the same.

**SLDC Charges**

129. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2012-13 in Case No.97/2011, 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. 9122.52/MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 2084.5 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC charges of OHPC comes to Rs. 1.90 cr. for the FY 2012-13, 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.1.90 as pass through in the ARR of GRIDCO for the FY 2012-13 towards power purchase related cost of OHPC.



130. OHPC has claimed an amount of Rs.1.61 cr. towards payment of principal (Rs.0.76 cr.) and interest (Rs.0.85 cr.) on PFC loan repayment of BHEP for the FY 2011-12 due to Foreign Exchange Rate Variation (FERV). OHPC has submitted that as per Regulation 41 (recovery of cost of hedging FERV) of CERC Tariff Regulation, 2009, recovery of cost of hedging FERV shall be made directly by the generating company from the beneficiary. OHPC has requested the Commission for approval of the same to be reimbursed by GRIDCO.

GRIDCO in its objection has submitted that as per CERC order any income and expenses due to Foreign Exchange Rate Variation should be passed onto consumers. OHPC for the first time has claimed differential interest due to FERV. OHPC may furnish rate of interest with the FERV on yearly basis to ascertain excess payment or shortfall in payment if any. The shortfall in payment during past years should be compensated against the excess payment during 2011-12. OHPC while complying to the objections of GRIDCO has submitted that as per the CERC Regulations, interest on loan is based on the agreement rate. Minor differences in the interest need be ignored.

Regulations 40 & 41 of the CERC Tariff Regulations, 2009 on FERV and Recovery of cost of hedging FERV is reproduced below:

*“40. Foreign Exchange Rate Variation (1) The generating company or the transmission licensee, as the case may be, may hedge foreign exchange exposure in respect of the interest on foreign currency loan and repayment of foreign loan acquired for the generating station or the transmission system, in part or full in the discretion of the generating company or the transmission licensee.*

*(2) Every generating company and transmission licensee shall recover the cost of hedging of foreign exchange rate variation corresponding to the normative foreign debt, in the relevant year on year-to-year basis as expense in the period in which it arises and extra rupee liability corresponding to such foreign exchange rate variation shall not be allowed against the hedged foreign debt.*

*(3) To the extent the generating company or the transmission licensee 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 the transmission licensee or its suppliers or contractors.*

*(4) Every generating company and the transmission licensee shall recover the cost of hedging and foreign exchange rate variation on year-to-year basis as income or expense in the period in which it arises.*

*41. Recovery of cost of hedging Foreign Exchange Rate Variation. Recovery of cost of hedging and foreign exchange rate variation shall be made directly by the generating company or the transmission licensee, as the case may be, from the beneficiaries or the transmission customers, as the case may be, without making any application before the Commission:*

*Provided that in case of any objections by the beneficiaries to the amounts claimed on account of cost of hedging or foreign exchange rate variation, the generating company or the transmission licensee, as the case may be, may make an appropriate application before the Commission for its decision.”*

The Commission 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. Hence the Commission directs 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. Hence the Commission disallows the amount of Rs.1.61 cr. as a pass through in the revenue requirement of GRIDCO for the FY 2012-13.

131. The details of ED on auxiliary consumption, licence fee for use of water for generation of electricity, SLDC charges and other dues for FY 2011-12 of OHPC are summarized in the table below:

**Table – 34**

							(Rs. cr.)
Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
ED on Auxil. Consumption	0.05	0.08	0.12	0.07	0.05	0.20	<b>0.57</b>
License fee for use of water for generation of Electricity	0.525	0.832	1.183	0.684	0.49	1.962	<b>5.676</b>
Application fees and publication expenses							<b>0.26</b>
SLDC Charges for the FY 2012-13							<b>1.90</b>
<b>Total</b>							<b>8.406 or 8.41</b>

Thus, the Commission approves the miscellaneous charges, as above, except the differential PFC dues for Balimela HEP to the tune of Rs.1.61 cr. proposed by OHPC.

#### **Two-Part Tariff**

132. 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 para 20 above.

133. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2012-13 as summarized in the table below:

**Table - 35**

#### **Energy Charge and Capacity Charge for 2012-13**

Name of the Power Stations	Annual Fixed Cost (Rs. crore)	Capacity Charge (Rs. crore)	Energy Charge (Rs. crore)	Energy Charge Rate (P/U)
Rengali HEP	37.83	18.915	18.915	36.392
Upper Kolab HEP	30.25	15.125	15.125	18.363
Balimela HEP	86.45	43.225	43.225	36.908

Name of the Power Stations	Annual Fixed Cost (Rs. crore)	Capacity Charge (Rs. crore)	Energy Charge (Rs. crore)	Energy Charge Rate (P/U)
Hirakud HEP	62.89	31.445	31.445	46.437
Chiplima HEP	25.45	12.725	12.725	26.232
Upper Indravati HEP	153.96	76.980	76.980	39.632

The recovery of capacity charge and energy charge for a calendar month shall be as per the CERC Tariff Regulations, 2009.

#### Normative Annual Plant Availability Factor (NAPAF)

134. The Commission in its order dated 02.11.2010 vide Case No. 65/2010 has approved the NAPAF of OHPC Stations for the control period from 01.04.2009 to 31.03.2014 as given in the table below:-

**Table - 36**

Name of Power Stations	HHEP	CHEP	BHEP	RHEP	UKHEP	UIHEP
NAPAF (%)	78	75	85	75	85	88

The monthly capacity charge of each OHPC stations shall be computed for the FY 2012-13 based on the above NAPAF.

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

135. 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.
136. The proposed tariff of 30.51 paise/Kwh of Odisha drawl of Machhkund power for FY 2012-13 has been computed on cost reimbursement basis. Actual O&M expenses of Rs.6.414 crore for FY 2010-11 has been escalated @5.72% per year to arrive at O&M expenses of Rs. 7.169 crore for FY 2012-13. The power purchase cost of Rs.0.84 Crs. for additional 20% share (105 MU) is computed @ 8 paise/Kwh. Based on the above, the total annual expenditure is calculated to be Rs.8.009 Cr for FY 2012-13. The cost per unit is 30.51 paise considering 50% share of design energy Machhkund i.e 262.50 MU.
137. 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 into account of the existing water conductor system.
138. The projected tariff calculation is given in the table below:

**Table - 37**

#### Tariff of Machhkund H.E (Jt.) Scheme for FY 2012-13

Installed Capacity (MW)	114.50
Odisha share as per Original Agreement (30%)	34.50 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 @ 5.72% per year for 2 years	1.1177
	<b>(Rs. Crs.)</b>
1. O&M Exp. (Odisha share of Actual O&M Exp. For FY 10-11)	6.414
2. O&M Exp for FY 2012-13	7.169
3. Power purchase cost of additional 20% above 30% Odisha Share	0.84
4. Total Annual Expenditure (2 +3)	8.009
5. Tariff (Paise/Kwh)	30.51
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.	

139. The Commission approves the above rate of 30.51 Paise per Unit as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.

**De-silting of Reservoir:**

140. Some objectors have expressed that the capacity of the reservoirs particularly Hirakud has been reduced considerably due to silting. It called for a detailed technical analysis of the problem along with views of experts for increasing the capacity of the reservoir through removal of silt.
141. In this regard, OHPC has submitted that for a large storage type reservoir like Hirakud, detailed analysis need to be carried out along with techno-economic feasibility before taking up the work. For Hirakud reservoir having catchment area of 83, 400 Km<sup>2</sup> and having gross storage of 8136 Mm<sup>3</sup>, there is a need for expert opinion and detailed study of similar type of work if any, carried out in any other reservoirs in India.

142. **PROSPECTIVE PLAN FOR HYDRO ELECTRIC PROJECT**

OHPC forming JVC with NHPC had signed MOU with State Govt. on execution of SINDOL Hydro Electric Project.

For development of new Hydro Electric Projects “Inter-department Technical Co-ordination Committee” with the members from WR Department and Energy Department has been constituted by Government of Odisha to sort out the issue relating to the development of new projects. The following 09 (Nine) Nos. of new identified projects with total Installed Capacity of about 1100 MW has been identified which are as follows.

<b>Sl. No.</b>	<b>Name of the Projects</b>
i)	Middle Kolab Hydro Electric Project
ii)	Tel Integrated Project
iii)	Lower Vansadhara Project
iv)	Balijori Hydro Electric Project
v)	Salki Hydro Electric Project
vi)	Khadago Dam Project
vii)	Uttei – Raul Integrated Project

- viii) Mahanadi – Bramhani River Link
- ix) Barmul Hydel Project

Out of the above 09 (Nine) projects OHPC has started preliminary ground works for preparation of PFR (Pre Feasibility Report) for Balijori Hydro Electric Project, Khadago Dam Project & Uttei – Raul Integrated Project.

OHPC is planning to acquire additional 20% share of MHEP (Machhkund Hydro Electric Project) and Uprate the Units through R&M and LE on 50:50 basis with APGENCO, thereby raising the Installed Capacity from 117.5 MW to 132.5 MW.

Uprating of old Units of Burla & Balimela are to be taken up through R, M & U and LE during the 12th plan in a phased manner thereby an addition in capacity of 40-50 MW.

OHPC has also identified some SHEP's like Bargarh head regulator & Kanupur dam regulator on which preliminary Ground work is under progress.

OHPC is planning to take up 2 X 30 MW Chitrokonda Hydro Electric Project on 50:50 sharing basis through JVC with APGENCO.

OHPC is also taking initiatives to construct pump storage Power House at UIHEP, BHEP and UKHEP. The Work Order for preparation of PFR has already been awarded on 13.02.2012 to THDC.

#### **ARR and Approval of Tariff**

143. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2012-13 as follows:

**Table – 38**

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
<b>2011-12</b>								
Total ARR (Rs. Crore)	<b>36.03</b>	<b>27.48</b>	<b>84.08</b>	<b>60.33</b>	<b>24.29</b>	<b>232.21</b>	<b>149.97</b>	<b>382.18</b>
Average cost (P/U)	<b>69.31</b>	<b>33.36</b>	<b>71.79</b>	<b>89.10</b>	<b>50.07</b>	<b>63.15</b>	<b>77.21</b>	<b>68.01</b>
<b>Approval for 2012-13</b>								
Total ARR (Rs. Crore)	<b>37.83</b>	<b>30.25</b>	<b>86.45</b>	<b>62.89</b>	<b>25.45</b>	<b>242.87</b>	<b>153.96</b>	<b>396.83</b>
Average cost (P/U)	<b>72.79</b>	<b>36.73</b>	<b>73.82</b>	<b>92.87</b>	<b>52.47</b>	<b>66.05</b>	<b>79.26</b>	<b>70.62</b>

Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2012-13. The Capacity charge and the rate of Energy charge as approved at para 156 above and the corresponding approved rates for the FY2011-12 are summarized in the table below :

**Table – 39**

#### **Energy Charge and Capacity Charge for 2011-12 & Approval for 2012-13**

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	11-12	12-13	11-12	12-13	11-12	12-13	11-12	12-13
Rengali HEP	36.03	37.83	18.015	18.915	18.015	18.915	34.661	36.392
Upper Kolab HEP	27.48	30.25	13.74	15.125	13.74	15.125	16.681	18.363
Balimela HEP	84.08	86.45	42.04	43.225	42.04	43.225	35.896	36.908

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
Hirakud HEP	60.33	62.89	30.165	31.445	30.165	31.445	44.546	46.437
Chiplima HEP	24.29	25.45	12.145	12.725	12.145	12.725	25.036	26.232
Upper Indravati HEP	149.97	153.96	74.985	76.980	74.985	76.980	38.605	39.632

The unit cost of energy from Machhkund is approved at 30.510 paise for 2012-13 against 22.057 paise per unit approved for 2011-12.

144. **The Normative Annual Plant Availability Factor (NAPAF)** have already been approved by the Commission in its order dated 02.11.2010 vide Case No. 65/2010 for the control period FY 2009-14. OHPC is directed to recover the capacity charge accordingly. The corresponding approved NAPAF for FY 2012-13 are presented in the table below:

**Table – 40**

**NAPAF approved for 2010-11 & 2011-12**

Name of the power station	HHEP	CHEP	BHEP	RHEP	UKHEP	UIHEP
<b>NAPAF (%) for 2011-12</b>	78	75	85	75	85	88
<b>NAPAF (%) for 2012-13</b>	78	75	85	75	85	88

145. The application of OHPC for approval of its Annual Revenue Requirement and fixation of generation tariff for the FY 2012-13 thus stands disposed of.

The Tariff now approved shall be operative from 01.04.2012 and shall continue until further order.

Sd/-  
**(B. K. MISRA)**  
MEMBER

Sd/-  
**(K. C. BADU)**  
MEMBER

Sd/-  
**(S. P. NANDA)**  
CHAIRPERSON