

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

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

**CASE NO. 100/2012**

**DATE OF HEARING         :    01.02.2013**

**DATE OF ORDER            :    20.03.2013**

**IN THE MATTER OF :    Application for approval of Annual Revenue Requirement and Generation Tariff of OHPC stations for the FY 2013-14 under Sections 62 & 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 Odisha Hydro Power Corporation (OHPC) Ltd. 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 2013-14.

**PROCEDURAL HISTORY (Para 1 to 7)**

1.     The OHPC Ltd. is a “Generating Company” under the meaning of Section 2 (28) of the Electricity Act, 2003 (herein after referred as ‘the Act’) and is fully dedicated to the State of Odisha. OHPC is supplying power to GRIDCO Ltd. who in turn supplying the same to the consumers of the State.
2.     As per Regulation 61(2) of the OERC (Conduct of Business) Regulations, 2004, OHPC Ltd. had filed the proposal of Annual Revenue Requirement (ARR) and fixation of generation tariff i.e. Capacity and Energy Charge in respect of each of its generating stations before the Commission for the FY 2013-14 on 30.11.2012. As prescribed in the Regulation after giving notice in Newspapers and also posting the said application in Commission’s website objections were invited from general public. In response to the said application of OHPC several Objectors / Organizations had filed their objections. 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) Shri Ramesh Ch. Satpathy, Secretary, National Institute of Indian Labour, Plot No.302(B), Beherasahi, Nayapalli, Bhubaneswar-751012, (2) Shri Jayadev Mishra, Ex-Advisor(Power), Govt. of Odisha, N-4/98, IRC Village, Bhubaneswar-751015, (3) Sri G.N. Agrawal, Convener-cum-Gen. Secy, Sambalpur District Consumers Federation, Balajee Mandir Bhawan, Khetrajpur, Dist-Sambalpur-768003, (4) Shri Prasanta Kumar Das, President, State Public Interest Protection Council, Tala Telenga Bazar, Cuttack-9, (5) Er. A. K. Sahani, Plot No. B/L-108, VSS Nagar, Bhubaneswar, (6) Shri R. P. Mahapatra, Retd. Chief Engineer & Member (Gen., OSEB), Plot No. 775 (Pt.), Lane-3, Jayadev Vihar, Bhubaneswar- 751013, (7) Shri A. K. Bohra, CEO (Comm.), CSO, NESCO, WESCO & SOUTHCO, Regd. Office- Plot No. N-1/22, IRC Village, Nayapalli, Bhubaneswar-15, (8) Shri P. K. Pradhan, Dir (Commercial), GRIDCO Ltd., Janapath, Bhubaneswar-22 were filed their suggestions/ objections.

All the above named objectors along with the representative of Department of Energy, Government of Odisha were present during tariff hearing except Objector No. 4 and their written submissions filed before the Commission were taken into record and also considered by the Commission.

3. The applicant submitted its reply to issues raised by the various objectors.
4. In exercise of the power u/S. 94(3) of the Electricity Act, 2003 and to protect the interest of the consumers, the Commission appointed World Institute of Sustainable Energy (WISE), Pune as Consumer Counsel for objective analysis of the applicant's Annual Revenue Requirement and generation tariff proposal for its different power stations for the financial year 2013-14 . The Consumer Counsel presented his views on the matter in the hearing.
5. The date of hearing was fixed as 01.02.2013 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.
6. In its consultative process, the Commission conducted a public hearing at its premises on 01.02.2013 and heard the Applicant, Objectors, Consumer Counsel and the Representative of the Dept. of Energy, Government. of Odisha at length.
7. The Commission convened the State Advisory Committee (SAC) meeting on 28.02.2013 to discuss about the ARR application and generation tariff proposal of the generating company for FY 2013-14. The Members of SAC presented their valuable suggestions and views on the matter for consideration of the Commission.

#### **ARR PROPOSAL OF OHPC FOR FY 2013-14 (Para 8 to 21)**

##### **Installed Capacity**

8. The installed capacity of various Hydro Stations owned by the Orissa Hydro Power Corporation (OHPC) is 2062 MW for FY 2013-14 including Odisha's share of Machhkund. The installed capacity of different generating stations for the FY 2013-14 is given in the table below.

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

Sl. No.	Name of the Power Station	Installed Capacity (MW)	
		2012-13	2013-14
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% Orissa share)	34.50	34.50
<b>Total</b>		<b>2062.00</b>	<b>2062.00</b>

**Design Energy of OHPC Stations**

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

**Table – 2**  
**Design Energy for FY 2013-14**

Sl. No.	Name of the Power Station	Design Energy (DE) (in MU)	Design Energy for sale (in MU)
1	RHEP	525.00	519.75
2	UKHEP	832.00	823.68
3	BHEP	1183.00	1171.17
4	HHEP	684.00	677.16
5	CHEP	490.00	485.10
Sub Total of Old Power Stations		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**

10. The Reservoir Level of OHPC Power Stations as on 01.11.12 vis-à-vis on 01.11.11 is given below:

**Table-3**  
**Reservoir Levels of OHPC Power Stations**

Sl. No.	Reservoirs	As on 01.11.2011	As on 01.11.2012
1.	Rengali	123.26 (m)	122.95 (m)
2.	Kolab	849.76 (m)	856.54 (m)
3.	Balimela	1463.00 (ft)	1503.20 (ft)
4.	Hirakud	627.31 (ft)	629.37 (ft)
5.	Indravati	630.70 (m)	639.60 (m)

The actual generation of different Power Stations under OHPC up to 31.10.12 and anticipated generation up to 31.03.2013 for the FY 2012-13 is given below, which is based on directives of Government of Odisha.

**Table-4**  
**Actual and Anticipated Generation of OHPC**

Sl. No.	Name of the power stations	Actual generation from 01.04.12 up to 18.11.12 (MU)	Anticipated generation from 19.11.12 up to 31.03.13 (MU)	Total
1.	RHEP	585.07	159.90	744.97
2.	UKHEP	266.67	200.53	467.2
3.	BHEP	243.34	413.19	656.53
4.	HHEP	575.78	145.56	721.34
5.	CHEP	194.26	112.62	306.88
6.	UIHEP	1126.16	584.50	1710.66
<b>Total</b>		<b>2991.28</b>	<b>1616.3</b>	<b>4607.58</b>

### Project Cost

11. 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. Besides, 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. Further, it is submitted that OHPC has reduced the capital asset for Rs. 6.07 Crs. from HHEP, Burla; Rs. 0.03 Crs. from BHEP, Balimela & Rs. 0.7 Crs. from CHEP, Chiplima on account of reduction of assets during the FY 2011-12. The project cost of OHPC power stations reported for computation of ARR for the FY 2013-14 is given in the table below:

**Table-5**  
**Project Cost of OHPC Power Stations**

(In Rs. Crs.)

Sl. No.	Name of the power stations	Reduced Historical Cost as on 01.04.1996.	Reduced Revalued Cost as on 01.04.1996.	New additions up to 31.03.2013	Project cost considered for Tariff Calculation based on revised historical cost	Project Cost based on revalued cost
1	2	3	4	5	6=3+5	7=4+5
1.	RHEP	91.09	259.01	32.16	123.25	291.17
2.	UKHEP	108.31	307.96	14.11	122.42	322.07
3.	BHEP	115.39	334.63	211.69	327.08	546.32
4.	HHEP	66.68	124.09	201.42	268.10	325.51
5.	CHEP	91.53	164.31	42.98	134.51	207.29
	<b>Total</b>	<b>473.00</b>	<b>1190.00</b>	<b>502.36</b>	<b>975.36</b>	<b>1692.36</b>
6.	UIHEP	<i>Approved project cost</i>				<b>1194.79</b>

### Determination of Annual Fixed Cost for FY 2013-14

12. 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):** As per the CERC norms, ROE for OHPC power stations has been computed on a pre-tax basis at the base rate of 15.5% to be grossed up to 19.3768%. Accordingly, RoE has been computed for each power station in the following table:

**Table - 6**  
**Return on Equity of OHPC Power Stations**

Sl. No.	Name of the Power Station	Value of New capital addition from 01.04.1996 to 31.03.2013	Equity Capital Rate (%)	Value of Equity capital	ROE @19.3768% Proposed for 2013-14
1.	RHEP	32.16	30	9.65	1.87
2.	UKHEP	14.11	30	4.25	0.82
3.	BHEP	211.69	30	63.51	12.31
4.	HHEP	201.42	25	50.35	9.76
5.	CHEP	42.98	30	12.89	2.50
	Sub Total	502.35		140.65	<b>27.26</b>
6.	UIHEP	Project cost 1194.79	25	298.70	57.88
<b>Total</b>					<b>85.14</b>

- b) **Interest on Loan:** The loan liabilities on OHPC consists of state Government loans and PFC loans. The State Government loan has been repaid by FY 2012-13. 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 Government 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 Government level.

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

As the 7% interest on UIHEP loan was not allowed in the previous ARR, OHPC has not considered an amount of Rs. 33.98 Crs. towards interest on loan to UIHEP in the ARR for the FY 2013-14.

The State Government 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 to be 9.6% for FY 2013-14.

The station-wise interest payable on Government / PFC loan and guarantee commission for FY 2013-14 is presented in Table below.

**Table – 7**  
**Interest on Loan and Guarantee Commission**

(In Rs. Crore)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2013-14					
		RHEP	UKHEP	BHEP	HHEP	CHEP	TOTAL
1.	PFC loan	-	-	3.93	1.38	-	5.31
2.	Normative loan	1.65	0.50	1.87	-	0.97	4.98
4.	G.C.	-	-	0.64	0.44	-	1.08
	<b>Total</b>	<b>1.65</b>	<b>0.50</b>	<b>6.44</b>	<b>1.81</b>	<b>0.97</b>	<b>11.37</b>

**c) Depreciation:**

The following table presents the station-wise depreciation proposed by OHPC for FY 2013-14.

**Table – 8**  
**Depreciation of OHPC Power Stations**

Sl. No.	Name of the power station	Depreciation	Remark
1	RHEP	3.17	2.57%
2	UKHEP	3.15	2.57%
3	BHEP	15.17	Equal to loan repayment
4	HHEP	6.89	2.57%
5	CHEP	3.46	2.57%
	<b>Sub Total</b>	<b>31.84</b>	
6	UIHEP	30.23	Spread over useful life of the Plant.
	<b>Grand Total</b>	<b>62.07</b>	

**d) Operation & Maintenance (O&M) Expenses:** As per CERC Tariff Regulations 2009, normative O&M expenses shall be calculated with escalation @ 5.72% per annum. Accordingly,

- (i) O&M expenses allowed for the FY 2012-13 has been escalated @ 5.72 % to arrive at O&M expenses for the FY 2013-14.
- (ii) Corporate Office Expenses amounting to Rs. 13.84 Crs. has been apportioned to different Units under OHPC based on Installed Capacity and included in the O&M Expenses for FY 2013-14.

**Table – 9**  
**Statement of O & M Expenses for 2013-14**

	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Subtotal</b>	<b>UIHEP</b>	<b>TOTAL</b>
O&M expenses for FY 2012-13	31.92	23.13	45.08	40.69	17.06	157.87	58.80	216.67
O&M approved for 2012-13	33.10	24.08	46.18	40.75	17.08	161.19	59.99	221.19

**e) Interest on Working Capital:**

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 2013-14 is summarized in the Table below:

**Table - 10**  
**Interest on Working Capital for OHPC Power Stations**

<b>Sl. No.</b>	<b>Description</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Sub Total</b>	<b>UIHEP</b>	<b>Total</b>
1	Receivables equivalent to two months of fixed cost	6.78	4.85	13.75	10.34	4.19	39.91	25.43	65.34
2	Maintenance spares @ 15% of O&M expenses	4.79	3.47	6.76	6.10	2.56	23.68	8.82	32.50
3	O&M expenses for one month	2.66	1.93	3.76	3.39	1.42	13.16	4.90	18.06
4	Total working capital	14.23	10.24	24.27	19.83	8.17	76.75	39.15	115.90
5	Interest on working capital calculated @ 14.5%	<b>2.06</b>	<b>1.49</b>	<b>3.52</b>	<b>2.88</b>	<b>1.19</b>	<b>11.13</b>	<b>5.68</b>	<b>16.81</b>

**Application Fee and the Publication Expenses:**

13. 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 2013-14 are given in table - 12 below.

**Table -11**  
**Application Fee and Publication Expenses**

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

**Total Annual Fixed Cost :**

14. Based on the above parameters the station wise ARR and tariff calculated for the FY 2013-14 as indicated by OHPC is presented in table -13 below.

**Table – 12**  
**Tariff With & Without Up-Valuation of Assets and**  
**Existing Saleable Design Energy**

	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Sub Total</b>	<b>UIHEP</b>	<b>Total</b>
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	677.16	485.10	3676.86	1942.38	5619.24
<b>Alternatives Adopted</b>								
Without Up-valuation of Assets	78.25	35.30	70.46	91.50	51.87	65.13	78.56	69.77
With Up-valuation of Assets	116.43	63.96	87.47	102.92	76.02	87.63	96.48	90.69

\*Interest of 7% Govt. loan on UIHEP is considered along with other existing loans for calculation of tariff

**Electricity duty on Auxiliary Consumption:**

15. As per the agreed PPA between OHPC and GRIDCO, 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:**

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

**SLDC charges**

17. 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.1.90 Crs. as SLDC charges for the Financial Year 2012-13 to be collected from OHPC. OHPC proposes Rs.2.0068 Cr. provisionally to consider as fees and charges payable by OHPC to SLDC for the FY 2013-14.

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

18. 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 30.80 P/U of Odisha drawl of Machhkund power for FY 2013-14 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.

**Two-Part Tariff**

19. 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 CERC Tariff regulation station wise capacity charge and energy charge proposed by OHPC for FY 2013-14 is presented in table below.

**Table – 13**  
**Capacity Charge and Energy Charge of Power Stations**  
**(Without Up-valuation of Assets)**

<b>Name of the power stations</b>	<b>Annual Fixed Cost (Rs. in Crs)</b>	<b>Capacity Charge (Rs. in Crs)</b>	<b>Energy Charge (Rs. in Crs)</b>	<b>Energy Charge Rate in present D.E (p/u)</b>
RHEP	40.67	20.335	20.335	39.12
UKHEP	29.08	14.54	14.54	17.65
BHEP	82.52	41.26	41.26	35.23
HHEP	62.03	31.015	31.015	45.8
CHEP	25.16	12.58	12.58	25.93
UIHEP	152.59	76.295	76.295	39.28

**Table – 14**  
**Capacity Charge and Energy Charge of Power Stations**  
**(With Up-valuation of Assets)**

<b>Name of the Power Stations</b>	<b>Annual Fixed Cost (Rs. in Crs)</b>	<b>Capacity Charge (Rs. in Crs)</b>	<b>Energy Charge (Rs. in Crs)</b>	<b>Energy Charge Rate in present D.E (p/u)</b>
RHEP	60.52	30.26	30.26	58.22
UKHEP	52.69	26.345	26.345	31.98
BHEP	102.45	51.225	51.225	43.74
HHEP	69.69	34.845	34.845	51.45
CHEP	36.88	18.44	18.44	38.01
UIHEP	187.40	93.70	93.70	48.24

**Normative Plant Availability Factor (NAPAF)**

20. 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 2013-14.

**Table – 15**  
**Normative Plant Availability Factor for OHPC Stations**

<b>Power Stations</b>	<b>HHEP</b>	<b>CHEP</b>	<b>BHEP</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>UIHEP</b>
NAPAF (%)	78	75	85	75	85	88

**Prayer**

21. OHPC's proposal for annual revenue requirement for FY 2013-14 is as follows:
- (i) Rs.392.05 Crs. and average tariff @69.77 p/u without considering the up-valuation of assets and existing saleable design energy

- (ii) Rs. 509.62 Crs. and average tariff @ 90.69 p/u considering up-valuation of assets and existing saleable design energy.

This proposal is against Rs.396.83 Crs. annual fixed cost approved for 2012-13 with an average tariff of 70.62 paise/unit.

**Table – 16**  
**Proposed Average Tariff for Different Power Stations of OHPC, 2013-14**  
**(In Paise/Unit)**

Alternatives Adopted	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub Total	UIHEP	Total
Without Up-valuation of Assets and With Existing Saleable Design Energy	78.25	35.30	70.46	91.50	51.87	65.13	78.56	69.77
With Up-valuation of Assets and With Existing Saleable Design Energy	116.43	63.96	87.47	102.92	76.02	87.63	96.48	90.69

#### **VIEWS OF THE OBJECTORS (Para 22 to 62)**

##### **De-silting of the Reservoir**

22. One of the objectors has stated that Notice to Department of Water Resources was necessary because accumulation of silt in reservoirs needs clearance of Department of Water Resources. He further reiterated the opinion of the Commission and other experts during seminar held on 11 Dec 2009 that OHPC may 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**

23. 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. The same objector has submitted that detailed report might be called from OHPC for low generation at Chiplima on account of loss of head. He also submitted that since the OHPC reservoir levels were improved in comparison to last year and Chiplima is functioning well, BST needed no enhancement in FY 2013-14. He further opined that some encouragement may kindly be given to OHPC staff responsible for effective operation of Chiplima HEP.
24. One objector opined that OHPC should furnish the status report about Chiplima weed problem and the expenditure made on this since 2005 to Jan 2013 before the Commission.
25. One objector suggested that OHPC may be asked to explain the reasons for low energy generation by Chiplima when Hirakud generation is normal.
26. One objector has suggested that OHPC may present the improvement of generation in Chiplima after installation of trash rack cleaning machine (TRCM) vis-à-vis the projected improvement.

##### **Anticipated Generation of Chiplima**

27. One objector has submitted that the anticipated generation at Burla and Chiplima for the period 19.11.2012 to 31.03.2013 has been reported to be 145.56 MU and 112.62 MU respectively. However with the generation figures shown for Burla, Chiplima can

generate up to 52.93 MU only. OHPC need to explain how such high generation is possible at Chiplima.

#### **Colony Electricity Consumption from OHPC Hydro Stations**

28. One of the objectors pointed out that OHPC has not credited any amount towards colony consumption and may furnish relevant figures this account since 01.11.08 for adjusting against the ARR of 2013-14 by OHPC.
29. One of the objectors opined that the issue of supply of electricity to colony from OHPC power station or WESCO needed to be resolved.

#### **Drawl of Water from OHPC Reservoir**

30. One of the objectors has submitted that the thermal power plants and the industries requiring water may be instructed to have their own reservoirs and such industries shall not be allowed to lift water from OHPC reservoirs, in the non-monsoon period.
31. The same objector has further submitted that the Commission may seek for an explanation on charges levied on the industries utilizing water from OHPC reservoirs.

#### **Operation of Hirakud HEP**

32. One of the objectors submitted that OHPC is losing 32.4 MU by operating Hirakud reservoir only up to RL of 595 ft. Hon Commission may determine the tariff of OHPC based on the design minimum draw down level (MDDL) at RL of 590 ft.

#### **Management of OHPC**

33. One objector has submitted that the Secretary of Energy may be directed to produce all records regarding management of OHPC and Government intervention on day to day activities of OHPC.

#### **R&M Work of OHPC HEP**

34. One objector has suggested that additional capitalization of amount Rs 25.36 Cr. on account of R&M of unit – 1 of the RHEP may not be allowed by the Commission in ARR of FY 2013-14.
35. Another objector has submitted that the R&M of unit 5 and 6 of HHEP, Burla has been postponed by the Honourable Commission. While the estimated cost of R&M for CHEP, Chiplima and BHEP, Balimela seems exorbitant. The same objector has submitted that the estimated cost of R&M of unit no.2 of RHEP needs scrutiny before approval. Moreover, high expenditures for construction of office buildings, corporate offices, staff quarters, interior furnishings etc. should not be approved by the Commission and should be clarified by OHPC.
36. One of the objectors 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 2012-13.
37. One of the objectors opined that OHPC may be asked to furnish status report on R&M work of Machhkund.

#### **Rent and Expenditure**

38. One objector has submitted that rent paid by OHPC for corporation buildings should not be included in the ARR. The same objector has suggested that OHPC may submit detailed report on expenditure behind vehicles and fuels, magazines, joint venture company for thermal power project.

### **O & M Expenses**

39. The Director (Commercial) of M/s. GRIDCO has submitted that the O&M expenses of Machhkund should be based on the received bill amount of Rs. 6.39 Crores instead of Rs. 6.48 Crores. Accordingly, the total O&M expenditure for 2013-14 should be 30.60 p/ kWh instead of 30.80 p/kWh.

### **Loan Repayment**

40. M/s. GRIDCO has submitted that loan repayment period for RHEP, UKHEP, HHEP and CHEP should be to the extent of depreciation.

### **Interest on Loan and Working Capital**

41. 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.

### **Depreciation:**

42. One objector has submitted that OHPC may not be allowed to claim depreciation on account of capitalization of Rs.25.36 Cr of RHEP unit 1 as the turbine has not been replaced.

### **Peaking Capacity**

43. One of the objectors has submitted that OHPC should project the monthly generation of each of HEPs indicating both the energy and peaking capacity available based on reservoir level on as 1 November of the preceding year.
44. One objector submitted that due to increase in peaking capacity of Balimela HEP without any increase in the design energy, the fixed cost and ECR of the station is increased substantially and therefore the benefit on account of the UI may be passed on to the consumer by reducing annual fixed charge.

### **Loss of Generation**

45. One objector has submitted that loss of generation (32.4 MU) of the Burla and Chiplima power houses due to diversion of water for industrial use and maintaining the MDDL at 595 feet instead of 590 feet as per design. As suggested by the Technical Expert Committee appointed by Govt of Odisha in July 2006, OHPC should claim the amount from the industries on account of loss of generation at the rate of procurement of power by GRIDCO from other sources.
46. The same objector has submitted that Hon. Commission may reduce the ARR of OHPC by an amount equal to loss of hydro generation multiplied by the highest rate for procurement of power by GRIDCO.

### **Loss of Energy Charges**

47. M/s. GRIDCO has submitted that the energy charge(EC) mentioned in the loss of energy charge calculations on account of hydrology failure is the ECR approved by the Hon'ble OERC, but not as per the guidelines stipulated in the CERC regulations. Further, the capacity charges recovered by the OHPC is expected to exceed the approved amount by the Commission for the FY 2012-13. Therefore, the claim of OHPC on loss of EC on account of hydrology failure is not justified.

### **SLDC Charges and Electricity Duty on Auxiliary Consumption**

48. M/s. GRIDCO has submitted that it will pay the SLDC charges as per the approved SLDC charges for the FY 2013-14 by the Honourable Commission and reimburse the ED on auxiliary consumption as per the provision of PPA.

### **Investment Status**

49. OHPC shall bring out the fact on investment proposals, estimated cost, projected time schedule and reasons for deviation.

### **ARR**

50. One objector has submitted that OHPC should be allowed to collect ARR considering the up-rated cost of the power plant made at the time of reform. The same objector has further submitted that tariff for Machhakund – Indravati project should be based on cost at actual as on today.
51. Another objector has submitted that the tariff calculation should be made based on design energy and not estimated generation while determining tariff during FY 2013-14. The same objector has submitted that the Commission may reduce the ARR of OHPC by an amount equal to loss of hydro generation multiplied by the highest rate for procurement of power by GRIDCO.
52. DISCOMs have suggested that the tariff for FY 2013-14 may be calculated by considering minimum generation of 7532 MU instead of design energy of OHPC hydro stations and have proposed an average tariff for OHPC stations as 39.88 paisa/unit as against 71.93 paisa/unit claimed by OHPC for FY 2013-14.
53. DISCOMs requested truing up exercise of OHPC ARR of previous years based on audited account before approving ARR for FY 2013-14.
54. M/s. GRIDCO has submitted that tariff based on existing saleable design energy and without up-valuation of assets should be approved as the approval of proposed revised design energy is pending before the Commission and the effect of up-valuation will raise the price of energy which in turn will be passed on to the consumer.

### **Development of New Hydro Projects**

55. One of the objectors suggested that OHPC should furnish the status of development of new hydro projects.
56. One objector has submitted that OHPC should urgently take up construction of new hydro power projects rather than investing money for setting up thermal power projects in joint venture with OMC.
57. Another objector has submitted that OHPC should prepare a vision document about their future plan to develop hydro potential of the state and produce a status report about the construction of Sindal no.1 and no.2 projects.

### **Manpower Position**

58. One objector has submitted that OHPC should furnish detail report about the manpower position since 2000 till date and a status report on why equal benefit has not been given to all categories of workers.

### **Profit and Loss Account**

59. One objector has submitted that for the benefit of consumers, OHPC shall submit Profit and Loss account historically indicating the cumulative profit generated till 2012-13.

### **Bundling of Renewable Power**

60. M/s. GRIDCO has submitted that bundling of renewable power with low cost hydro power from OHPC can be possible only with extra capacity addition by OHPC. If bundling up to the 5% capacity of existing design energy is allowed then the GRIDCO will end up buying secondary energy at the cost of primary energy.

### **Capacity of Machhkund Project**

61. M/s. GRIDCO has submitted the capacity of Machhakund project should be 57.375 MW considering 50% Orissa share instead of 34.50 MW taking 30% Orissa share as proposed in the ARR.

### **Investigation for Balimela Break Down**

62. One objector has submitted that the simultaneous break down of the four units of the Balimela HEP should be investigated and the capacity charge should be reduced.

### **REJOINDER AND REPLY OF OHPC TO QUERIES RAISED DURING HEARING (Para 63 to 112)**

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:

### **Colony Electricity Consumption from OHPC Hydro Stations**

63. CHEP Chiplima is selling power to the M/s. GRIDCO at EX-Bus of 132/33 KV system. The meter reading at 132/33 KV Bus being reduced due to the station consumption at 33/11 KV substation of CHEP, Chiplima. Further, the power supplied for distribution to CHEP colony and other consumer being billed by GRIDCO to WESCO and WESCO to consumers. However, the 33/11 KV system of CHEP is maintained by OHPC as the station consumption is being fed from the same 33/11 KV system in the larger interest of the state.

### **Drawl of Water from OHPC Reservoir**

64. The state Government has recently taken a view that the industrial consumers drawing water from the reservoirs shall compensate OHPC towards the loss of power generation. The details of the parties, quantum of water, amount of compensation etc. are being worked out by DOWR & OHPC.

### **Design Energy V/s. Actual Generation of OHPC Stations**

65. The reassessed design energy (D.E.) prepared through the independent consultant for OHPC power stations is 4939.82 MU which is pending for approval at Hon'ble Commission's level.
66. The generation of 7532 MU for the FY 2013-14 of OHPC as projected by the DISCOM's cannot be visualized at this moment as the generation is dependent on the hydrology of the FY 2013-14. However considering the water availability in the reservoirs, OHPC may generate 2184 MU from 001.04.2013 to 30.06.2013 during FY 2013-14.

67. In order to follow the orders of the state Government, generation of OHPC power stations has been restricted for the FY 2012-13, which in turn will result in shortfall of generation during FY 2012-13.
68. The loss in energy charges due to the shortfall in generation will be Rs. 34.72 Crs. and the same is claimed in the ARR application.

#### **Return on Equity**

69. As per the amendment made by the honourable CERC, dtd. 31.12.2012 on CERC(Terms and Conditions of Tariff) Regulations, 2009 in clause No.7, return on equity shall be computed on pre-tax basis at the base rate of 16.5% for the storage & run-off river type generating stations. Accordingly, OHPC has computed revised post tax ROE @ 20.627% for an amount of Rs. 90.62 Crs. (with out up-valuation of assets and with existing design energy).

#### **Proposed Tariff**

70. The updated tariff calculations for different OHPC power stations is shown in the tables below.

**Table – 17**  
**Average Tariff for Different Power Stations of OHPC**

<b>Alternatives Adopted</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>(in Paise/Unit)</b>		<b>Total</b>
						<b>Sub Total</b>	<b>UIHEP</b>	
Without Up-valuation of Assets and With Existing Saleable Design Energy	78.49	35.37	71.15	92.55	52.22	65.62	80.53	70.77
With Up-valuation of Assets and With Existing Saleable Design Energy	118.59	65.47	89.27	104.46	77.66	89.35	98.45	92.49

Considering the revised return on equity the capacity charge, energy charge and energy charge rate of OHPC power stations are as follows.

**Table-18**  
**Capacity charge and energy charge of power stations**  
**(without considering the up-valuation of asset)**

<b>Name of the power stations</b>	<b>Annual Fixed Cost (Rs. in Crs)</b>	<b>Capacity Charge (Rs. in Crs)</b>	<b>Energy Charge (Rs. in Crs)</b>	<b>Energy Charge Rate in present D.E (p/u)</b>
<b>RHEP</b>	40.79	20.40	20.40	39.24
<b>UKHEP</b>	29.14	14.57	14.57	17.68
<b>BHEP</b>	83.33	41.66	41.66	35.58
<b>HHEP</b>	62.67	31.33	31.33	46.28
<b>CHEP</b>	25.33	12.58	12.58	26.11
<b>UIHEP</b>	156.41	78.21	78.21	40.26

**Table-19**  
**Capacity charge and energy charge of power stations**  
**(considering the up-valuation of asset)**

<b>Name of the power stations</b>	<b>Annual Fixed Cost (Rs. in Crs)</b>	<b>Capacity Charge (Rs. in Crs)</b>	<b>Energy Charge (Rs. in Crs)</b>	<b>Energy Charge Rate in present D.E (p/u)</b>
<b>RHEP</b>	61.64	30.82	30.82	59.29
<b>UKHEP</b>	53.92	26.96	26.96	32.73
<b>BHEP</b>	104.55	52.27	52.27	44.63
<b>HHEP</b>	70.74	35.37	35.37	52.23
<b>CHEP</b>	37.67	18.84	18.84	38.83
<b>UIHEP</b>	191.23	95.62	95.62	49.23

71. The capital addition of each Unit is considered on the audited figures of FY 2011-12. Capitalization of Rs. 25.36 Crs. is considered towards R&M of Rengali Unit #1 which is in line with the decision of the Hon'ble Commission. Accordingly, ROE for FY 2013-14 has been considered on Rs. 25.36 Crs of capitalization towards R&M of Rengali Unit #1.
72. The new turbine which was purchased on account of unit#1 of RHEP was kept for replacement of damaged turbine of the unit no#2 of RHEP as the unit#1 turbine found to be in good condition and decided to be kept operational.
73. The OHPC have already taken up the replacement of turbine of Unit#2 and have proposed to give the effect of capitalization of unit#2 capital maintenance work for an amount of Rs. 25.20 Crs. in FY 2014-15.

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

74. The O&M expenses considered in the tariff for the FY 2013-14 amounting to Rs. 216.67 Crs. is as per the CERC (Terms and Conditions of Tariff) Regulations, 2009.

#### **Interest on Loan and Working Capital**

75. 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.
76. OHPC has calculated the Interest on Working Capitals in accordance with the CERC Tariff Regulations 2009.

#### **Depreciation of RHEP#1**

77. The capital addition of each Unit is considered on the audited figures of FY 2011-12. Capitalization of Rs. 25.36 Crs. is considered towards R&M of Rengali Unit #1 which is in line with the decision of the Hon'ble Commission. Accordingly, Rs. 25.36 Crs of capitalization towards R&M of Rengali Unit #1 has been considered for depreciation calculation for FY 2013-14.



78. The new turbine which was purchased on account of unit#1 of RHEP was kept for replacement of damaged turbine of the unit no#2 of RHEP as the unit#1 turbine found to be in good condition and decided to be kept operational.
79. The OHPC have already taken up the replacement of turbine of Unit#2 and have proposed to give the effect of capitalization of unit#2 capital maintenance work for an amount of Rs. 25.20 Crs. in FY 2014-15.

#### **Rent paid for Corporate Offices**

80. Rent paid by OHPC for corporate offices is a part of O&M as per CERC Tariff Regulations, 2009. This is in place of depreciation, maintenance expenses of own building.

#### **Peaking Capacity of Balimela HEP**

81. 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 R&M in phases two units at a time. The peaking capacity of Balimela 7th & 8th units is for the consumers of the state of Odisha.
82. The additional cost of procurement of power from the market by GRIDCO during the peaking period is being compensated by the generation capacity of unit#7 and unit #8 thus providing relief to the consumers of Orissa.

#### **Simultaneous Break Down of Balimela Units**

83. The reason for 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.

#### **Operation of Hirakud**

84. 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 Khari crops in Hirakud command areas. This matter has already been intimated to Hon'ble Commission

#### **Status of Development of New HEP**

85. On receipt of Government approval, SINDOL 1 & 2 projects shall be taken up.
86. OHPC is planning to develop a run of the river project namely Bhimkund and Balijori hydro electric project in the Baitarani river.
87. Pre-feasibility reports (PFR) have been prepared for some of the locations like Baigundi, Balijori etc. Since R&R of hydro project is a complicated issue, the detailed studies are being taken up to find out the technical feasibility & financial viability of some hydro projects without or with minor submergence.
88. There is proposal to develop a pump storage power house of 600 MW near existing Upper Indravati power house of OHPC. The preparation of DPR for the same is under progress.
89. OHPC has planned to add about 200 MW capacities through implementation of small hydro electric projects in the coming 5 years.
90. OHPC is going to implement a number of SHEP on the Dam Toe of irrigation projects of WR department.

### **Joint Venture for Setting Up Thermal Power Projects**

91. The decision to set up thermal power project in JV was taken up by the state Government during 2006. The thermal project besides earning revenue shall feed the state during the poor monsoon and hydrology failure to meet the demand of state.

### **Separate Hearing for Determination of the Value of Assets**

92. OHPC shall follow the decision of the Hon'ble Commission.

### **Renovation & Modernisation**

93. The details of old power stations of OHPC are as follows:

Name of the Power Stations	Unit under R&M	Year of Commissioning
HHEP	#1 & #2	April 1998
	#3 & #4	October 2005
CHEP	#1	July 1998
	#2	May 2008
RHEP	#1	May 2012

94. Additional benefit from Unit #1 to #4, HHEP will be 40 MW. During monsoon, additional generation will be 4.8 MU.
95. The R&M of unit#1 of RHEP was completed at a cost of Rs. 25.36 Crs. against the approved cost of Rs. 47.50 Crs. The balance amount (Rs. 47.50 Cr. – Rs.25.36 Cr.= Rs. 22.14 Cr.) will be capitalized after completion of maintenance work of unit #2.
96. RM & U of the Machhkund project has been decided in the minister level meeting held on 03.03.2008 between Odisha Government and Andhra Pradesh Government It was further decided that the OHPC shall contribute towards additional 20% share. The joint agreement between Government of Odisha and Government of Andhra Pradesh is under finalization.

### **Land Acquisition by OPTCL**

The land acquisition by OPTCL at Kamakhya Nagar, Denkanal is in progress. Till date OHPC has provided Rs. 11.94 Crs. to OPTCL.

### **Status of Potteru Hydro Electric Project**

97. 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 Government The transferred cost of the unfinished project to OHPC is Rs 2359 lakhs. Now, the total cost has reached approximately to 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 207 days. Also, there are problems in day-to day operations as the plants are located in naxalite areas. With all this constraints, OHPC has submitted a detailed report to the State Government in DOE for disposal of Potteru small Hydro Electric Project.

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

98. The Trash Rack Cleaning Machine (TRCM) has been successfully commissioned in the month of June 2010, to arrest chocking of weeds in the trash rack at a cost of Rs. 6.80 Crs. As a result, the generation from Chiplima power project has improved for

the subsequent years. In the FY 2010-11 the CHEP has generated 255 MU as against 322.5 MU generation in the FY 2011-12.

#### **Manpower Details**

99. OHPC has employed 2644 number of employees of which 456 are executives and 2188 are non-executives. Besides, OHPC is carrying out security, up-keeping & misc. works through outsourcing.
100. The transferred employees on 01.04.1996 and employees recruited by OHPC up to 31.12.2004 have been covered under uniform pension scheme approved by Government of Odisha.

#### **Vehicle and Advertisement Expenses**

101. The vehicle and advertisement expenses are marginal and included in the O & M expenses which is well within the CERC norms.

#### **Projected Monthly Generation for Each Power Project**

102. Projected monthly generation of OHPC power plants is shown in the table below.

**Table – 20**

#### **Proposed Hydro Generation Schedule for the Period from April' 2013 to June' 2013**

Sl No.	Name of the Power Station	Monthly Average Generation					
		April' 13		May' 13		June' 13	
		MW	MU	MW	MU	MW	MU
1.	HHEP, Burla	60	43.20	60	44.64	60	43.20
2.	CHEP, Chiplima	40	28.80	40	29.76	40	28.80
3.	BHEP, Balimela	300	216	300	223.20	300	216
4.	RHEP, Rengali	100	72	100	74.40	100	72
5.	UKHEP, Bariniput	100	72	150	111.60	170	122.40
6.	UIHEP, Mukhiguda	400	288	350	260.40	330	237.60
<b>Total</b>		1000	720	1000	744	1000	720

#### **Less Generation at Chiplima**

103. The generation of CHEP from 01.04.2012 to 18.11.2012 is 194.25 MU which is due to outage of machines on several occasions. Further the water carrying capacity of power channel is designed to flow 25000 cusecs which is capable of generating 63 MW against the installed capacity of 72 MW. The OHPC is achieving the same depending upon the availability of water in the channel/pond area and machines.

#### **Anticipated Generation of Burl and Chiplima**

104. The detail break up of anticipated average daily generation (in MW) over the respective months of Burla and Chiplima are given in the table below.

**Table – 21**

#### **Anticipated Average Daily Generation (in MW) of Burla and Chiplima**

Power Station	Nov' 12	Dec' 12	Jan' 13	Feb'13	March' 13
Burla	50	40	40	50	50
Chiplima	40	30	30	40	40

#### **Actual Status of Investments**

105. Actual status of investment proposals of OHPC as submitted in tariff application for the FY 2012-13 are shown in the table below.

**Table – 22**  
**Status of Investment Proposals by OHPC**

<b>Power Station</b>	<b>Investment/ Capitalized</b>	<b>Work Status</b>	<b>Remark</b>
R&M of #1 of REP	Rs. 25.36 Crs. capitalized against approved project cost of Rs. 47.50	#1 of RHEP commissioned on 31.05.2012	(i)Balance Rs. 22.14 Crs.will be utilized in capital maintenance of #2 of RHEP (ii)Unit#2 of RHEP is now under R&M
R,M&U of # 5 and 6 of HHEP	Nil against project cost of Rs. 308 Crs. (Approx) including IDC	Hon'ble OERC in its order dtd. 26.12.12 directed not to take- up R,M&U work	OHPC has filed review petition on dtd. 10.01.2013

**Profit and Loss Account of OHPC**

106. The cumulative profit generated till the FY 2012-13 can only be made available after the completion of the current FY & finalization of Accounts of OHPC by the statutory Auditors thereafter. However, OHPC has furnished the profit and loss accounts for the year ended 31.03.2012.
107. The profits OHPC on realization from GRIDCO shall be utilized for providing the equity portion towards the OPTCL, renovation and modernization of different units of OHPC.

**Truing Up**

108. OHPC has accrued a loss of Rs. 104.848 Crs. since 2009-10 to 2011-12 on account of hydrology failure and computed a shortfall in energy charges for the FY2012-13 to the tune of Rs.34.72 Crs. Thus a cumulative amount of Rs. 139.568 Crs. has been incurred by the OHPC up to 31.0.2013. Hon'ble Commission may allow the OHPC to recover this amount in five equal installments in the ARR commencing from FY 2013-14 as reimbursement.

**Documents**

109. All the relevant documents have been submitted to the Honorable Commission by the OHPC along with application of tariff for the FY 2013-14.

**Publication Expenses**

110. Assuming enhanced publication expenses for the FY 2013-14 Rs. 2 lacs has been proposed instead of Rs. 1 lacs in the proposed earlier. The Hon'ble Commission may approve the same for recovery from M/s. GRIDCO in FY 2013-14.

**ARR**

111. OHPC has calculated ARR and tariff for FY 2013-14 based on Design Energy for sale.
112. Calculation of per unit cost in the ARR submitted by OHPC is as per CERC tariff regulation 2009 adopted by the Commission.

### **VIEWS OF CONSUMER COUNSEL (Para 113 to 118)**

World Institute of Sustainable Energy, Pune the Consumer Counsel had made a presentation on the Analysis of ARR and tariff filing of OHPC for 2013-14. The Consumer counsel's observations /suggestions are elaborated below.

113. OHPC has reported an expenditure of Rs 30.99 Cr on account of capitalization of assets during FY 2012-13. This needs to be verified on the basis of actual status of work. Capital expenditure on account of purchase of runner for unit no. 1 of RHEP should not be allowed in the ARR of 2013-14 before the runner is put under operation. Therefore, the expenses may not be allowed as pass through. Hon. Commission may consider the RoE on account of additional capitalization in FY 12-13 to pass through in the ARR after verifying the cost and status of the work.
114. The consumer counsel noted that the OHPC has claimed interest on normative loan with respect to the RHEP, UKHEP, BHEP and CHEP. 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.
115. The consumer counsel requested the Commission to direct OHPC to match the repayment of loan with the depreciation claimed as mentioned in OERC and CERC tariff regulations.
116. 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 2011-12 annexed with OHPC ARR show net profit of Rs 76.31 Cr during FY 2011-12 which is more than double of net profit for FY 2010-11(Rs. 37.57 Cr). This implies that OHPC may not require to avail loan for working capital requirement, and, therefore, it is requested that interest on working capital may not be allowed as pass through in ARR of FY 2012-13.
117. 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.
118. 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 was kept un-operational.

### **OBSERVATIONS OF THE STATE ADVISORY COMMITTEE (SAC) (Para 119)**

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

### **COMMISSION'S OBSERVATIONS AND ANALYSIS OF OHPC'S PROPOSAL (Para 120 to 160)**

120. 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.

121. 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**

122. 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. 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 (Terms & Conditions of Tariff) Regulations, 2009 for determination of tariff applicable to generating companies such as that of OHPC.
123. Auxiliary energy consumption for surface hydro electric power generating stations with static excitation system is to be determined at 0.5% of energy generated and transformation loss from generation voltage to transmission voltage is to be calculated at 0.5% of energy generated. Accordingly, energy sent out from the generating stations in respect of OHPC should be determined deducting 1% on gross generation treating 0.5% towards auxiliary consumption and 0.5% towards transformation loss. Accordingly, GRIDCO has considered 5843.36 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 Hiraakud Power Station and 0.5% auxiliary consumption and 0.5% transformation loss.
124. 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 2013-14. GRIDCO has projected the power purchase from OHPC stations based on the latest generation plan submitted by OHPC for different stations. 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 7000 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 2013-14 after deduction of auxiliary consumption and transformation loss based on design energy. However, the Commission advises OHPC to have optimal operation of its generating stations to maximize generation not to spill water during monsoon months, unless it becomes

absolutely necessary for dam safety. The Commission reiterates its direction that OHPC should maintain and test its generating units which are capable of its rated capacity including margin of over generation during pick time (Continuous operation of 3 hours at a time in a day) one by one and keep all its units ready for optimal generation during the monsoon time for maximizing the secondary generation. The Commission expects the statement of status of maintenance and testing peak time generation, validated by SLDC of all its generating units to make available to the Commission latest by 31<sup>st</sup> May, 2013.

#### **Machhkund**

125. 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 2013-14. The Commission approves 262.50 MU to be drawn from this station during 2013-14.
126. The Commission's approval of power to be purchased by GRIDCO for 2013-14 from various stations of OHPC is given in the table below:-

**Table - 23**  
**Hydro Drawal and Projections for 2013-14**

Sl. No.	Name of the HE Project	Installed Capacity (MW)	Design Energy (MU)	Commission's Approval for 2012-13 (MU)	Proposed Drawal by GRIDCO for 2013-14 (MU)	Commission's Approval (2013-14)
1	Hirakud	347.50	1174.00	677.16	666.50	677.16
2.	Chiplima			485.10	325.71	485.10
3.	Balimela	510	1183.00	1171.17	1172.16	1171.17
4.	Rengali	250	525.00	519.75	636.57	519.75
5.	Upper Kolab	320	832.00	823.68	831.60	823.68
	<b>Total (Old Stations)</b>	<b>1427.50</b>	<b>3714.00</b>	<b>3676.86</b>	<b>3632.54</b>	<b>3676.86</b>
6.	UIHEP	600	1962.00	1942.38	1948.32	1942.38
7.	<b>Machhkund (Odisha Share)</b>	34.50	<b>262.50</b>	<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>5843.36</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:**

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

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

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

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

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

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

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

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



extension of the benefit notified on 29.01.2003 & 06.05.2003 till the sector as a whole turns around.

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

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

Commission have not yet received the detailed notification of the State Govt. The concession was given only upto the financial year 2012-13. The same concession may be continued for FY 2013-14 and onwards so that the effect of upvaluation is not considered while determining the tariff for the ensuing year.

However, pending receipt of reply/notification from the Govt. Commission would assume the extension of benefit notified by the Govt. on 29.1.2003 and 06.5.2003 to continue till the sector as a whole turns around."

**Interest on Loan for Old Stations:**

128. The State Government loan of Rs.39.20 Crore carries an interest rate of 9.8% with repayment period of 15 years. The loan has already been paid by the FY 2012-13.
129. OHPC in the Public Hearing for FY 2013-14 dtd. 01.02.2013 had raised the issue of payment of interest on Govt. loans in respect of UIHEP bearing interest of 7% which is to be added in the Tariff proposal of OHPC based on the stipulations made by Govt. of Odisha. However, this interest on Govt. loans of UIHEP was not incorporated in the earlier submissions of OHPC. The Commission had directed to comply the issue with relevant document in the final rejoinder. OHPC in its submission dtd. 08.02.2013 had furnished the break up of the financial pattern of UIHEP as detailed below:

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

**Break Up**

Equity (25% of project cost)	= Rs.298.70 Cr.
PFC Loan (Already repaid)	= Rs.320.00 Cr.
Govt. Loan @7% (Not paid)	= Rs.497.86 Cr.
<u>Normative Loan</u>	<u>= Rs.78.23 Cr.</u>
<b>Total</b>	<b>= Rs.1194.79 Cr.</b>

130. The status of loan repayment and the loan outstanding in case of UIHEP is also furnished by OHPC as stated below:
- PFC loan of Rs.320.00 crore has already been repaid in full by FY 2009-10.
  - OHPC is yet to make repayment of the Principal on Govt. Loan of Rs 497.86 Crs as moratorium was allowed upto 2012-13 by the Commission.

- iii) OHPC also did not make any provision for payment of interest on UIHEP loans (Rs 497.86 Crs.) from FY 2006-07 onwards as the same was not allowed by the Commission.
- iv) Further, Depreciation @ Rs 30.23 Crs. has already been allowed to OHPC from 2010-11 to 2012-13 and OHPC has also requested for Rs 30.23 Crs towards depreciation for FY 2013-14.
- v) Cumulative interest to be recovered from FY 2006-07 to FY 2012-13 is Rs. 243.95 Crs towards UIHEP Govt. loan.
- vi) OHPC has not claimed any repayment of Principal on Normative Loan of Rs.78.23 Crs.
- vii) Similarly, OHPC also has not claimed interest on normative Loan amounting to Rs 39.58 Crs since FY2006-07 to FY 2012-13 for UIHEP loan.

OHPC proposes to recover the Normative Loan of Rs 78.23 Crs for UIHEP after recovery of Govt. Loan by 2030-31 @ Rs. 30.23 Crs to reduce additional burden on Consumers of the State. However, OHPC has proposed to allow interest on Normative Loans of UIHEP from 2006-07 to 2012-13 for an amount of Rs.39.58 Crs.

131. The Commission has examined the proposal of OHPC towards payment of interest on Govt. loan of Rs.497.86 Crs. and the interest on normative loan of Rs.78.23 Crs. The Commission has observed that the repayment of Govt. loan be made phase-wise i.e. firstly the principal repayment will be made and then the interest component will be paid as is the usual practice in the case of Govt. loans. The Commission has analysed the proposal of OHPC and observes that the principal repayment has already been passed in the tariff of 2010-11, 2011-12 and 2012-13 @ Rs.30.23 Cr. per year. The same amount is allowed in the tariff of 2013-14 towards principal repayment. The total principal repayment will take 17 years i.e. beginning with 2010-11 and will terminate by 2027-28. Thereafter, the interest payment will be taken into consideration. In this circumstances for the year 2013-14 an amount of Rs.30.23 Cr. is allowed as principal repayment under the head depreciation. No interest component for UIHEP is allowed in the tariff for 2013-14.

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

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

132. As regards to other power stations of OHPC, the normative loans of CHEP, RHEP & UKHEP are considered @ 9.8% as per Clause No. 5 of CERC Regulation, 2009. For

BHEP, the rate of 9.6% is being considered for FY 2013-14 based on interest rate applicable for PFC loans.

133. 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 01.04.2012 is indicated in the table below:

**Table - 24**  
**PFC Loan Outstanding**

(Rs. Cr.)

Name of the Units	As on 01.04.2013	Loan Repayment for FY 2013-14
(a) Unit 3 & 4 Burla	19.51	6.52
(b) Unit 7 & 8 Balimela	46.23	9.60
<b>Total</b>	<b>65.74</b>	<b>16.12</b>

134. The interest on outstanding loans and guarantee commission payable by OHPC for the FY 2013-14 is given in the table below:-

**Table - 25**  
**Statement of PFC and Normative Loans and Interest on Loan**

(Rs. Cr.)

Sl. No.	Source of Loan	Loan Outstanding as on 01.04.13	Interest on Average Net Loan for the FY 2013-14
1.	PFC loan for Unit #3 & #4 Burla @8.75%	19.51	1.38
2.	PFC loan for Balimela #7 & #8 @9.6%	46.23	3.93
3.	Normative loan for Unit 2 Chiplima @ 9.8%	8.16	0.73
4.	Normative loan for TRCM Chiplima @ 9.8%	2.86	0.23
5.	Normative loan for Unit #7 & #8 Balimela @ 9.6%	22.29	1.87
6.	Normative loan for Unit #1 Rengali @ 9.8%	17.75	1.65
7.	Normative loan for Unit #4 Upper Kolab @ 9.8%	5.78	0.50
8.	GC for Unit #3 & #4 of Burla		0.44
9.	GC for Unit #7 & #8 Balimela		0.64
<b>Total</b>		<b>122.58</b>	<b>11.37</b>

**Note:** OHPC has capitalised Rs. 25.36 Crs on account of R&M of Unit #1, RHEP. The Normative Loan of Rs. 17.75 Crs. being 70% has been considered for RHEP towards Normative Loan in tariff proposal for FY 2013-14.

135. The Unit-wise interest on loan and guarantee commission as described above and approved by the Commission for the FY 2013-14 is as given below:

**Table - 26**

(Rs. Cr.)

Sl. No.	Source of loan	Interest on loan and G.C for FY 2013-14						
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	PFC loan	-	-	3.93	1.38	-	-	5.31
2.	Normative loan	1.65	0.50	1.87	-	0.97	-	4.98
3.	G.C.	-	-	0.64	0.44	-	-	1.08
<b>Total</b>		<b>1.65</b>	<b>0.50</b>	<b>6.44</b>	<b>1.81</b>	<b>0.97</b>	<b>0.00</b>	<b>11.37</b>

**The Commission accepts and approves interest payment of Rs.11.37 crore for OHPC old stations for the FY 2013-14 as proposed by OHPC as against Rs.11.89 Cr. allowed in the tariff for the FY 2012-13.**

**Depreciation:**

136. From FY 2003-04 onwards, 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 2013-14. However, in case of 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 2013-14. 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 2013-14 for recovery through tariff as explained in Para 131 above.

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

**Table – 27**  
**Statement of Repayment of Loans**  
**(Rs. cr.)**

<b>Power Stations</b>	<b>2012-13</b>	<b>2013-14</b>
HHEP	6.52	6.52
CHEP	2.31	2.31
BHEP	16.71	15.17
RHEP	3.33	1.78
UKHEP	1.45	1.45
UIHEP	0.00	30.23
<b>Total</b>	<b>30.32</b>	<b>57.46</b>

138. For the year 2013-14, 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 – 28**  
**Depreciation approved for 2013-14**

<b>Name of the Power Station</b>	<b>Approved Depreciation (Rs. Cr)</b>	<b>Remark</b>
HHEP	6.89	2.57%
CHEP	3.46	2.57%
BHEP	15.17	Equal to loan repayment
RHEP	3.17	2.57%
UKHEP	3.15	2.57%
<b>Sub-Total</b>	<b>31.84</b>	
UIHEP	<b>30.23</b>	Spread over useful life of the plant
<b>Grand Total</b>	<b>62.07</b>	

The amount of depreciation of Rs.31.84 crore is approved by the Commission for the FY 2013-14 for the old power stations of OHPC. In respect of UIHEP, the depreciation is calculated based on straight line method after deducting the cumulative depreciation allowed in ARR till 2009-10 from the depreciable value of the project cost. This comes to Rs.30.23 crore as determined during FY 2010-11. The same amount is also approved for the FY 2013-14 which is found to be adequate enough for OHPC to meet its loan repayment liability.

**Thus the Commission approves a total amount of Rs.62.07 cr. on account of depreciation for tariff purpose in ARR of FY 2013-14, as proposed by OHPC in its application.**

**Return on Equity:**

139. 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.
140. Based on the contents of the above order and subsequent Govt. Notification dtd.29.01.2003, the Return on Equity for the year 2004-05 was allowed to OHPC on new investments made only after 01.04.1996. Further, the State Govt. vide its Notification dtd. 06.01.2010 has extended the same upto the year 2010-11. Based on the observation of the State Govt. as mentioned above the supportive measures will be continued till 2012-13, the Commission would therefore, accept the equity base as the investments made after 01.04.1996.
141. The new CERC Tariff Regulations has made amendment in the CERC (Terms and Conditions of Tariff) Regulations 2012 which was notified on 31<sup>st</sup> December, 2012 (3<sup>rd</sup> Amendment). As per para 7 of the Amendment the Clause (2) of Regulations (without provisos) was substituted as under, namely:

*"Return on Equity shall be computed on pre-tax basis at the base rate of 15.5% for the thermal generating stations, transmission system and run of the river generating station, and 16.5% for the storage type generating station including the pump storage hydro generating stations and run of river generating station with pondage and shall be grossed up as per Clause (3) of this regulation."*

OHPC has storage type generating stations like UIHEP, Mukhiguda; UKHEP, Bariniput; BHEP, Balimela; HHEP, Burla & RHEP, Rengali. OHPC also has CHEP, Chiplima as run of river generating station with pondage. So, all the power stations of OHPC are covered under the above regulations for calculation of RoE at the base rate of 16.5%.

- (a) Return on equity shall be computed on pre-tax basis at the base rate of 16.5% as notified by CERC and the rate of return on equity shall be computed by grossing up the base rate with the normal tax rate 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 2013-14 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.

Therefore, Rate of return on equity =  $16.50\% / (1 - 0.2000775) = 20.627\%$

The pre-tax return on equity @ 20.627% has been considered for FY 2013-14 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 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 2013-14 is given in the Table below.

**Table - 29**

(Rs. Crs.)

Sl. No.	Name of the Power Station	Value of New capital addition from 01.04.1996 to 31.03.2013	Equity Capital Rate (%)	Value of Equity capital	ROE @20.627% Proposed for 2013-14
1.	RHEP	32.16	30	9.65	1.99
2.	UKHEP	14.11	30	4.25	0.87
3.	BHEP	211.69	30	63.51	13.10
4.	HHEP	201.42	25	50.35	10.39
5.	CHEP	42.98	30	12.89	2.66
	<b>Sub Total</b>	<b>502.35</b>		<b>140.65</b>	<b>29.01</b>
6.	UIHEP	Project cost 1194.79	25	298.70	61.61
<b>Total</b>					<b>90.62</b>

142. Based on the above, RoE for Old Stations is calculated @ 20.627% on OHPC's own investment of Rs.50.35 crore in case of HHEP and Rs.12.89 Cr in case of CHEP and Rs.63.51 Cr in case of BHEP. Thus RoE comes to Rs.10.39 crore in case of HHEP, Rs.2.66 cr in case CHEP and Rs.13.10 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.1.99 crore and Rs.0.87 crore respectively. The total RoE for OHPC old stations comes to Rs.29.01 crore for FY 2013-14.
143. In case of UIHEP RoE is calculated @ 20.627% on Government equity of Rs.298.70 crore which comes to Rs.61.61 crore. The Commission approves RoE @ 20.627% 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.90.62 crore for the FY 2013-14 as summarized in the table below:**

**Table – 30**

(Rs. cr.)

Name of the Power Station	Return on Equity 2012 - 13 (@ 19. 3768%)	Return on Equity 2012-13 (@ 20.627%)
<b>HHEP</b>	9.75	10.39
<b>CHEP</b>	2.49	2.66
<b>BHEP</b>	12.19	13.10

Name of the Power Station	Return on Equity 2012 - 13 (@ 19.3768%)	Return on Equity 2012-13 (@ 20.627%)
RHEP	0.22	1.99
UKHEP	0.82	0.97
UIHEP	57.88	61.61
<b>Total</b>	<b>83.33</b>	<b>90.62</b>

### O&M Expenses

144. OHPC has proposed total O&M expenses for the year 2013-14 at Rs.216.67 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. Accordingly,

- O&M Expenses allowed for the FY 2012-13 has been escalated @ 5.72 % to arrive at O&M Expenses for the FY 2013-14.
  - Corporate Office Expenses amounting to Rs. 13.84 Crs. has been apportioned to different Units under OHPC based on Installed Capacity and included in the O&M Expenses for FY 2013-14.
145. The Commission has examined the above O&M expenses proposal of OHPC and considering the suggestion of various stake holders and consumer associations approves the O&M expenses as proposed by OHPC in its filing. **Thus, the O & M expenses approved for the year 2013-14 comes to Rs.216.67 cr. as detailed in the table below:**

**Table -31**  
**O & M Expenses approved for 2013-14**

(Rs. in Crs.)

		RHEP	UKHEP	BHEP	HHEP	CHEP	Subtotal	UIHEP	C.O	Total
<b>1</b>	O&M expenses by OERC allowed for FY 2012-13.	27.42	18.65	35.23	34.77	14.87	130.94	50.37	13.09	194.40
<b>2</b>	O&M Expenses for FY 2013-14 with escalation @ 5.72% over 2012-13.	28.99	19.72	37.25	36.76	15.72	138.44	53.25	13.84	205.53
<b>3</b>	Corporate Office expenses apportioned to different units under OHPC based on installed Capacity.	1.71	2.18	3.48	1.88	0.49	9.74	4.10		
<b>4</b>	<b>Total O&amp;M Expenses for the Financial Year 2013-14.</b>	30.70	21.90	40.73	38.64	16.21	148.18	57.35		205.53
<b>Add: Arrear salary and terminal liabilities</b>										
<b>5</b>	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	11.15
<b>6</b>	Arrear salary and	0.19	0.25	0.39	0.21	0.06	1.10	0.46		

	terminal liabilities of Corporate office apportioned to different units under OHPC on the basis of installed capacity.									
7	Total Arrear Salary and Terminal Liabilities.	1.22	1.23	4.35	2.05	0.85	9.70	1.45		
8	<b>Total O&amp;M Expenses for the FY 2013-14 including Arrear Salary and terminal liabilities.</b>	<b>31.92</b>	<b>23.13</b>	<b>45.08</b>	<b>40.69</b>	<b>17.06</b>	<b>157.87</b>	<b>58.80</b>		<b>216.67</b>

**Interest on Working Capital:**

146. As per the prevailing CERC Regulations, 2009 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 i.e. 14.5%. In accordance with CERC guidelines, the interest on Working Capital shall be payable on normative basis as shown in table below:

**Table – 32**  
**Interest on Working Capital for FY 2013-14**

<b>(Rs. Cr.)</b>									
<b>Sl. No.</b>	<b>Description</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Sub Total</b>	<b>UIHEP</b>	<b>Total</b>
1	O & M Expenses for One Month	2.66	1.93	3.76	3.39	1.42	13.16	4.90	18.06
2	Maintenance spares @15% of O & M Expenses	4.79	3.47	6.76	6.10	2.56	23.68	8.82	32.50
3	Receivable equivalent to Two Months of Annual Fixed Cost	6.78	4.85	13.75	10.34	4.19	39.91	26.07	66.28
4	Total Working Capital	14.25	10.25	24.41	19.94	8.20	76.75	39.79	116.84
5	<b>Interest on Working Capital calculated @ 14.5%</b>	<b>2.06</b>	<b>1.49</b>	<b>3.52</b>	<b>2.88</b>	<b>1.19</b>	<b>11.13</b>	<b>5.77</b>	<b>16.90</b>

**Thus, the Commission approves an amount of Rs.16.90 cr. as normative interest on working capital as proposed by OHPC. During the year 2012-13 the interest of Working Capital approved by the Commission was Rs.17.37 Cr.**



**Total Annual Fixed Cost**

147. Based on the above parameters the station-wise ARR and tariff calculated for the year 2013-14 is indicated in the table below:

**Table – 33**  
**Station-wise Tariff Approved For 2013-14**

	<b>(Rs. Cr.)</b>							
<b>Details of expenses</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>Sub-Total</b>	<b>UIHEP</b>	<b>Total</b>
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	1.65	0.50	6.44	1.81	0.97	<b>11.37</b>	0.00	<b>11.37</b>
Return on Equity	1.99	0.87	13.10	10.39	2.66	<b>29.01</b>	61.61	<b>90.62</b>
Depreciation	3.17	3.15	15.17	6.89	3.46	<b>31.83</b>	30.23	<b>62.06</b>
O&M expenses	31.92	23.13	45.08	40.69	17.06	<b>157.87</b>	58.80	<b>216.67</b>
Interest on working capital	2.06	1.49	3.52	2.88	1.19	<b>11.13</b>	5.77	<b>16.90</b>
<b>Total ARR (Rs. Crore)</b>	<b>40.79</b>	<b>29.13</b>	<b>83.31</b>	<b>62.66</b>	<b>25.33</b>	<b>241.26</b>	<b>156.41</b>	<b>397.67</b>
<b>Average cost (P/U) 2013-14</b>	<b>78.48</b>	<b>35.36</b>	<b>71.14</b>	<b>92.53</b>	<b>52.21</b>	<b>65.62</b>	<b>80.53</b>	<b>70.77</b>
Average cost (P/U) for 2012-13	<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>

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

148. 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 2013-14.

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

149. 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 - 34**

	<b>(Rs. Cr.)</b>						
<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.

150. 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 2013-14 based on the design energy of OHPC power stations @ Rs.0.01 per KWh.

#### **Electricity Duty on Auxiliary Consumption**

109. 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.

However, considering the fact that auxiliary consumption remains firm at a particular level regardless of quantum of generation in order to make the unit available, as a result of which OHPC is put to loss because of reimbursement of ED on monthly basis computed on 0.5% of actual generation or actual ED paid to Govt. whichever is less. So, Hon'ble commission may allow monthly reimbursement of ED as per actual payment made by OHPC & subsequent Annual adjustment in the year end limiting to 0.5% of cumulative actual generation during the financial year instead of limiting to monthly Generation.

**Table - 35**

<b>(Rs. in Crs)</b>								
<b>Description</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>
ED on Auxiliary Consumption	0.05	0.08	0.12	0.12	0.07	0.37	0.20	0.57

Accordingly, ED on Auxiliary consumption of all Hydro Electric Project to the tune of Rs. 0.57 Crs. is to be reimbursed to OHPC by GRIDCO. OHPC has prayed, the Commission to approve the same.

The Commission examines and approves an amount of Rs.0.57 cr. towards ED on Auxiliary Consumption to be reimbursed by GRIDCO.

#### **SLDC Charges**

151. The Commission, while determining the ARR and Fees & Charges of SLDC for the FY 2013-14 in Case No.103/2012, 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. 7834.99/MW/Annum to be collected from the generators towards annual charges of SLDC. Considering the installed capacity of 2027.50 MW of OHPC (as submitted by SLDC in its ARR application), the total SLDC charges of OHPC comes to Rs.1.59 cr. for the FY 2013-14, 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.1.59 as pass through in the ARR of GRIDCO for the FY 2013-14 towards power purchase related cost of OHPC.

152. The details of ED on auxiliary consumption, license fee for use of water for generation of electricity and SLDC charges for FY 2013-14 of OHPC are summarized in the table below:

**Table – 36**

<b>(Rs. Cr.)</b>							
<b>Component of Costs</b>	<b>RHEP</b>	<b>UKHEP</b>	<b>BHEP</b>	<b>HHEP</b>	<b>CHEP</b>	<b>UIHEP</b>	<b>Total</b>
(a) License fee for use of water for generation of electricity	0.525	0.832	1.183	0.684	0.490	1.962	<b>5.676</b>
(b) ED on Auxiliary Consumption	0.05	0.08	0.12	0.07	0.05	0.20	<b>0.57</b>
(c) SLDC charges							<b>1.59</b>
(d) Application fees and publication expenses							<b>0.26</b>
<b>Total</b>							<b>8.096 or say 8.10</b>

Thus, the Commission approves the miscellaneous reimbursement of Rs.8.10 Cr. proposed by OHPC. The above expenditure has been included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing.

### **Two-Part Tariff**

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

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

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

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

Where

AFC = Annual Fixed Cost specified for the year in rupees

NAPAF= Normative Annual Plant Availability Factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

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

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

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

Where

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC<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.

154. Accordingly, the Commission approves the rate of energy charge and the capacity charge of OHPC power stations for FY 2013-14 as summarized in the table below:

**Table - 37**  
**Energy Charge and Capacity Charge for 2013-14**

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	40.79	20.39	20.39	39.230
Upper Kolab HEP	29.13	14.56	14.56	17.676
Balimela HEP	83.31	41.65	41.65	35.562
Hirakud HEP	62.66	31.33	31.33	46.266
Chiplima HEP	25.33	12.66	12.66	26.097
Upper Indravati HEP	156.41	78.20	78.20	40.259

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)**

155. 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 - 38**

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 2013-14 based on the above NAPAF.

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

156. 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.

The proposed tariff of 30.80 Paise/KWh of Odisha drawl of Machhkund power for FY 2013-14 has been computed on cost reimbursement basis. Actual O&M Expenses of Rs. 6.48 Crs. for the FY 2011-12 has been escalated @ 5.72% per year to arrive at O & M Expenses of Rs. 7.24 Crs for FY 2013-14. The power purchase cost of Rs. 0.84 Crs. for additional 20% share (105 MU) is computed @ 8 p/u. The total expected annual expenditure calculated to be Rs. 8.08 Cr for FY 2013-14. The cost per unit is 30.80 Paise considering 50% share of design energy of Machhkund i.e. 262.50 MU. The final bill towards share of working expenses payable by OHPC for FY 2009-10 is enclosed. It includes royalty payable to OHPC by APGENCO for an amount of Rs.3,00, 000/- only.

Since, all the Units of Machhkund project are more than 50 years old, it has been proposed to go for R&M of all the six units and up-gradation wherever possible taking in to account the existing water conductor system.

The tariff proposed by OHPC is based on assumption that GRIDCO will draw power up to 50% of D. E. of Machhkund equivalent to 262.50 MU.

The projected tariff calculation is given in the table below:

**Table - 39**  
**Projected Tariff of Machhkund H. E. (J) Scheme For FY 2013-14**

Installed Capacity (MW)	114.50
Orissa share as per Original Agreement (30%)	34.50 MW
Net. Energy for sharing between Andhra Pradesh & Orissa	525.00 MW
Expected Energy Drawl by Orissa (50%)	262.50 MU
Energy Drawl of 30% of Orissa 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. in Crs)</b>
1. O&M Exp. (Orissa share of Actual O&M Exp. For FY 11-12)	6.48
2. O&M Exp for FY 2013-14	7.24
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.08)	0.84
4. Total Annual Expenditure (2 +3)	8.08
5. Tariff (Paise/Kwh)	30.80
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.	

157. The Commission approves the above rate of 30.80 Paise per Unit for FY 2013-14 as proposed by OHPC for sale of power from Machhkund Hydro Electric Station.

### ARR and Approval of Tariff

158. To sum up, the Commission hereby approves the ARR and generation tariff of OHPC for FY 2013-14 as follows:

**Table – 40**

Name of the Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	Sub-total	UIHEP	Total
<b>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>
<b>Approval for 2013-14</b>								
Total ARR (Rs. Crore)	<b>40.79</b>	<b>29.13</b>	<b>83.31</b>	<b>62.66</b>	<b>25.33</b>	<b>241.26</b>	<b>156.41</b>	<b>397.67</b>
Average cost (P/U)	<b>78.48</b>	<b>35.36</b>	<b>71.14</b>	<b>92.53</b>	<b>52.21</b>	<b>65.62</b>	<b>80.53</b>	<b>70.77</b>

159. Based on this approved Annual Revenue Requirement the rate of energy charge and the capacity charge of OHPC power stations are determined for FY 2013-14. The Capacity charge and the rate of Energy charge as approved at para 154 above and the corresponding approved rates for the FY 2012-13 are summarized in the table below :

**Table – 41**

### Energy Charge and Capacity Charge for 2012-13 & Approval for 2013-14

Name of the Power Stations	Annual Fixed Cost (Rs. crore)		Capacity Charge (Rs. crore)		Energy Charge (Rs. crore)		Energy Charge Rate (P/U)	
	12-13	13-14	12-13	13-14	12-13	13-14	12-13	13-14
Rengali HEP	37.83	40.79	18.915	20.39	18.915	20.39	36.392	39.230
Upper Kolab HEP	30.25	29.13	15.125	14.56	15.125	14.56	18.363	17.676
Balimela HEP	86.45	83.31	43.225	41.65	43.225	41.65	36.908	35.562
Hirakud HEP	62.89	62.66	31.445	31.33	31.445	31.33	46.437	46.266
Chiplima HEP	25.45	25.33	12.725	12.66	12.725	12.66	26.232	26.097
Upper Indravati HEP	153.96	156.41	76.980	78.20	76.980	78.20	39.632	40.259

The unit cost of energy from Machhkund is approved at 30.80 paise for 2013-14 as against 30.51 paise per unit approved for 2012-13.

160. **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.
161. The application of OHPC for approval of its Annual Revenue Requirement and fixation of generation tariff for the FY 2013-14 thus stands disposed of.

The Tariff now approved shall be operative from 01.04.2013 and shall continue until further order.

Sd/-  
(S. P. SWAIN)  
MEMBER

Sd/-  
(B. K. MISRA)  
MEMBER

Sd/-  
(S. P. NANDA)  
CHAIRPERSON