

***Summary of ARR & Tariff Filings***

Submitted by

***OHPC***

For

***FY 2020-21***

## SUMMARY OF ARR PROPOSAL OF OHPC FOR FY 2020-21

### 1. Installed Capacity

The installed capacity of various Hydro Stations owned by Odisha Hydro Power Corporation (OHPC) was 2063.50(2027.50+ 36) MW including Odisha share of Machhkund. The Installed Capacity of MHEP is 120MW (i.e. 17MW x 3 = 51MW and 23MW x 3 = 69MW). So the 30% Odisha Share from MHEP being 36 MW, has been considered for computation of total IC of OHPC.

### 2. Design Energy of OHPC Stations

The Design Energy (DE) of a Hydro Power Station is an important parameter for determination of Tariff. The approved Design Energy of OHPC Power Stations for the FY 2019-20 is given in the table below:

**Table -1: Design energy for FY 2019-20**

(in MU)			
Sl. No.	Name of the Power Station	Design Energy (DE)	Design Energy for sale
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>

During years of Hydrology failure OHPC sustains substantial loss in Revenue due to shortfall in the recovery of Energy Charges. In response to the OHPC's claim towards Hydrology Failure the Commission had observed in the Tariff Order of OHPC for FY 2014-15 as follows:

“The compensation claimed towards hydrology failure is not to be allowed in view of the Commission's earlier orders dt.10.06.2005 & dt.23.03.2006 wherein OHPC was directed to maintain a separate fund to deposit the revenue earnings out of sale of secondary energy which shall be utilized to replenish the shortfall in revenue due to lesser generation by OHPC in years of hydrology failure to provide necessary comfort to the consumers of the state. {Para 6.5(e) of Order dt.10.06.2005}.”

The gross actual generation achieved by different power stations of OHPC for the last five years are given below:

**Table-2 : Gross actual generation achieved by different power stations of OHPC for the last five years (in MU)**

Sl. No.	Name of the Power Station	Design Energy (DE)	Saleable Design Energy (DE)	Actual Gen. of 2014-15	Actual Gen. of 2015-16	Actual Gen. of 2016-17	Actual Gen. of 2017-18	Actual Gen. of 2018-19
1	RHEP	525.00	519.75	735.79	606.17	553.51	762.54	745.97
2	UKHEP	832.00	823.68	718.27	727.82	620.01	675.65	923.88
3	BHEP	1183.00	1171.17	1267.43	599.83	998.53	1475.07	1677.63
4	HHEP	684.00	677.16	582.39	457.09	535.88	614.07	380.69
5	CHEP	490.00	485.10	278.55	216.76	200.57	219.11	158.51
6	UIHEP	1962.00	1942.38	2657.15	1654.16	1522.91	1740.82	2142.60
<b>Total</b>		<b>5676.00</b>	<b>5619.24</b>	<b>6239.58</b>	<b>4261.84</b>	<b>4431.41</b>	<b>5487.26</b>	<b>6028.68</b>

OHPC has calculated the revenue earning out of sale of secondary energy from FY 1996-97 to FY 2018-19. As observed the secondary energy fund has always remained in deficit, which is approximately Rs 254.183Cr. as on 31.03.2019.

OHPC have received total amount Rs.5.029 Crs. up to September of FY 2019-20 towards energy compensation charges. Though OHPC was adjusting this amount in the secondary energy fund, but CAG of India has observed to keep this compensation in a separate account, as the matter is under sub-judice in the Court of Law.

Govt. of Odisha communicated to the Commission its suggestions/views/comments on various issues involving tariff setting for the year 2016-17 having a direct bearing on fixation of tariff for the year 2016-17 vide their letter No.2091 dated 11.03.2016. Department of Energy, Government of Odisha has viewed the following on generation of HHEP, Burla below 595ft of Hirakud

The response of DoWR/ DoE is still awaited. After getting Notification the reduction of Design Energy of HHEP, Burla & CHEP, Chiplima can be done in the Tariff computation.

Pending decision from DoE/ DoWR, OHPC has not considered reduction in Design Energy of HHEP, Burla & CHEP, Chiplima due to restriction in Generation at HHEP, Burla below RL 595ft in Hirakud Reservoir.

Para No (B) of page 03 of approved PPA of the HHEP stipulates as follows:

*“OHPC agrees to sell the entire capacity, availability and despatched output of the Power Stations excluding 16.644MU of power to Chhattisgarh State Electricity Board, after meeting their internal consumption for O&M of the machines, on the terms and subject to the conditions of this agreement, and under the terms and conditions of the license granted to GRIDCO by OERC for bulk purchase and supply of power as may be amended from time to time.”*

Hon'ble OERC in para no. 72 of the Tariff Order of OHPC for FY2018-19 has approved as follows:

*“XXXX .....Therefore, GRIDCO has considered 5598.68 MU of availability from OHPC hydro stations excluding Machhkund and after deduction of 16.60 MU of allocations to CSEB from Hirakud Power Station, 0.5% auxiliary consumption and 0.5% transformation loss. The Commission accepts the same as they are in line with the Regulatory provisions. Also the Commission accepts the allocation of 16.60 MU to CSEB from Hirakud Power Station by OHPC.”*

But in view of the approved PPA, the energy allocated to CSEB is 16.644MU. Hence OHPC has deducted 16.644MU of allocation to CSEB from the saleable design energy of HHEP, Burla and has considered 660.516MU as saleable energy for computation of Tariff of HHEP, Burla for FY2020-21.

OHPC in its review petition to ARR & Tariff approval for FY2019-20 has prayed to deduct 16.644 MU towards the allocated energy to CSEB from the saleable design energy of HHEP, Burla and approve the revised ECR (Energy Charge Rate) of HHEP, which has been registered under Case No. 58 of 2019 by Hon'ble OERC.

Considering the above facts, OHPC proposes the following Design Energy for its Power stations for computation of tariff for the FY 2020-21.

**Table-3 Proposed Design Energy for FY 2020-21**

(in MU)

Sl. No.	Name of the Power Station	Design Energy approved for FY2019-20	Saleable Design Energy approved for FY 2019-20	Design Energy proposed for FY 2020-21	Saleable Design Energy proposed for FY 2020-21
1	RHEP	525.00	519.75	525.00	519.75
2	UKHEP	832.00	823.68	832.00	823.68
3	BHEP	1183.00	1171.17	1183.00	1171.17
4	HHEP	684.00	677.16	684.00	<b>660.516</b>
5	CHEP	490.00	485.10	490.00	485.10
<b>Sub Total of Old Power Stations</b>		<b>3714.00</b>	<b>3676.86</b>	<b>3714.00</b>	<b>3660.216</b>
6	UIHEP	1962.00	1942.38	1962.00	1942.38
<b>Total</b>		<b>5676.00</b>	<b>5619.24</b>	<b>5676.00</b>	<b>5602.596</b>

OHPC pray before the Hon'ble Commission to approve the proposed Saleable Design Energy of different power stations of OHPC for FY 2020-21 as furnished in the Table above.

Further the deficit of secondary energy fund amounting to Rs 254.183Cr may kindly be recognized.

### 3. Reservoir Level and Anticipated Generation for FY 2020-21

The Reservoir Level of OHPC Power Stations as on 20.11.19 vis-à-vis on 20.11.18 is given below:

**Table – 4: Reservoir level of power stations**

Sl. No.	Reservoirs	As on 20.11.2018	As on 20.11.2019
1.	Rengali	118.41mtr.	123.71mtr.
2.	Kolab	855.54mtr.	857.15mtr.
3.	Balimela	1510.40ft.	1512.90ft.
4.	Hirakud	626.10ft.	629.93ft.
5.	Indravati	638.86mtr.	640.79mtr.

The actual generation of different Power Stations under OHPC from 01.04.2019 up to 20.11.2019 and anticipated generation up to 31.03.2020 for the FY 2019-20 prepared on the basis of the availability of water, irrigation requirement and peak load requirement of power in co-ordination with DoE, DoWR, GRIDCO and SLDC is furnished below.

**Table – 5: Actual /Anticipated Energy Generation**

Sl. No.	Name of the power stations	Actual generation from 01.04.19 up to 20.11.19 (in MU)	Anticipated generation from 21.11.19 to 31.03.20 based on DoWR& DoE Schedule (in MU)	Total Anticipated generation for the FY 2019-20 based on DoWR& DoE Schedule (in MU)
1.	RHEP	484.21	160.67	644.88
2.	UKHEP	533.98	220.33	754.31
3.	BHEP	1127.66	314.00	1441.66
4.	HHEP	419.08	135.33	554.41
5.	CHEP	169.42	75.33	244.76
6.	UIHEP	1632.66	516.00	2148.66
<b>Total</b>		<b>4367.01</b>	<b>1421.67</b>	<b>5788.68</b>

The extra/ shortfall in generation from the design energy of the respective Power Stations shall be accounted towards the secondary energy fund as per Order of the Hon'ble Commission.

### 4. Project Cost

The revalued cost of old power stations under OHPC is Rs.1196.80 Crs as on 01.04.1996 as per the notification vide S.R.O No. 254/96 dtd. 01.04.1996 of Department of Energy, Government of Orissa. The Commission in its Order dated 23.03.2006 at clause no. 5.4 (C) had approved the same. Further, Hon'ble Commission, in the order dated 20.03.2008 has approved Rs. 1195.42 Crs. as final capital cost of UIHEP for the purpose of determination of tariff. However, the Tariff of Old power stations was determined on the historical cost of old power station of OHPC for Rs. 479.80 Crores as per the Notification No. 1068 Dtd. 29.01.2003 of DoE, GoO.

OHPC has considered additional capitalization as per clause no. 3.4 of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 and extra additional capitalization on account of amended Companies (Ind AS) Rules to be considered under OERC norms. Considering the above factors, the total additional capitalization for an amount of Rs. 5.278 Crs upto FY2018-19 details of which is furnished in the Table-6.

There is de-capitalization of Rs 0.024 in case of old power stations of OHPC and decapitalization of Rs 0.008 Cr of UIHEP for FY 2018-19. The historic cost after decapitalization as on 31.03.2019 is shown in table 6 below. Hence the total decapitalization of OHPC power stations during FY 2011-12 to FY 2018-19 comes to Rs 18.55 Cr which has been deducted from original historical cost as on 01.04.1996. The project Cost considered for Computation of ARR and Tariff for FY2020-21 is furnished in the Table below:

**Table- 6: Project Cost for tariff Calculation for FY 2020-21**

**(in Rs. Cr.)**

<b>Name of the power stations</b>	<b>Historic Cost as on 01.04.1996</b>	<b>Asset reduction during FY 2011-12 to FY 2018-19</b>	<b>New additions proposed in Tariff calculation FY 2020-21</b>	<b>Project Cost considered Tariff calculation based on Historic Cost</b>
1	2	3	4	5=2+4-3
RHEP	91.09	0.08	59.33	150.34
UKHEP	108.31	0.48	21.54	129.37
BHEP	115.42	0.33	222.14	337.23
HHEP	72.75	11.50	342.88	404.13
CHEP	92.23	1.27	116.14	207.09
<b>Sub Total</b>	<b>479.80</b>	<b>13.67</b>	<b>762.03</b>	<b>1228.16</b>
UIHEP	1194.79 (approved project cost)	4.88	42.83	1232.75
<b>Total</b>	<b>1674.59</b>	<b>18.55</b>	<b>804.86</b>	<b>2460.91</b>

Note : Project cost approved for UIHEP after CoD is Rs 1194.79 Cr.

## **5. Determination of Annual Fixed Cost**

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

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

- a. Return on equity (ROE)
- b. Interest on loan capital
- c. Depreciation
- d. Operation and Maintenance expenses
- e. Interest on working capital

**a. Return on equity (ROE):**

Based on the Commission's tariff order dtd 19<sup>th</sup> April, 2002 and subsequent government notification the ROE to OHPC was allowed on new investments made after 01.04.1996. According to Clause No. 4.5 & 4.6 of OERC (Terms and conditions for determination of Generation Tariff) Regulations, 2014 the Return on Equity shall be computed @16% of the equity amount. Also as per the provisions made in the said clause the income tax of the Generating Company shall be recovered from the beneficiaries (income tax on other income streams shall not be considered).

OHPC has considered 30% of additional capitalization in UIHEP as equity base. Further OHPC has considered equity base as 30% of the revalued cost of old power stations as on 01.04.1996 along with additional capitalization from 1996-97 to 2017-18 and audited cost for capitalization and decapitalization for FY 2018-19 .30% of this additional capitalization is considered as equity base.

Moreover, OHPC has paid Rs49.0207Cr. towards income tax for FY 2018-19 on the core business.

**Table – 7 : Computation of RoE for different power stations of OHPC for FY 2020-21  
(in Rs. cr.)**

Name of the Power Station	Capital Addition considered for RoE for FY 2020-21 (in Crs)	Share of Equity (%)	Value of Equity capital (in Crs)	ROE @16% Proposed for 2020-21 (in Crs)	RoE approved by OERC for 2019-20 (in Crs)
1	2	3	4=2*3	5=16% of 4	6
RHEP	59.33	30	17.799	2.848	2.835
UKHEP	21.54	30	6.462	1.034	0.980
BHEP	222.14	30	66.643	10.663	10.607
HHEP	342.88	30	102.864	16.458	12.590

Name of the Power Station	Capital Addition considered for RoE for FY 2020-21 (in Crs)	Share of Equity (%)	Value of Equity capital (in Crs)	ROE @16% Proposed for 2020-21 (in Crs)	RoE approved by OERC for 2019-20 (in Crs)
CHEP	116.14	30	34.841	5.575	2.409
UIHEP	1232.75	25&30	310.328	49.653	49.593
Total	1994.78		515.121	<b>86.230</b>	<b>79.014</b>

Thus, OHPC has appealed before the Commission to approve Rs. 86.230 Crs. as RoE for FY 2020-21 for different power stations of OHPC.

**b. Interest on loan**

The loan liabilities on OHPC consist of state Government loan, PFC loans and Normative Loans. The State Government loan liabilities outstanding as on 01.04.1996 is given in the table below:

**Table – 8 :Loan liabilities transferred to OHPC by State Govt.**

**(Rs.inCrs)**

Sl. No.	Description of loan	Amount as on 01.04.1996
1.	9.8% loan	39.20
2.	13% loan (UIHEP)	497.86
3.	Interest free loan (UIHEP)	132.14
4.	13% loan (Potteru)	14.30
5.	Zero Coupon Bond-I	383.10
6.	Zero Coupon Bond-II	383.10

Hon'ble Commission in the para 65 of Tariff approval of OHPC for the FY 2018-19 has stated as follows:

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

*“Regarding the issue of up-valuation of assets pertaining to OPTCL, Generators and other licensees the Government for the time being agrees with the views of the Commission to keep in abeyance the up-valuation of assets like previous years. Considering the present difficult situation, the Govt. agrees to extend the status-quo on up-valuation till 2018-19.”*

Considering the difference in opinion in the debt servicing of the government investment in UIHEP between the DoE, GoO and Hon'ble OERC, the OHPC is of the view that, both Department of Energy, Government of Odisha and the Commission may agree to a single



decision which will not put OHPC into trouble in Tariff computation of OHPC Power Stations.

**Table – 9 : Present Status of UIHEP Govt. Loan based on the approvals of Hon’ble OERC**

<b>(Rs.in Cr.)</b>	
Original Approved Project Cost	1195.42
Project cost after deducting the infirm power cost	1194.79
Equity @25%	298.70
Govt. Loan of UIHEP	497.86
Depreciation allowed from 2010-11 to 2018-19 @ Rs30.23 Crore	272.07
Loan Repayment made till FY 2017 -18 & to be paid for FY2018-19	272.07
Balance Outstanding Loan as on 01.04.2019	225.79Crore (Considering Depreciation allowed)
Cumulative interest on UIHEP Govt. Loan from FY 2006-07 to FY 2018-19 @ 7%	367.35 Crore(Govt. proposed to consider as regulatory asset )
Cumulative interest on normative loan from FY 2001-02 to FY 2018-19@ 7%	107.36 Crore (Not paid)

PFC loan of Rs319.49 has already been repaid in full by FY 2009-10. OHPC has so far paid Rs272.07Cr to Govt. by March 2019. The depreciation approved for FY 2019-20 for Rs 30.23Cr shall be paid by the end of this Financial Year (2019-20). Interest on UIHEP Loan has been provided by OHPC in its books of account every year as per the direction of Hon’ble Commission in the tariff order of OHPC for FY2015-16. So, the cumulative interest of UIHEP, Govt. Loan up to FY 2019-20 stands at Rs382.10Cr.

**Status of UIHEP Loan liability as on 31.03.2019**

- i) PFC loan of Rs319.49 Crs will stand repaid.
- ii) Rs 302.23 Crs @ Rs 30.23 Crs approved and repaid to Govt.
- iii) Interest on Govt Loan of UIHEP not approved by the Commission
- iv) Principal and Interest on Normative loan not approved by the Commission.

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

**Status of UIHEP Loan liability as on 31.03.2036**

- i) PFC loan of Rs319.49 Crs repaid.

- ii) Govt. Loan of Rs 497.86Cr. shall stand repaid, Normative Loan of Rs 78.74Cr. shall stand repaid.
- iii) Cumulative depreciation passed in the Tariff Upto FY2028-29 shall be Rs319.49Cr +Rs497.86Cr + Rs78.74Cr = Rs896.09Cr.(stands repaid)
- iv) Balance Depreciation to be recovered within the balance useful life i.e. upto FY2035-36 = Rs1075.311Cr(90% of project cost) – Rs896.09Cr( Cumm. Dep. Recovered) = Rs179.22Cr.(not recovered)----- (a)
- v) Cumulative Interest on Govt. Loan of UIHEP starting from FY 2029-30 to FY 2035-36 @ Rs 30.23 Cr will be partly paid and balance unpaid amount not approved by Commission shall stand at Rs 215.03 Cr .(not recovered) ----- --- (b)
- vi) Cumulative Interest on normative loan not approved by the Commission shall stand at Rs 155.36Cr.(not recovered) ----- (c)

Total liability of UIHEP Loan as on 31.03.2036 will be Rs 549.59 Cr ( a+b+c above ) will remain unpaid even after useful life of the project. .

**Normative Loans** - The normative loans of CHEP, RHEP & UKHEP is considered @ 9.8% as per Clause No. 4.13 of OERC (Terms & Conditions for determination of Generation Tariff) Regulation, 2014. The normative loan of BHEP, Balimela is considered @ 9.6 % for FY 2020-21 based on PFC interest rate applicable to BHEP. Similarly, the normative loan of HHEP, Burla is considered @ 8.75 % for FY 2020-21 based on PFC interest rate applicable to HHEP, Burla is considered @ 8.75 % for FY 2020-21 based on PFC interest rate applicable to HHEP, Burla. The Normative loan of UIHEP due to the additional capitalization based on audited accounts of FY 2018-19 is considered @7% being the prevailing rate of interest for State Govt. Loan as per the OERC tariff norms.

Hon'ble Commission has never allowed interest and/or principal of the Normative Loan of Rs 78.74Cr in previous Tariff approvals of OHPC. The accumulated interest calculated upto 31.03.2020 will be Rs 112.87Crore at the prevailing rate of interest of State Govt. Loan @7%.

Hence, based on the earlier directions of Hon'ble OERC, OHPC has not considered the impact of interest on Government Loan & Normative Loan of UIHEP in the Tariff Calculation of OHPC for the FY2020-21. Similarly, OHPC has not claimed the accumulated interest on Government Loan & Normative Loan of UIHEP as regulatory asset in view of the directives of the Commission.

**Table-10:Statement of Outstanding Loan & Interest thereon for the FY2020-21  
(Rs. in Crs.)**

Sl. No.	Source of Loan	Loan O/S as on 01.04.2020	Interest on Loan for the FY 2020-21
1	State Govt. Loan of UIHEP @7%*	195.56	0.00
2	Normative Loan of Rs78.74Cr for UIHEP, Mukhiguda @ 7%	78.74	0.00
3	Normative Loan for Add. Cap. FY2014-15 to FY 2018-19 Chiplima @ 9.80%	1.77	0.14
4	Normative Loan for Add. Cap. FY2014-15 to FY 2018-19 UKHEP@ 9.80%	1.65	0.14
5	Normative Loan for Add. Cap. FY2014-15 to FY 2018-19 HHEP@ 8.75%	28.59	2.15
6	Normative Loan for Add. Cap. FY2014-15 to FY2018-19 BHEP@ 9.6%	4.26	0.35
7	Normative Loan for Add. Cap. FY 2014-15 to FY 2018-19 RHEP@ 9.80%	1.19	0.10
8	Normative Loan for Add. Cap. FY 2014-15 to FY 2018-19 UIHEP@ 7.0%	21.83	1.33
9	Normative Loan for R&M of Unit #1, Rengali @ 9.80%	5.33	0.43
10	Normative Loan for R&M of Unit #2, Rengali @ 9.80%	6.55	0.56
11	Normative Loan for R&M of Unit #3, CHEP @ 9.80%	45.97	4.28
12	Normative Loan for R&M of Unit #6, HHEP @ 8.75%	55.57	4.62
Total		447.00	14.11

The Power Station wise interest on loan and guarantee commission as described above is given below:

**Table-11: Interest on loan of different power house of OHPC**

(Rs. Cr.)

Sl. No.	Total Source of loan	1.094	0.141	0.351	6.772	4.423	1.331	14.112
		Interest on loan for FY 2020-21						(Rs. In Crs)
		RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	TOTAL
1.	Normative loan	1.094	0.141	0.351	6.772	4.423	1.331	14.112
2.	Govt. Loan	-	-	-	-	-	-	-

Therefore, OHPC prays before the Hon'ble Commission to approve Rs14.112 Crs. in the tariff of OHPC for the FY2020-21 for payment of Interest towards Normative Loans of the different Power Stations of OHPC as mentioned in the above table.

### c. Depreciation

Depreciation is the refund of capital subscribed and is a constant charge against an asset to create a fund for its replacement.

Honorable Commission at clause no. 4.21 of OERC (Terms and Conditions for determination of generation tariff) Regulations, 2014 has specified for OHPC as follows:

**“Provided that for existing plants of OHPC as per the direction of the High Court of Orissa, depreciation will be calculated at pre-1992 norms notified by Government of India on the book value of the assets.”**

OHPC has computed depreciation for the FY 2020-21 @ 2.57% on the Historic project cost as on 01.04.1996 (excluding de-capitalization) plus an additional capitalization w.e.f. 01.04.1996 up to FY 2017-18. The Unit wise depreciation so calculated is compared with the Loan repayment and the amount whichever is higher is considered as depreciation for Tariff computation.

UIHEP depreciation is calculated based on straight line method following which 90% of the project cost shall be recovered on the last year of the project life i.e., FY 2034-35. By the way Hon'ble Commission is allowing Rs30.23Cr annually under depreciation for repayment of State Govt. loan starting from the FY2010-11 onwards as per the order at Para No. 131 of the Compendium of OHPC Tariff Order for FY 2013-14.

For depreciation on the additional capitalization up to 2017-18 and for additional capitalization of FY 2018-19(Audited), OHPC has calculated the normative loan repayment of different power stations as per the terms approved by the OERC.

The comparative statement for actual repayment of loans and depreciation @2.57% for the FY 2020-21 as shown in the Table – 12 below to arrive at the depreciation amount to be claimed in the ARR & Tariff of OHPC for the FY 2020-21.

**Table -12 :Depreciation Claim for the FY 2020-21 (Rs. in Crs)**

1.	RHEP	150.34	3.81	3.86	3.86	Depreciation @ 2.57%
2.	UKHEP	129.37	0.43	3.32	3.32	Depreciation @ 2.57%
			<b>Loan Repayment Amount</b>	<b>Depreciation @ 2.57%</b>	<b>Depreciation Claimed</b>	<b>Remark</b>
3.	BHEP	337.23	1.20	8.67	8.67	Depreciation @ 2.57%

4.	HHEP	404.13	13.52	10.39	13.52	Equal to loan Repayment
5.	CHEP	207.09	5.20	5.32	5.32	Depreciation @ 2.57%
6.	UIHEP	1232.75	35.87	31.68	35.87	Equal to loan Repayment
Total		2460.91	54.47	61.21	<b>70.56</b>	

**OHPC prays before Commission to approve Rs. 70.56 Cr towards depreciation for FY 2020-21.**

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

O & M Expenses has been calculated as per the Generation Tariff Regulations, 2014 and escalated @ 5.72 % on previous years approved O&M expenses. Hon'ble Commission in the tariff order of OHPC for FY 2019-20 has determined O&M cost of OHPC hydro stations for the new base year 2019-20 as per Regulations 29(2) (b) of CERC Tariff Regulations 2014 .

Accordingly, OHPC has calculated O&M expenses of different power stations of OHPC for FY 2020-21 by escalating the O&M expenses for FY 2019-20 @ 5.72% as per principle adopted by the Hon'ble Commission in earlier tariff order of OHPC.

**Table- 13 : Statement of O & M Expenses for different power stations of OHPC for FY 2020-21**

<b>(Rs.in Cr.)</b>										
Sl. No.	Particulars	RHEP	UKH EP	BHEP	HHEP	CHEP	Sub Total	UIHE P	CO	Total
1	O & M expenses for FY 2019-20 Approved by OERC.	50.31	51.61	45.06	54.25	26.09	227.32	82.75	26.19	336.26
2	O & M expenses for FY 2020-21 with escalation @ 5.72% over FY 2019-20	53.19	54.56	47.64	57.35	27.58	240.32	87.48	27.69	355.49
3	Corporate Office expenses apportioned	3.41	4.37	6.96	3.76	0.98	19.49	8.19	27.69	

Sl. No.	Particulars	RHEP	UKH EP	BHEP	HHEP	CHEP	Sub Total	UIHE P	CO	Total
	to different units under OHPC based on Design Energy									
4	Total O & M Expenses for the FY 2020-21	56.60	58.93	54.60	61.115	28.566	259.817	95.68		355.49
<b>Less: Amount Received from DoWR.</b>										
5	Less : Income to be received from DOWR towards dam maintenance of UIHEP							(-) 9.32		(-)9.32
6	<b>Total O&amp;M Expenses for the FY 2020-21.</b>	56.60	58.93	54.60	61.115	28.566	259.817	86.353		346.170

OHPC prays before the Hon'ble Commission to approve Rs346.170Crs towards O&M Expenses for the FY 2020-21 for the different Power Stations of OHPC as mentioned in the above table.

#### **e. Interest on Working Capital**

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

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

The rate of interest on working capital considered is the SBI MCLR<sup>1</sup> @ 8.55 % as on 1st April, 2019 plus 300 basis points which turns out to be 11.55%. In accordance with OERC guidelines, the interest on working capital shall be payable on normative basis.

<sup>1</sup> Marginal Cost of Funds based Lending Rate (MCLR)

Table -14 below summarizes the station wise interest on working capital as proposed by the OHPC for FY 2019-20.

**Table- 14 :Interest on Working Capital for FY 2020-21**

(Rs. in Crs)

Sl. No	Description	RHE P	UKH EP	BHE P	HHE P	CHE P	Sub Total	UIHE P	Total
1	Receivables equivalent to two months of fixed cost	11.20	11.05	12.87	16.91	7.59	59.63	29.83	89.46
2	Maintenance spares @ 15% of O&M expenses	8.49	8.84	8.19	9.17	4.28	38.97	12.95	51.93
3	O&M expenses for one month	4.72	4.91	4.55	5.09	2.38	21.65	7.20	28.85
4	Total working capital	24.41	24.80	25.61	31.17	14.25	117.94	49.98	167.92
5	Interest on working capital calculated @ 11.55%	<b>2.820</b>	<b>2.864</b>	<b>2.958</b>	<b>3.600</b>	<b>1.646</b>	<b>13.889</b>	<b>5.772</b>	<b>19.662</b>

OHPC prays before the Hon'ble Commission to approve Rs 19.662Crs towards Interest on Working Capital for the FY 2020-21 for the different Power Stations of OHPC as mentioned in the above table.

#### **Annual Revenue Requirement (ARR) & Tariff for the FY 2020-21**

Based on the above parameters the power station wise ARR and tariff of OHPC have been calculated for the FY 2020-21as follows:

The values of ARR along with its different components and the average tariff computed considering the Saleable Design Energy of 5602.60 MU for the FY 2020-21 is shown in the table – 17 below.

**Table-15: Station wise ARR and Tariff for the FY 2020-21 considering saleable D.E. of 5602.60 MU**

<b>Details 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>
Existing Saleable Design Energy (MU)	519.75	823.68	1171.17	660.52	485.10	3660.22	1942.38	5602.60
(Rs. in Crs.)								
Return on Equity	2.848	1.034	10.663	16.458	5.575	36.577	49.653	86.230
Interest on Loan	1.094	0.141	0.351	6.772	4.423	12.781	1.331	14.112
Depreciation	3.864	3.325	8.667	13.521	5.322	34.699	35.866	70.565
O&M Expenses	56.602	58.932	54.602	61.115	28.566	259.817	85.353	346.170
Interest on working capital	2.820	2.864	2.958	3.600	1.646	13.889	5.772	19.662
<b>Total ARR</b>	<b>67.227</b>	<b>66.296</b>	<b>77.241</b>	<b>101.467</b>	<b>45.532</b>	<b>357.763</b>	<b>178.975</b>	<b>536.738</b>
<b>Average Tariff (p/u)</b>	<b>129.34</b>	<b>80.49</b>	<b>65.95</b>	<b>153.62</b>	<b>93.86</b>	<b>97.74</b>	<b>92.14</b>	<b>95.80</b>

## 6. Two-Part Tariff

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

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

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

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



NAPAF= Normative Annual Plant Availability Factor in percentage

NDM = Number of days in the month

NDY = Number of days in the year

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

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

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

Where,

Aux = Normative auxiliary energy consumption in percentage

N = No of days in the month

IC = Installed capacity in MW of the complete generating station

DC<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 (4.41) of OERC (Terms and Conditions for determination of Generation Tariff regulations) 2014.

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

Where,

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

Accordingly, annual capacity charges, annual energy charges and energy charge rate of different power stations of OHPC for FY 2020-21 is shown below.

**Table-16 Capacity charge and energy charge of OHPC power stations for FY 2020-21**

Name of the power stations	Annual Fixed Cost (ARR) (Rs. in Crs)	Annual Capacity Charge	Annual Energy Charge	Salable design energy	Energy Charge Rate
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		(ACC) (Rs. in Crs)	(AEC) (Rs. in Crs)	( MU )	(ECR) (in p/u)
RHEP	67.227	33.613	33.613	519.75	64.672
UKHEP	66.296	33.148	33.148	823.68	40.244
BHEP	77.241	38.621	38.621	1171.17	32.976
HHEP	101.467	50.734	50.734	660.52	76.809
CHEP	45.532	22.766	22.766	485.10	46.931
UIHEP	178.975	89.488	89.488	1942.38	46.071

OHPC prays before the Hon'ble Commission to approve the ACC, AEC & ECR of its power stations as indicated in Table above for the FY 2020-21.

## 7. Application Fee and Publication Expenses

As per the OERC tariff regulation 2014, the application filing fee and the expenses incurred on publication of notices may in the discretion of the commission, be allowed to be recovered by the generating company directly from the beneficiaries. As per the Commission notification no. 1992 dated 31.08.2009 in the clause no. 17, Commission has fixed a fee of Rs. 5000/- per MW as application fee for determination of tariff of conventional fuel based plant/ hydel plants, subject to maximum limit of Rs. 25,00,000/- (Rupees Twenty-five lakhs). In consideration of the above order, OHPC has to deposit application fee of Rs. 25 Lakhs for the FY2020-21. OHPC may be allowed to recover the same amount from GRIDCO. So considering Rs1.20 Lakhs reimbursement towards publication expenses, Hon'ble OERC may kindly approve Rs26.20 Lakhs to be reimbursed from GRIDCO.

**Table - 17: Application Fees and Publication Expenses**

(Rs. In lakhs)

Sl. No.	Application fee	Publication expenses	Total
1	25.00	1.20	26.20

## 8. Electricity Duty on Auxiliary Consumption

As per the agreed PPA, the taxes and duties including ED on auxiliary consumption etc payable by OHPC to the State Government and other statutory bodies shall be passed on to GRIDCO in the shape of supplementary bill raised by OHPC. GRIDCO will make payment accordingly within 30 days of receipt of bills.

Based on the subsequent implementation of Odisha Electricity (Duty) Amendment Rules, 2017 by Govt. of Odisha in Dept. of Energy vide Notification No.617 dated 24.01.2017, OHPC is paying the Electricity Duty in "J" format, where Electricity Duty is payable on total Energy Generated minus total Energy Sold. This implies that the Electricity Duty is payable on the Auxiliary Equipment consumption and Transformer loss within the Power Station.

Further in pursuance to Sub-section-I of Section-3 of Orissa Electricity (Duty) Act-1961 and supersession to the Govt. Notification No 9539 BT(ed)-01/2016-En dated 27.12.2016, the State Govt in the Dept. of Energy has revised the rate of ED vide notification No.912 dated the 12.05.2017. Accordingly, the Rate of Electricity Duty / Unit has been revised from 30 paisa per Unit to 55 paisa per Unit with effect from 12th May 2017 as per the Gazette Notification No. 912 dtd. 12.05.2017. Accordingly OHPC has computed ED @55paise per Unit for all power station for FY 2020-21 as reimbursement.

**Table-18:ED claim for OHPC power station for FY 2020-21**

**(Rs. in Crs)**

<b>Power Station s</b>	<b>Design Energy (in MU)</b>	<b>Proposed Percentage of Auxiliary Energy Consumption (in %)</b>	<b>Auxiliary Energy Consumption to be approved (in MU)</b>	<b>ED Rate Applicable (in Rs/Unit)</b>	<b>ED proposed for Reimbursement by OHPC @55p/u &amp; AUX @1% (in Crs)</b>
RHEP	525	1	5.25	0.55	0.289
UKHEP	832	1	8.32	0.55	0.458
BHEP	1183	1	11.83	0.55	0.651
HHEP	684	1	6.84	0.55	0.376
CHEP	490	1	4.90	0.55	0.270
UIHEP	1962	1	19.62	0.55	1.079
<b>Total</b>	<b>5676</b>	<b>1</b>	<b>56.76</b>	<b>0.55</b>	<b>3.122</b>

Hence, OHPC pray before the Hon'ble OERC to approve reimbursement of ED amounting to Rs3.122Cr from GRIDCO which may kindly be provisioned in the ARR.

## **9. License Fee for Use of Water for Generation of Electricity**

As per the gazette Notification Dt. 01.10.2010, OHPC has to pay @Rs. 0.01/KWh as Licence Fee on water used for generation of electricity from all Hydro Electric Project to the tune of Rs. 5.676 Crs. based on design energy which is to be reimbursed to OHPC by GRIDCO.

The Revenue & Disaster Management Department have amended the Odisha Irrigation (Amendment) Rule, 2016 which was published in Odisha Gazette on 27.09.2016. As per the amendment made in Rule-23-A (2) (f) of the Odisha irrigation Rule the license fee for drawl or allocation of water was enhanced @10% per annum w.e.f 1st day of April.

Accordingly OHPC was paying water cess @1.1paise/ unit for the FY 2017-18, @1.2 paise/ unit for the FY2018-19 & @1.3paise/ unit for the FY2019-20 and got reimbursed from GRIDCO. Accordingly OHPC shall pay Licence Fee on water used for generation of electricity for FY 2020-21 @1.4 paise/ unit

**Table –19 :License fee for Consumption of water for generation of electricity FY 2020-21**

**(Rs. in Crs)**

<b>Power Stations</b>	<b>Design Energy (in MU)</b>	<b>Licence Fee on water Proposed by OHPC @0.014Rs/Kwh of Generation (in Crs)</b>	<b>Remarks</b>
RHEP	525	0.735	OHPC will claim reimbursement @Rs 0.014/Kwh on actual generation of each Power Station.
UKHEP	832	1.165	
BHEP	1183	1.656	
HHEP	684	0.958	
CHEP	490	0.686	
UIHEP	1962	2.747	
<b>Total</b>	<b>5676</b>	<b>7.946</b>	

Hence, OHPC prays before the Hon'ble Commission for approval of provisional amount of Rs7.946Cr towards License fee mentioned in the table above as Reimbursement from GRIDCO subject to approval of reimbursement to the extent of actual water cess paid to the Govt. based on actual generation pattern for the FY2020-21.

#### **10. SLDC Charges**

As per OERC (fees & charges of state load dispatch centre and other related matters) regulations, 2010 SLDC has to levy and collect annual charges from the users towards system operation charges and market operation charges. Hon'ble Commission has fixed Rs.9101.21/MW/Annum to be collected from the generators towards annual charges of SLDC for the FY2019-20.

The Commission has approved for Rs.1.64Cr. for the FY 2019-20, which is to be collected by SLDC from OHPC on monthly basis and OHPC has to reimburse the same from GRIDCO. Since OHPC has not received the ARR, fees & charges of SLDC for the FY 2020-21, the previous year approved charges applicable to OHPC has been escalated @5.72% to arrive at the charges payable by OHPC for the FY 2020-21.

Accordingly, Rs. 1.7338Crs. has provisionally been considered as fees & charges of SLDC payable by OHPC on the average available Installed Capacity of 1700 MW

#### **11. Reimbursement of Contribution Made to ERPC**

Annually OHPC is paying Rs15Lakhs towards contribution to ERPC Establishment Fund & Rs01 Lakh towards contribution to ERPC Fund. Assuming the same claim of ERPC, OHPC has claimed this amount of Rs 16.0 Lakhs as a pass through in the tariff for FY 2020-21 to be

reimbursed from GRIDCO. Any excess claim (above Rs16.0 Lakhs) made by ERPC for the FY 2020-21 will be claimed as additional reimbursement in the subsequent Tariff year.

## 12. Income Tax

Income Tax paid by OHPC for the FY2018-19 is detailed below:

**Table-20: Income Tax paid by OHPC for the FY2018-19**

Particulars	Amount (Rs in Lakhs)	Amount of TAX Paid @ 34.9444% (Rs in Lakhs)
Core Income	54,964.66	4,902.07
Non-Core Income (FD interest)	10,252.25	3,582.55
Total income before meeting all expenses.	65,216.91	8,484.62

Accordingly OHPC is entitled to get reimbursement of Rs 49.0207Cr towards income tax for FY 2018-19 in the tariff of OHPC for FY 2020-21.

## 13. Details of Reimbursement Cost:

Total reimbursement cost claimed for the FY 2020-21 is given in the table – 21 below.

**Table 21 : Details of Reimbursement for FY 2020-21**

Component of Costs	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP	Total
(a) License fee for use of water for generation of electricity for FY 2020-21.	0.735	1.165	1.656	0.958	0.686	2.747	<b>7.946</b>
(b) ED on Auxiliary Energy Consumption for FY2020-21.	0.289	0.458	0.651	0.376	0.270	1.079	<b>3.122</b>
(c) SLDC charges							<b>1.7338</b>
(d) Application fees and publication expenses							<b>0.262</b>
(e) ERPC charges							<b>0.16</b>
(f) Income Tax as per Audited Account of FY 2018-19							<b>49.0207</b>
<b>Total</b>							<b>62.2445</b>

Thus, the Commission may approve the total reimbursement of Rs62.2445Cr. as proposed by OHPC in table above. The above expenditure may be included in GRIDCO's ARR and hence shown as revenue requirement in OHPC filing for FY 2020-21.

## 14. Tariff for Energy Billing to CSPDCL:

The erstwhile Chhattisgarh State Electricity Board (CSEB), presently Chhattisgarh State Power Distribution Company Limited (CSPDCL) drawing energy from Hirakud generation towards 5MW share of Chhattisgarh State (erstwhile share holder being Madhya Pradesh) is taking a plea since the FY 2006-07 to pay the energy charges at the tariff approved by the Hon'ble Commission for HHEP, Burla, applicable for the consumers of Odisha, considering the supportive measures extended by the Govt. of Odisha which is considerably less than the actual cost of generations from HHEP on which billing is made to them as per the Minutes of Meeting dtd. 24.12.2004.

Hon'ble Commission have provisionally fixed the ECR for billing to CSPDCL for the FY 2015-16 to FY 2019-20. OHPC is in the process of truing up of the expenditure for its power stations which will be filed before OERC for approval. Considering the approved up-valued project cost of HHEP after truing-up, OHPC shall compute the ECR for billing to CSPDCL from the FY 2006-07 onwards, and file an application before the Hon'ble Commission for approval of the same. However, for coming FY 2020-21 OHPC has computed the tariff for billing of Energy to CSPDCL as per the CERC (Terms and Conditions of Tariff) Regulation'2019 as furnished at Table below.

**Table 22 :Tariff for CSPDCL for 2020-21**

<b>Details of Expenses HHEP</b>	<b>Amount (Rs in Crs)</b>
Salable Design Energy of HHEP	677.16 MU
Project Cost (Up-valued cost as on 01.04.1996 + Capitalization up to 31.03.2019 - Decapitalization)	461.54Cr
Return on Equity (@ 25.3629%)	35.12
Interest on Loan	10.47
Depreciation (@ 5.28%)	24.37
O & M expenses (Escalated @ 4.77%)	61.64
Interest on Working Capital (@ 12.05%)	4.47
Total ARR	136.06
Average Tariff (p/u)	200.920

OHPC prays Hon'ble Commission approve the tariff for energy billing to CSPDCL @ 200.920 paisa/unit for the FY 2020-21.

#### **15. Annual Revenue Requirement & Tariff for Machhkund H.E. (Jt.) Scheme**

Machhkund Hydro Electric Project is a joint scheme of Government of Andhra Pradesh and Government of Orissa with 70% and 30% shares respectively, with option of Government of Orissa to draw an additional 20% power (105 MU) at a cost of Rs. 0.08 per unit as per the interstate supplementary agreement in the year 1978 between Government of Andhra Pradesh and Government of Orissa. The proposed tariff of 78.5098 Paisa/Unit of Orissa drawl of

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

**Table-23 :Projected Tariff of Machhkund H. E. (J) Scheme for FY 2020-21**

Installed Capacity (MW)	120.00 MW
Odisha share as per Original Agreement (30%)	36.00 MW
Energy for sharing between Andhra Pradesh & Odisha	525.00 MU
Expected Energy Drawl by Odisha (50%)	262.50 MU
Energy Drawl of 30% of Odisha share	157.50 MU
Purchase of Power up to 20% as per Supplementary Agreement	105.00 MU
O&M Escalation factor @ 4.77% for year for 2 years	1.0977
	<u>(Rs. in Crs)</u>
1. O&M Exp. (Odisha share of O&M Exp. For FY 18-19)	14.2001
2. O&M Exp for FY 2020-21 with escalation of 4.77% for 2018-19 & 2019-20	15.5871
3. Power purchase cost of additional 20% above 30% Orissa Share (105MU x 0.008)	0.84
4. Total Annual Expenditure (2 +3)	16.4271
5. Tariff (Paise/Kwh)	<b>62.579</b>
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.	

#### **16. Normative Plant Availability Factor (NAPAF)**

The Normative annual plant availability factor (NAPAF) for existing Hydro Generating Stations of OHPC Ltd will be as determined by the commission from time to time.”

Hon’ble OERC at para no.122 of the Tariff Order of OHPC for FY2019-20 has observed as follows:

*“In accordance to Para 5.4 (VII) of OERC (Generation) Regulation 2014 Commission has to determine the NAPAF of OHPC power stations for next block period i.e from 01.04.2019 to 30.03.2024. For determination of NAPAF, OHPC is required to submit the details of renovation works carried out along with their time period of completion so as to find the availability of machines accurately during last five years. Since OHPC has not submitted the detailed machine-wise availability of its plants Commission has decided to fix NAPAF of OHPC plants provisionally as that of last block period.”*

Accordingly, OHPC has resubmitted the application with all relevant documents for approval of NAPAF of different power stations of OHPC for the block period FY2019-20 to FY2023-24. The Case was registered as 52 of 2019. The final order is still awaited. Therefore considering the actual performance of OHPC power station in achieving NAPAF OHPC proposes the revised NAPAFs of the different power station for the next block period (i.e. FY-2019-20 to FY 2023-24) as follows:

**Table-24 : Normative Plant Availability Factor proposed by OHPC for FY 2020-21**

Power Stations	RHEP	UKHEP	BHEP	HHEP	CHEP	UIHEP
NAPAF (%)	70	80	80	65	65	85

### **PRAYER**

OHPC pray before the Hon'ble Commission to kindly approve the following in the ARR & Tariff Order of OHPC Power Stations for the FY 2020-21:

1. The ARR amounting to Rs 536.738Cr. of OHPC Power Stations at an average tariff @ 95.80 Paise/Unit.
2. The ACC, AEC & ECR of different Power Stations of OHPC as shown in the Table-20.
3. The NAPAF as shown in the Table-28 for different power stations under OHPC.
4. The miscellaneous reimbursement of Rs 62.2445 Crore by OHPC from GRIDCO.
5. The tariff for energy billing to CSPDCL @ 200.920 Paisa/ Unit considering Up-valued cost
6. of HHEP and the norms of CERC (Terms & Conditions of Tariff) Regulations, 2019.
7. The tariff of MHEP (Joint Scheme) @ 62.579 Paisa/Unit.
8. The average available Installed Capacity as 1700 MW for payment of SLDC charges.

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