

**ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
PLOT NO. 4, CHUNOKOLI, SHAILASHREE VIHAR,
BHUBANESWAR-751021**

**Present: Shri G. Mohapatra, Officiating Chairperson
Shri S.K.Ray Mohapatra, Member**

Case No. 96/2021

OPGC	Petitioner
Vrs.		
GRIDCO	Respondent

In the matter of: Application under Section 62 (1) (a) of the Electricity Act, 2003 read with the provisions of CERC (Terms and Conditions of Tariff) Regulations, 2009 for approval of Capital cost and Tariff determination for Units 3 & 4 (2 X 660MW) from COD of Unit # 3 (03.07.2019) up to FY 2023 -24.

For Petitioner : Shri Deep Rao, Advocate with Shri Haresh Satpathy, DGM (R&C), OPGC

Respondents : Shri P. K. Dash, CGM (PP), Shri B. K. Das, Sr. GM (PP) & Ms. Susmita Mohanty, DGM (PP), GRIDCO Ltd. and Shri V. Wagle on behalf of TPSODL, TPCODL, TPWODL and TPNODL and Shri S. K. Panda, GM (RT&C), OPTCL.

ORDER

Date of hearing: 11.10.2022

Date of order: 07.01.2023

The Odisha Power Generation Corporation Ltd. (hereinafter referred to as OPGC or the Petitioner) has filed the present petition under Section 62 (1) (a) of the Electricity Act, 2003 for determination of tariff of Generating Units- 3 & 4 (2 x 660 MW) of its Ib Thermal Power Station situated at Banharpalli in Jharsuguda district of Odisha.

2. Earlier OPGC was operating with two numbers of thermal generating units (Units 1 & 2) having the capacity of 210 MW each at its Ib Thermal Power Station. Later OPGC proceeded to install two more generating units (Units 3 & 4) having capacity of 660 MW each adjacent to the existing Units 1 & 2 in the same site. OPGC had entered into a long-term Power Purchase Agreement (termed as PPA-2) with GRIDCO on 04.01.2011 for supply of 50% of the installed capacity from Units 3 & 4 basing on the notifications of the State Government No.7216 and No.10061 dated 21.06.2008, 12.10.2009 respectively. In the said PPA-2, it was indicated that OPGC would be free to sell the balance 50% of the installed capacity to any outside agency, which was not

allocated to GRIDCO basing on the norms and parameters of the CERC (Terms and Conditions of Tariff) Regulations, 2009 as amended from time to time. The Commission had approved the said PPA in Case No. 113/2011 dated 04.01.2012.

3. Subsequently, the Government of Odisha, vide its Notification No.10485 dated 20.12.2018, have notified as follows:

“2. *Xxxxxx. PPA has been executed between OPGC and GRIDCO for 50% of the capacity of the expansion project i.e. 660 MW. The balance 50% of the capacity was to be sold by OPGC in the open market. However, due to several developments in the power sector extraneous to OPGC, it has not been possible for OPGC to tie up the balance 50% power in suitable arrangements outside GRIDCO. In the meanwhile, in order to secure fuel for the plant, OPCL (Joint Venture Company between OPGC & OHPC) has been formed and Manoharpur and dip side Manoharpur coal blocks have since been allocated to OPCL. The coal mined from these blocks is meant to be utilized for the end-use plants of OPGC.*

3. *It is therefore necessary to tie up the entire power from Units 3 & 4 projects of OPGC with GRIDCO in a mutually beneficial arrangement to enhance the long term energy security of the State.*

4. *After careful consideration, Government have been pleased to approve the arrangement worked out in the “Shareholders’ meeting of OPGC” to contract the PPA for the entire capacity of Units 3 & 4 between OPGC and GRIDCO in the following manner:*

(i) *OPGC and GRIDCO shall execute a supplementary Agreement to the existing PPA on the same terms as the executed PPA for 50% (660 MW), for another 25% (330 MW) of OPGC expansion capacity, to be effective from COD of Units 3 & 4, till 31st March, 2023. The Supplementary Agreement shall also include enhancement of the PPA from 75% to 100% from 1st April, 2023 for a period of 25 years thereafter.*

xxx xxx xxx xxx.”

4. In compliance of the above notification of the State Government, OPGC and GRIDCO have entered into a supplementary PPA dated 24.01.2019 (referred to as supplementary agreement to PPA-2) and GRIDCO has filed a petition before OERC in Case No.67 of 2019 for approval of the said supplementary agreement to PPA-2. The Commission vide its order dated 22.06.2021 in Case No.67 of 2019 has accorded in principle approval to the said supplementary agreement to PPA-2 with the following observations and directions:

“29. *Xxxxxxxxxx. Therefore, the Commission is of the view that GRIDCO may procure power from OPGC expansion Units-3 & 4 as decided by the State Government. However, the Commission observed that as per PPA -2 the tariff norms and parameters for this project shall be as per the guidelines of CERC*

Tariff Regulations. The same is reiterated in the supplementary agreement to the PPA-2. Since 100% power shall be procured by GRIDCO from this expansion project of OPGC, the tariff should be as per the norms and parameters of OERC Generation Tariff Regulations notified by the Commission from time to time.

xxxxxxxxxx”

5. However, OPGC has preferred a Writ Petition WP(C) No.34663/2021 before the Hon’ble High Court of Orissa challenging the above ruling of this Commission that the tariff of the expansion Units 3 & 4 should be determined as per the norms and parameters of OERC (Generation Tariff) Regulations instead of CERC Tariff Regulation. That writ petition is still pending before the Hon’ble High Court of Orissa.
6. In the meantime, OPGC had filed a petition before this Commission for approval of the capital cost of the expansion Units 3 & 4 and determination of provisional tariff from the anticipated COD upto 31st March, 2019, which was registered as Case No.3/2019. However, the Unit 3 and Unit 4 of OPGC expansion project had achieved Commercial Operation Date (COD) on 03.07.2019 and 21.08.2019 respectively. The Commission in that case allowed provisional tariff of Rs.2.75 per unit for 50% of the contracted capacity to OPGC and directed that OPGC should file fresh petition after OERC Generation Regulation, 2020 is notified by the Commission. Later OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 was notified by the Commission on 15.07.2020.
7. Subsequently, the Commission after hearing OPGC, GRIDCO and other relevant parties during the annual tariff hearing had allowed provisionally Rs.3.09 per unit and Rs.3.30 per unit for the power to be procured by GRIDCO from Unit 3 & 4 of OPGC for the period FY 2021-22 & 2022-23 respectively.
8. OPGC has filed the present petition for approval of the capital cost for Units 3 & 4 including additional capitalization and determination of tariff of the generating Units 3 & 4 from their COD upto 31st March 2024 basing on our earlier direction. However, contrary to our observation that tariff should be calculated basing OERC Generation Regulation, 2020, OPGC has calculated the tariff basing on the CERC (Terms and Conditions of Tariff) Regulations, 2019. The summary of the tariff computed by OPGC for the generating Units 3 & 4 of its Ib Thermal Power Station is given hereunder:

Summary of Tariff as Computed by OPGC

(Rs. in Crore)

S.No.	Particulars	FY 2019-20			FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		03-Jul-19	21-Aug-19	Total				
		20-Aug-19	31-Mar-20					
1	2	3	4	5	6	7	8	9
A	Annual Fixed Cost							
1	O & M Expenses	17.95	164.12	182.07	276.80	286.57	296.60	307.03
2	Water Charges	3.55	16.17	19.73	28.59	30.54	32.58	34.62
3	Security expenses	0.38	1.82	2.20	3.34	3.95	4.66	5.50
4	Depreciation	23.72	271.44	295.16	442.84	520.22	598.21	599.68
5	Interest on Term Loans & Fin. Charges	35.63	407.47	443.10	633.48	699.68	758.50	696.52
6	Interest on Working Capital Loans	4.61	45.13	49.74	56.75	60.57	64.32	63.99
7	Return on Equity	22.64	251.05	273.69	409.56	478.37	547.73	549.03
8	Annual Fixed Cost	108.48	1157.21	1265.69	1851.36	2079.90	2302.60	2256.38
B	Variable Cost	80.10	772.91	853.01	1259.44	1259.44	1259.44	1262.89
C	Total Cost	188.58	1930.12	2118.70	3110.80	3339.34	3562.04	3519.27
D	GRIDCO Share	75%	75%	75%	75%	75%	75%	100%
	Annual Fixed Cost	81.36	867.90	949.26	1388.52	1559.93	1726.95	2256.38
	Variable Cost	60.07	579.69	639.76	944.58	944.58	944.58	1262.89
	Total Cost	141.43	1447.59	1589.02	2333.10	2504.51	2671.53	3519.27
E	Units Sold to GRIDCO in MU	463.88	4241.16	4705.04	6910.82	6910.82	6910.82	9239.67
F	Rate of Fixed Charge(Paisa/kwh)	175.39	204.64	201.75	200.92	225.72	249.89	244.21
G	Rate of Variable Charge(Paisa/kwh)	129.50	136.68	135.97	136.68	136.68	136.68	136.68
H	Rate of Sale of Energy (Paisa./kwh)	304.89	341.32	337.73	337.60	362.40	386.57	380.89
I	Other Charges			23.45	34.71	44.64	34.85	34.94

9. To substantiate its stand that tariff should be determined basing on CERC (Terms and Conditions of Tariff) Regulations, 2019 OPGC has pointed out that the Commission had approved PPA 2 for 50% of the contracted capacity of Unit 3 & 4 where it has been mentioned that tariff should be determined basing on CERC (Terms and Conditions of Tariff) Regulations, 2019. Similarly, the Government of Odisha Notification No. 10485 dated 20.12.2018 states that:

“4(i) OPGC and GRIDCO shall execute a supplementary Agreement to the existing PPA on same terms as the executed PPA for 50% (660 MW), for another 25% (330 MW) of OPGC expansion capacity to be effective from COD of Units 3 & 4, till 31st March, 2023. The Supplementary Agreement shall also include enhancement of the PPA from 75% to 100% from 1st April, 2023 for a period of 25 years thereafter.”

OPGC submits that Government Notification as stated above also corroborates its stand that that the old terms and conditions for drawal of 50% of power as stated in PPA 2 shall continue in supplementary PPA for drawal of 75% or 100% of power by GRIDCO. Therefore, CERC Tariff Regulation as mentioned in PPA 2 shall also be

applicable for the purpose of implementation of supplementary PPA. The Petitioner further points out that OERC Generation Tariff Regulations, 2014 makes a special provision for OPGC by providing that tariff for supply of electricity from an existing project shall be in accordance with such PPA or arrangement for such period as may be so approved or adopted by the Commission, to the extent of existing Installed Capacity as contained in the PPA.

10. On this issue, the Respondent-GRIDCO has submitted that GRIDCO had entered into PPA with OPGC on 04.01.2011(referred to as PPA-2) for procurement of 50% of the installed capacity from the Units 3 & 4 of OPGC. As per Article 3.1(c) of the PPA-2 dated 04.01.2011, OPGC should file application before the appropriate Commission for tariff determination under Electricity Act, 2003 which is Odisha Electricity Regulatory Commission. Further, GRIDCO has entered into a supplementary agreement to the PPA-2 with OPGC on 24.01.2019 to procure additional 25% i.e. 75% of the installed capacity of Units 3 & 4 from COD upto 31.03.2023 and 100% of the installed capacity of Units 3 & 4 from 01.04.2023 onwards, for a period of 25 years. The Commission while approving this supplementary PPA-2 vide its order dated 22.06.2021 passed in Case No.67/2019 at para 29, has observed the following:

“29. XXXXXXXXX. Therefore, the Commission is of the view that GRIDCO may procure power from OPGC expansion Units-3 & 4 as decided by the State Government. However, the Commission observed that as per PPA -2 the tariff norms and parameters for this project shall be as per the guidelines of CERC Tariff Regulations. The same is reiterated in the supplementary agreement to the PPA-2. Since 100% power shall be procured by GRIDCO from this expansion project of OPGC, the tariff should be as per the norms and parameters of OERC Generation Tariff Regulations notified by the Commission from time to time.

The Respondent-GRIDCO has stated that in view of the approved contract/PPA dated 24.01.2019 and Section 86(1)(a) of the Electricity Act, 2003, this Commission has all the power to determine the tariff of OPGC expansion Units 3 & 4 basing on its own Regulations.

11. We observe that the major functions of Central Commission and State Commission have been specified under Sections 79 and 86 respectively of the Electricity Act, 2003, one of which is the determination of generation tariff at which distribution companies shall purchase power from Generating Company. Further, the Hon’ble Supreme Court of India in Civil Appeal Nos.5399-5400 of 2016 (Energy Watchdog

Versus Central Electricity Regulatory Commission and Ors.) has defined the composite scheme for which Central Commission (CERC) has jurisdiction. The relevant portions is given hereunder:

- “22. *The scheme that emerges from these Sections is that whenever there is inter-State generation or supply of electricity, it is the Central Government that is involved, and whenever there is intra-State generation or supply of electricity, the State Government or the State Commission is involved. This is the precise scheme of the entire Act, including Sections 79 and 86. It will be seen that Section 79(1) itself in sub-sections (c), (d) and (e) speaks of inter-State transmission and inter-State operations. This is to be contrasted with Section 86 which deals with functions of the State Commission which uses the expression “within the State” in sub-clauses (a), (b), and (d), and “intra-state” in sub-clause (c). This being the case, it is clear that the PPA, which deals with generation and supply of electricity, will either have to be governed by the State Commission or the Central Commission. **The State Commission’s jurisdiction is only where generation and supply takes place within the State. On the other hand, the moment generation and sale takes place in more than one State, the Central Commission becomes the appropriate Commission under the Act.** What is important to remember is that if we were to accept the argument on behalf of the appellant, and we were to hold in the Adani case that there is no composite scheme for generation and sale, as argued by the appellant, it would be clear that neither Commission would have jurisdiction, something which would lead to absurdity. Since generation and sale of electricity is in more than one State obviously Section 86 does not get attracted. This being the case, we are constrained to observe that the expression “composite scheme” does not mean anything more than a scheme for generation and sale of electricity in more than one State.”*

From the conjoint reading of both the provisions of the Act as stated above and the above decision of Hon’ble Apex Court, it is clear that Central Commission has jurisdiction for determination of the tariff for the generating station which are owned by Government of India or have a composite scheme for sale of power in more than one State. OPGC is neither a Central Government company nor has a scheme to sale power to more than one State as a part of composite scheme. Therefore, CERC is not the appropriate Commission to determine tariff for a power station output of which is fully dedicated to the State of Odisha. If this Commission is to determine the tariff for Generating Units 3 & 4 of the Petitioner which are fully dedicated to the State then it is to be guided by its own Regulation i.e. OERC Generation Regulations, 2014 or 2020. The argument of the Petitioner that OERC should determine tariff basing on the CERC Regulation is nonest in the eyes of law in view of the Section 181 of the Electricity Act, 2003.

12. Further, we observe that the petitioner-OPGC has filed a Writ Petition before the Hon'ble High Court of Orissa on this matter of applicability of CERC Regulation to the determination of tariff by OERC in WP(C) No.34663 of 2021 which is now pending before the said Hon'ble Court for adjudication. Therefore, continuing with our earlier stand, pending final decision of the Hon'ble High Court of Orissa in this matter, we now proceed to determine the tariff of the generating Units 3 & 4 of OPGC expansion projects basing on the norms specified by this Commission in OERC Generation Regulations.

Determination of Capital Cost of the Project

13. The Commission had appointed an independent auditor (Chartered Accountancy Firm) to scrutinise the capital cost and additional capitalization of Units 3 & 4 as per regulation 6(2) and 9(3) of the OERC (Terms and Conditions for determination of Generation Tariff), Regulations, 2020. The report of such independent auditor is also available with the Petitioner and GRIDCO.
14. The Petitioner-OPGC had submitted the Hard Cost incurred for Units 3 & 4 as shown in the table below:

Hard Cost as on COD of Unit 4 and Projection beyond COD

(Rs. in Crore)

S. No.	Particulars	DPR cost	Actual expenditure upto COD of Unit 4	Projected expenditure beyond COD	Total expenditure
		(i)	(ii)	(iii)	(iv)=(ii)+(iii)
1	Land	149.00	155.55	44.31	199.86
2	BTG	3892.00	4020.09	327.47	4347.56
3	BoP	2877.00	1602.39	266.64	1869.03
4	MGR	670.00	1069.93	455.32	1525.25
5	Township & Colony	200.00	127.34	37.02	164.36
6	Ash pond	289.00	69.05	513.23	582.28
7	Pre-commissioning expenses	475.00	670.50	0.00	670.50
8	Overheads	391.00	146.11	213.00	359.11
	Hard Cost	8943.00	7860.97	1857.00	9717.97

15. However, the independent auditor in its report has submitted that after scrutiny the project cost is found out to be Rs.3336.23 crore and Rs.8521.20 Crore as on 03.07.2019 (COD of Unit 3) and on 21.08.2019 (COD of Unit 4 i.e. COD of the complete project) respectively. The additional capitalization during FY 2020-21 is Rs.225.20 crore and during FY 2021-22 is Rs.1489.23 crore. Accordingly, as per the audited accounts, the project cost as on 31.03.2022 is Rs.10235.63 crore. As per the

OERC Generation Tariff Regulations, additional capitalization upto the cut-off date i.e. as on 31.08.2022 may be considered by the Commission after prudent check. Since the audited account for the FY 2022-23 is not available, the Commission now consider the project cost of Rs.10235.63 crore as per the latest available audited accounts for the FY 2021-22.

In addition to the above, OPGC has considered the cost of Rs.75.00 crore in the capital cost of Unit 3 & 4, which was a part of the total capital expenditure incurred towards creation of common civil infrastructure at the time of setting up of Units 1 & 2. This was not allowed for recovery through tariff of Units 1 & 2 and it was decided to be claimed as a part of capital cost of Units 3 & 4. OPGC has considered the same as 100% equity of the total capital expenditure of Units 3 & 4. The respondent GRIDCO has accepted the above proposal of OPGC and stated that this additional project cost of Units 1 & 2 amounting to Rs.75.00 crore incurred towards creation of common civil infrastructure may be considered to be added to the project cost of Units 3 & 4 as per Clause 9 of the Tripartite Agreement and Clause 2 (e) of Schedule IV of the approved PPA for the Units 3 & 4 and the same is mentioned in the PPA approval order dated 04.04.2012 in Case No.113/2011. Accordingly, considering the above submissions, the project cost of Units 3 & 4 is arrived at Rs.10310.63 crore (Rs.10235.63 + Rs. 75.00) as on FY 2021-22.

16. We take note of the objection of GRIDCO regarding time and cost overrun of the project. This cannot be dealt with now in absence of required data/information pertaining to individual package of the project. Neither the Petitioner-OPGC nor the Respondent-GRIDCO have submitted the details relating to enhancement in the project cost with respect to various packages/items and the time & amount of cost overrun thereon. The independent auditor has also not discussed about this issue of time and cost overrun in his audit report. However, as submitted by the petitioner this may be considered after detail analysis of the required data/information during the time of true up exercise of the capital cost. In this regard, the Commission directs the Petitioner-OPGC to submit the required data/information to GRIDCO and the matter may be discussed with GRIDCO issue-wise to resolve the discrepancies. The views on unresolved issues on both GRIDCO & OPGC may be brought to the notice of the Commission for final decision at the time of truing up of capital cost of the project.
17. The installed capacity and date of Commercial Operation of the generating units 3 & 4 of OPGC are as given below.

Unit No.	Capacity in MW	Date of Commercial Operation (COD)
Unit-3	660	03.07.2019
Unit-4	660	21.08.2019

Considering the above dates of commercial operation of the generating Units 3 & 4 of the Thermal Power Station of OPGC, the tariff is required to be determined by the Commission for the following six-time blocks within a period of five years.

2019-20		2020-21	2021-22	2022-23	2023-24
03/07/2019 to 20/08/2019	21/08/2019 to 31/03/2020	01/04/2020 to 31/03/2021	01/04/2021 to 31/03/2022	01/04/2022 to 31/03/2023	01/04/2023 to 31/03/2024

18. OPGC has submitted the details of Gross Fixed Assets (GFA) of Units 3 & 4 as indicated below:

Gross Fixed Assets as on COD of the Power Station (in Rs. Crore) as on 31.03.2020

Particulars	As on COD of Unit 3	As on COD of Unit 4
Land & Land Rights	0.24	0.24
Building & Civil Works of Power Plants	165.93*	582.80*
Hydraulic Works	0.00	0.00
Other Civil Works	39.05	44.94
Plant & Machinery	3156.14	7905.68
Lines & Cable Net work	14.36	20.94
Vehicles	6.88	6.88
Furniture & Fixtures	11.43	12.59
Office Equipment	16.28	17.69
Software	0.92	4.43
Total	3411.23	8596.20

**including assets amounting to Rs. 75 Crore transferred from Units 1 & 2*

19. Further, OPGC has projected the additional capitalisation for FY 2019-20 to FY 2023-24 as follows:

Projected additional capitalisation (Rs. Crore)	
Year	Additional capitalisation
FY 2019-20	0.00
FY 2020-21	20.66
FY 2021-22	2910.24
FY 2022-23	44.15
FY 2023-24	11.44
Total	2986.49

OPGC states that the above figures relating to additional capitalisation are provisional in nature and the actual figure shall be submitted at the time of truing up of capital

cost. The Petitioner OPGC has submitted the following figure towards capital cost of the project including additional capitalisation.

Year-wise Capital Cost of the Power Station upto FY 2023-24 (in Rs. Crore)

Particulars	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020- 21	FY 2021- 22	FY 2022- 23	FY 2023- 24
Opening capital cost	3411.23	8596.20	8596.20	8616.86	11527.10	11571.25
Addition during the year	0.00	0.00	20.66	2910.24	44.15	11.44
Closing capital cost	3411.23	8596.20	8616.86	11527.10	11571.25	11582.69

20. We observe that as per the independent auditor appointed under the statute and basing on audited accounts, the additional capitalization figures are Rs.225.20 crore and Rs.1489.23 crore during FY 2020-21 and FY 2021-22 respectively. Therefore, the project cost as on 31.03.2022 is Rs.10235.63 crore. As per the OERC Generation Tariff Regulations, additional capitalization upto the cut-off date i.e. as on 31.08.2022 may be considered by the Commission after prudent check. Since the audited account for the FY 2022-23 is not available, the Commission now consider the project cost of Rs.10235.63 crore as per the latest available audited accounts for the FY 2021-22 and does not consider the additional capitalization projected for the FY 2022-23 onwards. However, at the time of setting up of Units 1 & 2, Rs.75 Crore incurred towards of creation of civil infrastructure has been considered in the project cost of the Units 3 & 4 as per Tripartite Agreement and approved PPA for Units 3 & 4.
21. In summary considering the submission of the Petitioner and report of independent auditor appointed by the Commission we find the capital cost for determination of tariff shall be as follows:

Capital Cost considered by the Commission (Rs. in Crore)

Particulars	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020- 21	FY 2021- 22	FY 2022- 23	FY 2023- 24
Opening capital cost	3,336.23	8,521.20	8,596.20	8,821.40	10,310.63	10,310.63
Assets Transferred from OPGC Unit -I & II	75.00	75.00				
Additional capital expenditure	-	-	225.20	1,489.23		
Closing capital cost	3,411.23	8,596.20	8,821.40	10,310.63	10,310.63	10,310.63

Debt and Equity Component of the Project

22. OPGC in its application has furnished the debt and equity component of the project cost as given hereunder:

(Rs. in Crore)		
Particulars	From COD of Unit 3 to COD of Unit 4	From COD of Unit 4 to March 31, 2020
GFA as on COD as per the Audited Accounts	3336.23	8521.20
Debt	2513.30 (75.33%)	6418.13 (75.32%)
Equity	822.93 (24.67%)	2103.07 (24.68%)
Assets transferred from Units 1&2	75	75
Debt	0.00 (0%)	0.00 (0%)
Equity	75.00 (100%)	75.00 (100%)
Total debt	2513.30	6418.13
Total equity	897.93	2178.07

23. OPGC has further submitted the year-wise additional capitalisation and corresponding means of finance for FY 2020-21 to FY 2023-24 as under:

Year-wise Additional Capitalisation and corresponding Debt-Equity Ratio proposed by OPGC for the period from FY 2020-21 to FY 2023-24

(Rs. in Crore)				
Particulars	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Additional Capitalisation	20.66	2910.24	44.15	11.44
Debt	15.49 (75.00%)	2182.68 (75.00%)	33.11 (75.00%)	8.58 (75.00%)
Equity	5.16 (25.00%)	727.56 (25.00%)	11.04 (25.00%)	2.86 (25.00%)

24. The OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 provides as under which is similar to earlier OERC Regulation, 2014:

“16. DEBT-EQUITY RATIO

- (1) For a project declared under commercial operation on or after 01.04.2020, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan;*

Provided also that in case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff;

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xxx”

25. Regarding determination of the equity component of the project, the Independent Auditor in its report has submitted the following:

“As per the project approval of Unit 3 & 4 of OPGC Ltd. expansion project by Government of Odisha, Department of Energy vide letter no. 3193 dtd.17.04.2013, directed to have debt and equity ratio of 75:25. The equity participation between Govt of Odisha and the then AES will be in the ratio of 51:49.

We have verified the equity infusion of OPGC towards the project of unit 3 & 4 from various documents like Extracts of Board resolution on allotment of shares, letter for Sanction of fund of Govt. of Odisha, Bank statements for receipt of share capital amount, certificates for receipt of foreign remittances and audited accounts. The paid up share capital at the beginning of financial year 2013-14 is Rs.490.22 Cr. and after capital infusion of Rs.1539.28 Cr. on various dates the closing balance of paid up capital is Rs. 2029.50 Cr as on 31st March 2022 as verified from audited accounts. Out of total capital infusion of Rs.1539.28 Crore, an amount of Rs.1458.28 Cr. has been earmarked for Unit 3 & 4 expansion project.

Statement of Additional Equity Infused by Shareholders					Amount (Rs)
Date of Receipt	Name of Bank	Account No.	From Govt. of Odisha	From OHPC w.e.f. 10.12.2020 (Previously AES)	Total
08-02-17	Main Branch, Bhubaneswar, Union Bank of India	380805010000063	-	2,376,500,000	2,376,500,000
09-02-17	Main Branch, Bhubaneswar, Union Bank of India	380805010000064	2,473,500,000	-	2,473,500,000
22-09-17	Main Branch, Bhubaneswar, Union Bank of India	380805010000063	1,199,928,000	-	1,199,928,000
07-10-17	Main Branch, Bhubaneswar, Union Bank of India	380805010000064	-	1,152,872,000	1,152,872,000
22-02-18	Main Branch, Bhubaneswar, Union Bank of India	380805010000063	1,887,000,000	-	1,887,000,000
27-02-18	Main Branch, Bhubaneswar, Union Bank of India	380805010000064	-	1,813,000,000	1,813,000,000
28-02-19	Fortune Towers Branch, SBI, Bhubaneswar	30008553556	1,234,200,000	-	1,234,200,000
28-02-19	Main Branch, Bhubaneswar, Union Bank of India	380805010000063	-	1,185,800,000	1,185,800,000
31-12-21	Main Branch, Bhubaneswar, Union Bank of India	30008553556	2,070,000,000	-	1,260,000,000
	Less- Equity funding for OCPL(Rs.39 Cr.) and FGD (Rs.42 Cr.) amounting to Rs. 81 Cr.		(810,000,000)		
Total			8,054,628,000	6,528,172,000	14,582,800,000

As explained to us apart from above equity infusion, OPGC Ltd has funded from its internal accruals to maintain the desired debt equity ratio.”

26. The Commission observed that the Project Approval Committee (PAC), in its meeting held on 18.12.2012 under the Chairmanship of Chief Secretary, Odisha, has decided that equity would be invested from internal accruals as well as direct infusion in the ratio of stake holding in a phased manner for Unit-3 & 4 of OPGC. It is further observed that in the meeting of OPGC Board held on 26.03.2015 it has also vetted that equity is to be made from internal accruals as well as to be contributed by the investors. Accordingly, OPGC has submitted the details of equity component including equity infusion from its internal accruals. The same has been scrutinized by the Commission and summarized in the Table below:-

Computation of Project Expenses and Sources of Fund (Debt & Equity) (Rs. in Crore)

Sl. No.	Particulars	Project Expenses				
		7/3/2019	8/21/2019	3/31/2020	3/31/2021	3/31/2022
	Project Cost:					
1	Gross Fixed Assets (GFA)	3,336.23	8,521.19	8,521.19	8,746.22	10,235.63
2	Capital Work in Progress (CWIP)	6,033.97	1,080.36	1,287.30	1,359.18	135.75
3	Project Capital Advances	454.65	525.33	394.77	369.32	280.68
	Total Expenses	9,824.85	10,126.88	10,203.26	10,474.72	10,652.06
4	Less: Undischarged Liabilities *	450.70	476.32	257.81	256.29	324.55
	Net Project Expenses	9,374.15	9,650.56	9,945.45	10,218.43	10,327.51
5	Sources of Fund:					
5.1	Loan from PFC	3,516.83	3,648.79	3,745.67	3,786.34	3,866.12
5.2	Loan from REC	3,608.32	3,619.58	3,811.54	3,852.20	3,865.75
6	Total Debt	7,125.15	7,268.37	7,557.21	7,638.53	7,731.87
7	Equity	2,249.00	2,382.19	2,388.24	2,579.90	2,595.64
7.1	Equity addition by Shareholder	1,332.28	1,332.28	1,332.28	1,332.28	1,458.28
7.2	Equity from Internal Accruals	916.72	1,049.91	1,055.96	1,247.62	1,137.36
8	Loan availed against Project Expenses (%)	76.01%	75.32%	75.99%	74.75%	74.87%
9	Balance Expenses from Equity (%)	23.99%	24.68%	24.01%	25.25%	25.13%
10	Total GFA	3,336.23	8,521.19	8,521.19	8,746.22	10,235.63
10.1	Proportionate Debt in GFA	2,535.82	6,417.78	6,474.97	6,538.02	7,663.08
10.2	Proportionate Equity in GFA	800.41	2,103.41	2,046.22	2,208.20	2,572.55
10.3	Assets transferred from Unit I & II as Equity	75.00	75.00	75.00	75.00	75.00

27. From the above table, we observe that the equity component upto COD of Unit 3 is Rs.875.41 crore which is less than 30% of the capital expenditure upto that date. Further, the amount of equity as on COD of Unit 4 is also within 30% of the capital expenditure. Therefore, the Commission considered the equity component of the Unit

3 & 4 project of OPGC as per actual equity employed as per the OERC Generation Tariff Regulations.

Return on Equity (RoE)

28. M/s OPGC has claimed that as per Regulations 30(2) and 31 of the CERC Tariff Regulations, 2019 they are entitled for RoE of 15.5% to be grossed up with the effective tax rate of 17.4%. However, the Commission has calculated RoE based on the OERC Generation Tariff Regulations, 2014 and OERC Generation Tariff Regulations, 2020 which stipulate as under:

Sl. No.	Particulars	Norms to be considered for FY:2019-20 as per OERC Generation Regulations , 2014 (extended for 2019-20)	Norms to be considered for FY:2020-21 to FY:2023-24 as per OERC Generation Regulations , 2020
1	RETURN ON EQUITY	4.5 Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulations 3.6, 3.7 and 3.8: 4.6 Return on equity shall be computed @ 16% of the equity amount.	20(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulations 16(1), (2) and (3): 20(2)Return on equity shall be computed at the base rate of 14% for all generating stations;
2	TAX ON INCOME	4.7 Income tax of the Generating Company shall be recovered from the beneficiaries. This will exclude income tax on other income streams	21(1)Income tax of the Generating Company shall be recovered from the beneficiaries. This will exclude income tax on other income streams

29. Accordingly, the Commission have considered base rate of 16% for computation of RoE for the year 2019-20 based on the OERC Generation Tariff Regulations, 2014 and 14.00% for the year 2020-21 to 2023-24based on the OERC Generation Tariff Regulations, 2020.The details of RoE approved are given in the table below:

RoE approved for FY 2019-20 to FY 2023-24 (Rs. Crore)

Description	2019-20		2020-21	2021-22	2022-23	2023-24
	Tariff for Unit- III	Tariff for Unit- III & IV	Tariff for Unit- III & IV	Tariff for Unit- III & IV	Tariff for Unit- III & IV	Tariff for Unit- III & IV
	03/07/2019 to 20/08/2019	21/08/2019 to 31/03/2020	01/04/2020 to 31/03/2021	01/04/2021 to 31/03/2022	01/04/2022 to 31/03/2023	01/04/2023 to 31/03/2024
Opening Equity	875.41	2,121.22	2,121.22	2,283.20	2,647.55	2,647.55
Addition of Equity /Internal accruals during the Year	-	-	161.98	364.35	-	-
Closing Equity	875.41	2,121.22	2,283.20	2,647.55	2,647.55	2,647.55
Average Equity	875.41	2,121.22	2,202.21	2,465.38	2,647.55	2,647.55
Base Rate on Equity (%)	16.00%	16.00%	14.00%	14.00%	14.00%	14.00%
ROE Amount (Yearly)	140.07	339.40	308.31	345.15	370.66	370.66
ROE for the period	18.75	207.72	308.31	345.15	370.66	370.66

Interest on Loan Capital

30. OPGC has submitted that the loan amount as on COD of Unit 3 has been considered as the opening loan balance. The normative repayment has been considered as equivalent to the depreciation in accordance with the provisions of CERC Tariff Regulations, 2019. The outstanding loan as on COD of Unit 4 has been worked out by considering the outstanding normative loan pertaining to Unit 3 and the loan amount corresponding to the Capital Cost of Unit 4. The closing normative loan for FY 2019-20 has been considered as the opening normative loan for FY 2020-21 and so on. The debt portion of the projected additional capitalisation has been considered as the loan addition for the corresponding year. The actual rate of interest of 10.61% (for FY 2019-20) has been considered as the interest rate for FY 2019-20. The actual rate of interest of 10.72% (for FY 2020-21) has been considered as the interest rate for the period from FY 2020-21 to FY 2023-24. The interest on loan claimed by OPGC is as shown in the Table below:

Interest on Loan proposed by OPGC for FY 2019-20 to FY 2023-24 (Rs. Crore)

Particulars	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Gross loan - Opening	2513.30	6418.13	6418.13	6433.62	8616.30	8649.41
Cumulative repayments	0.00	23.72	295.16	738.00	1258.22	1856.43
Net loan - Opening	2513.30	6394.40	6122.97	5695.62	7358.08	6792.98
Receipts during the year	0.00	0.00	15.49	2182.68	33.11	8.58
Repayment during the year	23.72	271.44	442.84	520.22	598.21	599.68
Net loan - Closing	2489.58	6122.97	5695.62	7358.08	6792.98	6201.88
Average Net Loan	2501.44	6258.68	5909.29	6526.85	7075.53	6497.43
Rate of Interest on Loan	10.61%	10.61%	10.72%	10.72%	10.72%	10.72%
Interest on loan	35.63	407.47	633.48	699.68	758.50	696.52

31. However, the Commission is guided by Clause 4.9 to 4.17 of OERC Generation Tariff Regulations, 2014 pertaining for the period FY 2019-20 and Clause 22(1) to 22(9) of OERC Generation Tariff Regulations, 2020 for FY 2020-21 onwards while determining the interest on loan capital. The Independent Auditor in its report on 26.08.2022 has submitted the actual weighted average interest rate as on COD of the Units. The Commission has considered the normative repayment of loan upto beginning of the year 2019 for calculating net loan for both the Units 3 & 4.

32. Accordingly, the interest on loan has been calculated for tariff purpose for the period 2019-24 taking the weighted average rate of interest as submitted by Independent Auditor in its report. Accordingly, the interest on loan for different block periods has been calculated and given below.

Interest on Loan considered by the Commission (Rs. in Crore)

Particulars	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020- 21	FY 2021- 22	FY 2022- 23	FY 2023- 24
Weighted avg. Rate of Interest	10.77%	10.68%	10.68%	10.68%	10.68%	10.68%
Gross Loan	2,535.82	6,474.98	6,474.98	6,538.20	7,663.08	7,663.08
Cumulative Repayment upto previous Year	-	23.66	294.35	741.36	1,225.49	1,742.03
Net Loan Opening	2,535.82	6,451.32	6,180.63	5,796.84	6,437.59	5,921.05
Receipt during the Year	-	-	63.22	1,124.88	-	-
Repayment of normative Loan during the year	23.66	270.70	447.01	484.13	516.54	516.54
Net Loan Closing	2,512.16	6,180.63	5,796.84	6,437.59	5,921.05	5,404.51
Avg. Normative Loan	2,523.99	6,315.98	5,988.73	6,117.21	6,179.32	5,662.78
Interest on term loan	271.83	674.55	639.60	653.32	659.95	604.79
Interest on term loan for the period	36.39	412.84	639.60	653.32	659.95	604.79

O & M Expenses

33. The total O & M expenses including the water charges and security expenses as claimed by OPGC for FY 2019-20 to 2023-24 basing on CERC Tariff Regulations is shown in the Table below:

Sl. No.	Particulars	Unit	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
			49	224	365	365	365	366
1	Unit size	MW	660	660	660	660	660	660
2	No of Units	No.	1	2	2	2	2	2
3	Normative O&M expenses as Regulations	Rs. Lakh/MW	20.26	20.26	20.97	21.71	22.47	23.26
4	O&M expenses	Rs. Crore	17.95	164.12	276.80	286.57	296.60	307.03
5	Water charges	Rs. Crore	3.55	16.17	28.59	30.54	32.58	34.62
6	Security expenses	Rs. Crore	0.38	1.82	3.34	3.95	4.66	5.50

34. We observe that the Clause (a) of Regulation 4.28 of the OERC Generation Tariff Regulations 2014 provides the following O & M expenses norms for 600MW coal based generating stations as under.

Year	2014-15	2015-16	2016-17	2017-18	2018-19
<i>O & M cost Rs. in Lakh/MW for 600MW and above sets</i>	<i>14.40</i>	<i>15.31</i>	<i>16.27</i>	<i>17.30</i>	<i>18.38</i>

However, the Commission in its notification dated 04.02.2020 has notified that the parameters fixed in the Regulation for FY 2018-19 shall be applicable for 2019-20. Further, Regulation 25(1)(a) of the OERC Generation Tariff Regulations, 2020 specifies the O & M norms for FY 2020-21 to FY 2023-24.

35. Further, as per Regulation 4.28(e) of the OERC Generation Tariff Regulations, 2014, in addition to normative O & M expenses, water charges paid to the Government by the generating stations shall be reimbursed by the beneficiaries depending upon their share. Therefore, the Commission does not allow water charges and security expenses as claimed by OPGC for FY 2019-20 in the tariff. However, the same shall be reimbursed by GRIDCO on actual basis after verification of the payment details.
36. Similarly, as per Regulation 25(1) (d) of the OERC Generation Tariff Regulations, 2020, in addition to normative O & M expenses, water charges and security expenses for thermal generating stations shall be allowed separately after prudent check. OPGC has claimed water charges and security expenses for FY 2020-24, but the details of water charges and security expenses have not been furnished by OPGC separately. Therefore, the Commission provisionally allowed same as proposed by OPGC in its application, which shall be adjusted during True-up exercise of OPGC.
37. Accordingly, the details of O & M expenses allowed by the Commission based on the above Regulations are given in the table below.

O & M Expenses approved by the Commission

Particulars	FY 2019- 20 (03.07.2019 to 20.08.2019) i.e. 49 days	FY 2019-20 (21.08. 2019 to 31.03.2020) i.e. 224 days	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Unit Size (MW) X No. of Unit	660.00	660 X 2	660 X 2	660 X 2	660 X 2	660 X 2
Normative O&M expenses as per Regulations (Rs. Lakh per MW)	18.38	18.38	20.97	21.71	22.47	23.26
O & M Expenses (Rs. in Crore) (Annual)	121.31	242.62	276.80	286.57	296.60	307.03
O & M Expenses (Rs. in Crore) for the period	16.24	148.49	276.80	286.57	296.60	307.03
Water & Security Expenses	To be separately Claimed based on actual		31.93	34.49	37.24	40.12
Total O & M Expenses	16.24	148.49	308.73	321.06	333.84	347.15

Operational Parameters

Normative Annual Plant Availability Factor (NAPAF)

38. M/s. OPGC has considered the Normative Annual Plant Availability Factor (NAPAF) at 85% as per CERC Tariff Regulations, 2019 and accordingly computed the gross generation for determination of tariff. GRIDCO has also agreed for considering NAPAF at 85%. However, the Commission approves the NAPAF at 85% for the subject Thermal Power Station of M/s. OPGC based on OERC Generation Tariff Regulations.

Auxiliary Energy Consumption (AEC):

39. OPGC has considered the normative AEC as 6.25% as per CERC Regulations. However, GRIDCO has submitted that the Auxiliary Energy Consumption (AEC) based on the norms of OERC Generation Tariff Regulations is to be considered for the relevant period as given below:

	FY 2019-20	FY 2020-21 to 2023-24
For Unit size 300 MW and above having Steam Driven Boiler Feed Pumps	5.25% + 0.5% (For Induced Draft Cooling Towers) = 5.75%	5.75 + 0.5% (For Induced Draft Cooling Towers) = 6.25%

40. The Commission scrutinize the above submissions of OPGC and GRIDCO and allows the auxiliary energy consumption of 5.75% for FY 2019-20 and 6.25% for the period from FY 2020-21 to 2023-24 based on the OERC Generation Tariff Regulations 2014 and OERC Generation Tariff Regulations 2020 respectively.

Gross Station Heat Rate (GSHR)

41. OPGC in its application has submitted that as per Regulation 49 (C) (b) of CERC Tariff Regulations, 2019, the new Thermal Generating Stations achieving COD on or after 1.04.2019 shall be as follows:

For Coal-based and lignite-fired Thermal Generating Stations,

$$\text{Gross Station Heat Rate} = 1.05 \times \text{Design Heat Rate (Kcal/kWh)}$$

Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.

Accordingly, OPGC has determined the normative GSHR as 2181.90 kcal/kWh considering the guaranteed technical parameters as shown in the Table below and claimed the same for determination of tariff:

Computation of Normative GSHR by OPGC

Particulars	Units	Value
Pressure Rating	kg/cm ²	247
SHT/RHT	0 ^c	565/593
Type of Boiler Feed Pump		Turbine Driven
Guaranteed Design Unit Heat Rate	kcal/kWh	2078.00
Maximum Design Unit Heat Rate as per CERC Tariff Regulations, 2019	kcal/kWh	2151.00
Allowable Design Heat Rate	kcal/kWh	2078.00
Allowable Gross Station Heat Rate (1.05xDesign Heat Rate)	kcal/kWh	2181.90

42. GRIDCO has submitted that Gross station Heat rate should be considered as 2171.51 Kcal/Kwh i.e. (1.045xDesign Heat Rate) for FY:2019-20 and 2181.90 Kcal/Kwh (1.05xDesign Heat Rate) for FY:2020-21 onwards based on the OERC Generation Tariff Regulations for the relevant period.
43. The Commission is of opinion that the Station Heat Rate is one of the most important parameters which reflects on the efficiency of a thermal power station. Therefore, efforts ought to be made to operate the thermal station at station heat rate as close to the design heat rate as possible. Going by OERC Generation Tariff Regulations, 2014 and OERC Generation Tariff Regulations, 2020, the Commission approves the Station Heat Rate as 2171.51 Kcal/Kwh i.e. 1.045 X Design Heat Rate of 2078 Kcal/Kwh for FY 2019-20 and 2181.90 Kcal/Kwh(1.05xDesign Heat Rate) for FY 2020-21 onwards.

Secondary Fuel Oil Consumption

44. M/s. OPGC has submitted that the cost of secondary fuel oil has been computed in line with Regulation 49(D) of CERC Tariff Regulations, 2019. Accordingly, the Secondary Fuel Oil Consumption has been considered as 0.5 ml/kWh. GRIDCO has submitted to consider Secondary Fuel Oil Consumption as 0.5 ml/kWh based on the Regulation 32 (d) of the OERC Generation Regulations, 2020. The Commission approves the Secondary Fuel Oil Consumption as 0.5 ml/Kwh for the subject Thermal Power Station of M/s. OPGC based on the OERC Generation Tariff Regulations, 2014 and the OERC Generation Tariff Regulations, 2020 for the relevant period.

Interest of Working Capital

45. OPGC has submitted that Regulation 34(a) of the CERC Tariff Regulations, 2019 specify the normative working capital requirements corresponding to normative annual plant availability factor for coal based thermal generating station as follows:

- i. Cost of coal towards stock for 10 days for pit-head generating station.
- ii. Cost of coal towards payment for 30 days.
- iii. Cost of main secondary fuel oil for two months.
- iv. Maintenance spares @ 20% of O&M expenses including water charges and security expenses.
- v. Receivables equivalent to 45 days of capacity charges and energy charge
- vi. O&M expenses, including water charges and security expenses, for one month.

Further, Regulation 34(3) read with Regulation 3(7) specifies the rate of interest on working capital as SBI Base Rate plus 350 basis points as on April 1, 2019 or 1st April of the year in which the generating station or a Unit thereof is declared under commercial operation, whichever is later.

Basing on CERC Tariff Regulations, 2019 OPGC has computed the normative working capital requirements treating the generating station as pit-head generating station. Further, in addition to normative O&M expenses, the water charges and security expenses have also been considered by OPGC in computing the normative working capital requirements. Further, OPGC has considered the rate of interest on working capital as 12.05% considering the SBI one-year MCLR of 8.55% as on April 1, 2019 +350 basis points in accordance with the CERC Tariff Regulations, 2019. The Interest on Working Capital claimed by OPGC is as follows:

Interest on Working Capital Proposed by OPGC (Rs. in Crore)

Sl. No.	Particulars	Norms considered	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08.2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
			49 days	224 days	365 days	365 days	365days	366days
1	Cost of coal	40 days	64.35	136.00	136.00	136.00	136.00	136.00
2	Cost of secondary fuel oil	2 months	1.35	2.71	2.71	2.71	2.71	2.71
3	Maintenance spares (as % of O&M exp.)	20%	32.60	59.35	61.75	64.21	66.77	69.43

Sl. No.	Particulars	Norms considered	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08.2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
4	Receivables	45 days	173.32	388.04	383.81	411.98	439.44	432.98
5	O&M expenses	1month	13.58	24.73	25.73	26.76	27.82	28.93
6	Working capital Requirement		285.21	610.82	471.28	502.95	534.03	531.34
7	Rate of Interest		12.05%	12.05%	12.05%	12.05%	12.05%	12.05%
8	Interest on Working Capital		4.61	45.17	56.79	60.61	64.35	64.03

46. We observe that as per the Regulation 4.24 of the OERC Tariff Regulations, 2014, the working capital for coal based generating stations shall cover-

- (i) Cost of coal, if applicable, for 1 month for pit-head generating stations and two months for non-pit-head generating stations, for generation corresponding to the normative annual plant availability factor;
- (ii) Cost of secondary fuel oil for one month for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;
- (iii) Maintenance spares @ 20% of operation and maintenance expenses specified in Regulation 4.28;
- (iv) Receivables equivalent to one month of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and
- (v) Operation and maintenance expenses for one month. .

Further, Regulation 4.26 of the OERC Tariff Regulations, 2014 provides that Rate of interest on working capital shall be on normative basis and shall be equal to the SBI Base Rate plus 300 basis points as on 1.4.2014 or on 1st April of the year in which the generating station or a unit thereof, is declared under commercial operation, whichever is later.

47. We further observe that as per the Regulation 24(1)(a) of the OERC Tariff Regulations, 2020, the working capital for coal based generating stations shall cover-

- (i) Cost of coal, if applicable, for fifteen (15) days for pit-head generating stations and thirty (30) days for non-pit-head generating stations, for generation corresponding to the normative annual plant availability factor;
- (ii) Advance payment for thirty (30) days towards cost of coal for generation corresponding to the normative annual plant availability factor;
- (iii) Cost of secondary fuel oil for one (1) month for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;
- (iv) Maintenance spares @ 20% of operation and maintenance expenses specified in Regulation 25(1);
- (v) Receivables equivalent to forty-five (45) days of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and
- (vi) Operation and maintenance expenses for one (1) month including water charges and security expenses.

Further, Regulation 24(3) of the OERC Tariff Regulations, 2020 provides that the Rate of interest on working capital shall be on normative basis and shall be equal to the Bank Rate as on 01.04.2020 or on 1st April of the year in which the generating station or a unit thereof, is declared under commercial operation, whichever is later.

48. Accordingly, the Commission works out the interest on working capital for the FY 2019-20 based on the OERC Generation Tariff Regulations, 2014 and for the FY 2020-21 onwards based on the OERC Generation Tariff Regulations, 2020. The details of interest on working capital computed by the Commission are given in the table below.

Interest on Working Capital approved by the Commission (Rs. in Crore)

Tariff Period	Norms considered	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Cost of coal	One month for FY 2019- 20 and 45	47.50	95.10	140.75	140.75	140.75	140.75

Tariff Period	Norms considered	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
	days for FY 2020-21 onwards						
Cost of secondary fuel oil	1month	0.68	1.36	1.35	1.35	1.35	1.36
Maintenance spares (as % of O&M expenses)	20%	24.26	48.52	55.36	57.31	59.32	61.41
Receivables	One month for FY 2019-20 and 45 days for FY 2020-21 onwards	109.47	242.49	361.09	373.62	383.33	377.49
O&M expenses	1month	10.11	20.22	25.73	26.76	27.82	28.93
Working capital Requirement (yearly)		192.02	407.69	584.28	599.80	612.57	609.93
Rate of Interest	%	11.55%	11.55%	10.68%	10.68%	10.68%	10.68%
Interest on Working Capital (Yearly)		23.14	49.13	62.81	64.48	65.85	65.57
Interest on Working Capital for the tariff period		3.10	30.07	62.81	64.48	65.85	65.57

Computation of Annual Capacity Charges

49. The Annual Fixed Charges proposed by OPGC for the period 2019-20 to 2023-24 in respect of the generating Units 3 & 4 is as given below:

Annual Fixed Charges (AFC) Proposed by OPGC (Rs. in Crore)

Particulars	FY 2019-20		FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
	From COD of Unit 3 to COD of Unit 4	From COD of Unit 4 to March 31, 2020				
O & M Expenses	17.95	164.12	276.80	286.57	296.60	307.03
Water charges	3.55	16.17	28.59	30.54	32.58	34.62
Security expenses	0.38	1.82	3.34	3.95	4.66	5.50
Depreciation	23.72	271.44	442.84	520.22	598.21	599.68
Interest on Term Loans	35.63	407.47	633.48	699.68	758.50	696.52
Interest on Working Capital	4.61	45.17	56.79	60.61	64.35	64.03
Return on Equity	22.64	251.05	409.56	478.37	547.73	549.03
AFC	108.48	1157.25	1851.39	2079.94	2302.64	2256.42

50. The Annual Fixed Charges as approved by the Commission in respect of the generating Units 3 & 4 of OPGC for the period 2019-20 to 2023-24 is as under:

Annual Fixed Charges (AFC) approved by the Commission (Rs. in Crore)

Tariff Period	FY 2019-20 (03.07.2019 to 20.08.2019)	FY 2019-20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Return on Equity	18.75	207.72	308.31	345.15	370.66	370.66
Interest on term loan	36.39	412.84	639.60	653.32	659.95	604.79
Depreciation (SLM)	23.66	270.70	447.01	484.13	516.54	516.54
O&M Expenses incl. Water & Security Charges	16.24	148.49	308.73	321.06	333.84	347.15
Interest on Working capital	3.10	30.07	62.81	64.48	65.85	65.57
Total Cost	98.14	1,069.80	1,766.46	1,868.14	1,946.84	1,904.70

51. The fixed cost of OPGC generating station shall be computed on annual basis, as per the norms specified under the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 for the FY 2019-20 and for the period FY 2020-21 to 2023-24 it shall be computed as per OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 and recovered on monthly basis under the head capacity charge. The total capacity charge payable for OPGC generating station shall be shared by GRIDCO as per its percentage share / allocation in the capacity of the generating station. In addition to the capacity charge, an incentive shall be payable to OPGC generating station or unit thereof for ex-bus scheduled energy corresponding to scheduled generation in excess of ex-bus energy corresponding to Normative Annual Plant Load Factor (NAPLF) as specified in the above Regulations.

Energy Charge Rate (ECR)

52. In its petition, OPGC has computed the Energy Charge Rate (ECR) based on the norms of operation, fuel prices and GCV as per CERC Tariff Regulations, 2019 and has prayed the Commission to consider this base value of ECR for estimation of Working Capital Requirement as claimed by it. OPGC has requested to allow the

billing of Energy Charges considering the actual fuel prices and GCV in accordance with Regulations 43 and 44 of the CERC Tariff Regulations, 2019.

53. We observe that as per OERC Generation Tariff Regulations, the energy charge shall cover the primary and secondary fuel cost and shall be payable by the beneficiary (here GRIDCO) for the total energy scheduled to be supplied to GRIDCO during the calendar month on ex-power plant basis at the computed ECR of the month. Total Energy Charges payable to the generating company for a month shall be:

$$\text{Energy Charges} = (\text{Energy charge rate in Rs/kWh}) \times \{\text{Scheduled energy (ex-bus) for the month in kWh}\}$$

54. Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the formulae prescribed in Regulation 4.33 of the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2014 for FY 2019-20 and Regulation 27(10)& 27(11) of the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 for FY 2020-21 to 2023-24. Further, regarding “GCV as received”, the Regulation 3(1)(ff) of the OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020 stipulates as follows:

“GCV as Received” means the GCV of coal as measured at the unloading point of the thermal generating station through collection, preparation and testing of samples from the loaded wagons, trucks, ropeways, Merry-Go-Round (MGR), belt conveyors and ships in accordance with the IS 436 (Part-1/ Section 1)- 1964;

Provided that the measurement of coal shall be carried out through sampling by third party to be appointed by the generating companies in accordance with the guidelines, if any, issued by the Central Government/Commission;

Provided further that samples of coal shall be collected either manually or through hydraulic augur or through any other method considered suitable keeping in view the safety of personnel and equipment;

Provided also that the generating companies may adopt any advance technology for collection, preparation and testing of samples for measurement of GCV in a fair and transparent manner;

Provided that GCV of as Received coal shall be found out by taking GCV of coal on as “billed basis” and allowing an adjustment for total moisture as per the formula given as under:

$$\frac{\text{GCV} \times (1 - \text{TM})}{(1 - \text{IM})}$$

Where: GCV = Gross Calorific Value of coal

TM = Total Moisture

IM – Inherent Moisture”

55. As per the proviso of Regulation 27(11) of OERC Generation Tariff Regulations, 2020, OPGC shall provide to GRIDCO the details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, etc., and all other data as per the Format prescribed by the Commission. Further, the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as received shall also be provided separately, along with the bills of the respective month. Furthermore, copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, etc., details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal shall also be displayed on the website of the generating company.
56. We observe that OPGC in its petition at Form 15(c) has submitted the data pertaining to coal for computation of energy charges for the month of April, 2019 and July, 2019 as there was no purchase of coal during May and June, 2019. The data submitted by OPGC are given in the tale below:

	Apr-19	Jul-19
Average cost of coal (Rs/MT)	1785.02	1786.68
Weighted average GCV of coal (as billed)(kCal/Kg)	3628	3504
Weighted average GCV of coal measured at receiving end (kcal/Kg)	3343	3171
Total Moisture	12.64%	13.49%
Inherent Moisture	8.58%	8.50%
	for Unit III	For Unit- III & IV
Coal Claimed in Tariff (Rs. /MT)	1,785.02	1,786.68
GCV Claimed in tariff (kcal/Kg)	3,258.00 (3343-85)	3,086.00 (3171-85)

57. As per OERC Generation Tariff Regulations, 2020, in case of a new generating station the GCV of fuel as per actual weighted average for three months preceding to COD, is required for determination of tariff. In order to compute the GCV on “as received” basis as per the Regulations, the data related to Total Moisture (TM) and Inherent Moisture (IM) of coal is required for three months preceding to COD. From the above table, it is observed that OPGC has furnished the TM and IM data of coal only for the month of April, 2019 & July, 2019 as the same for the other months is not available with them. Therefore, for computation of GCV on “as received” basis for the FY 2020-21 to 2023-24, we have considered the available data related to total

moisture and inherent moisture for the month of July, 2019 only. However, for computation of GCV for the FY 2019-20 on “as fired basis” based on OERC Generation Tariff Regulations, 2014, the Commission has considered the weighted average GCV of coal measured at receiving end as furnished by OPGC for the month of April, 2019.

58. Further, for determining the cost of coal, the proviso of Regulation 24(2) of OERC Generation Tariff Regulations, 2020 provides that in case of new generating station, the cost of fuel for the first financial year shall be considered based on landed fuel cost (taking into account normative transit and handling losses) and gross calorific value of the fuel as per actual weighted average for three (3) months, as used for infirm power, preceding date of commercial operation for which tariff is to be determined. It is observed that the data pertaining to cost of coal for 1st three months has not been made available. Therefore, the Commission has considered the weighted average cost of coal upto the month of July, 2019, as furnished by OPGC, for computation of ECR for the FY 2020-21 to 2023-24. However, for the FY 2019-20 the weighted average cost of coal for the month of April, 2019 as furnished by OPGC has been considered. The cost of coal and GCV considered by the Commission are given in the table below:

	For FY 2019-20 Unit- III & IV	For FY 2020-21 and onwards Unit- III & IV
Coal considered in Tariff (Rs. /MT)	1,785.02	1,786.68
GCV considered in tariff (kcal/Kg)	3,343.00	3,348.39

59. Accordingly, based on the OERC norms, the Energy Charge Rate computed for the year 2019-20 and 2020-21 onwards, for computation of Working Capital, in the table given below:

Tariff Period	Unit	FY 2019 - 20 (03.07.2019 to 20.08.2019)	FY 2019 - 20 (21.08. 2019 to 31.03.2020)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023- 24
GCV of Coal (CVPF)	Kcal/Kg	3,343.00	3,343.00	3,348.39	3,348.39	3,466.88	3,466.88
GCV of LDO	Kcal/Lt	10,600.00	10,600.00	10,600.00	10,600.00	10,600.00	10,600.00
GCV of HFO	Kcal/Lt	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
Avg . CVSF	Kcal/ml	10.12	10.12	10.12	10.12	10.12	10.12
Sp. Oil Consumption- LDO SFC)	ml/KWH	0.10	0.10	0.10	0.10	0.10	0.10
Sp. Oil Consumption- HFO (SFC)	ml/KWH	0.40	0.40	0.40	0.40	0.40	0.40
Coal Price (LPPF in Kg)	Rs/Mt	1,785.02	1,786.68	1,786.68	1,786.68	1,786.68	1,786.68
Avg .LPSFi	Rs/ml	0.042858	0.042148	0.042148	0.042148	0.042148	0.042148
Station Heat Rate (SHR)	Kcal/kwh	2,171.51	2,171.51	2,181.90	2,181.90	2,181.90	2,181.90
Energy Charge rate (ECR) P/U (Base rate)	P/Kwh	125.01	125.09	126.15	126.15	126.15	126.15

60. The above ECR computed by the Commission is indicative in nature for the purpose of computation of working capital requirement. However, M/s. OPGC is required to compute the monthly energy charges in accordance with the OERC Generation Tariff Regulations basing on the actual price and GCV of fuel.
61. Billing of energy charge shall be made by OPGC to GRIDCO on monthly basis with the details of coal/oil used for generation as per the said OERC Regulations for scrutiny and payment by GRIDCO. In addition to the above OPGC is entitled to recover other statutory charges / taxes / duties / cess etc. levied by the Government or any statutory authority and as provided in the PPA and applicable Regulations for the GRIDCO share of drawal of power.

Recovery of Fees and other Expenses

62. OPGC has sought reimbursement of fees paid by it for filing the tariff petition and publication expenses. The Commission observed that as per the provisions in Regulation 47 and 48 of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020, OPGC shall be entitled for reimbursement of Tariff Application Fees along with associated publication expenses, which shall be directly reimbursed by the beneficiary (GRIDCO). Accordingly, GRIDCO is directed to reimburse the application fees and publication expenses incurred by OPGC on production of documentary evidence in connection with the present petition.
63. Similarly, SLDC Fees & Charges paid by OPGC in terms of the Odisha Electricity Regulatory Commission (Fees and Charges of Regional Load Dispatch Centre and other related matters) Regulations, 2010 as amended from time to time, shall be recovered by OPGC from GRIDCO. Further, OPGC is entitled for recovery of statutory charges imposed by State and Central Government and other statutory authorities such as taxes, duties, water cess etc. in accordance with the relevant provisions of OERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2020, Accordingly, GRIDCO is directed to reimburse the above expenses incurred by OPGC on production of documentary evidence.
64. In conclusion, the Commission direct as follows:
- (a) The tariff of OPGC, so determined in this Order is valid from 03.07.2019 i.e. the COD of Unit -3 to 31.03.2024.

- (b) M/s. OPGC will submit the revised bills as per GRIDCO share of fixed cost month-wise basing on the Annual Fixed Charges approved in the present order and the month-wise Energy Charge as per formula given in the OERC Generation Tariff Regulations.
- (c) Billing of ECR shall be made to GRIDCO by OPGC on monthly basis with the details of actual coal/oil used for generation for scrutiny and payment. In addition to the above OPGC is entitled to recover other taxes / duty etc. levied by the Govt. or any statutory authority for the GRIDCO share of drawal of power.
- (d) The annual fixed charges approved for the period 2019-24 as above are subject to truing-up in terms of OERC Generation Tariff Regulations, 2014 and 2020.
- (e) The differential amount on account of these revised charges for the past period shall be recovered from GRIDCO in six installments without any interest. Any delay thereafter in payment of such dues shall attract surcharge as per the said Regulation.
- (f) The day-ahead generation availability for the power project as a whole (Unit 3 & 4) shall be declared by OPGC to SLDC and SLDC shall schedule GRIDCO's drawal from OPGC's bus bar for the power project as a whole (Unit 3 & 4). SLDC shall also certify Plant Availability Factor achieved during the Month (PAFM) in percentage for the relevant month for computation of monthly capacity charges.

65. Accordingly, the case is disposed of.

Sd/-
(S. K. Ray Mohapatra)
Member

Sd/-
(G. Mohapatra)
Officiating Chairperson