LIST OF ANNEXURES

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure - 1

EXTRACT OF THE
MINUTES OF 214TH MEETING OF BOARD OF DIRECTORS
OF ODISHA POWER GENERATION CORPORATION LTD.
HELD ON 29.11.2019 AT 11.00 A.M.

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Item No.6 **Revised estimated Project Cost and Financing of the Cost overrun from PFC & REC**

Memorandum No. OPGC- 2562

Revised estimated project cost as against the original project cost was deliberated in term of the detail analysis given in the memorandum with respect to various project components constituting hard cost and interest during construction. In this context, provisional expenditure incurred till June-2019 along with the debt-equity utilization was deliberated as per information given in the memorandum.

After detail discussion on the project cost analysis and taking into account revised IDC based on expected completion of the project by 31st March-2020, revised project cost of Rs.11,150.00 crore for OPGC- II units- 3&4 was approved only for the purpose of procuring the cost overrun financing and execution of necessary loan documents with PFC & REC.

**** **** **** ****

True copy attested

Company Secretary

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

163

Annexure - 2

ODISHA POWER GENERATION CORPORATION LTD.
(A Government Company of the State of Odisha)
CIN : U40104OR1984SGC001429

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Web : www.opgc.co.in

Ref. No. OPGC/Units 3&4/Tariff /2023-24/ 451/WE.

March 15, 2024

To
The CGM (PP)
GRIDCO Ltd., Janpath,
Bhubaneswar- 751 022

Sub: Compliance of OERC direction in Case No 96 of 2021

Ref: 1. GRIDCO mail dated 22.09.2023, 29.09.2023 & 19.12.2023
2. OPGC Letter Ref. No. 210 dated 06.02.2023
3. OERC Order dated 07.01.2023 in Case No 96/2021

Sir,

As you may be aware, in compliance with the directive issued by the Hon'ble Commission in its Order dated 07.01.2023 in Case No 96 of 2021 related to approval of Capital Expenditure and Determination of Tariff of OPGC Units #3&4, a meeting was held with representatives from both GRIDCO and OPGC at your Office on 27.09.2023.

In alignment with the consensus reached during the meeting, GRIDCO via email on 29.09.2023 and reminder mail dated 19.12.2023 has requested submission of the documents/ clarification on the issues related to Capital/Project Cost of OPGC Stage-II (Units 3&4). Accordingly, the requisite information and clarifications sought are appended to this letter for your kind information and further needful please.

Thanking You.

15/3/24
AGM (C&RA)
OPGC ltd.

Encl: As Above

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

165

Compliance with the direction of the Hon'ble OERC in the Order dated 07.01.2023 in Case No 96 of 2021

As per the directive issued by the Hon'ble OERC in its Order dated 07.01.2023 in Case No 96 of 2021 related to Approval of Capital Expenditure and Determination of Tariff of OPGC Units #3&4, OPGC has been instructed to furnish the requisite information concerning cost and time overrun to GRIDCO for the resolution of any disparities. In the said Order it has also been specified that, any unresolved issues are to be brought to the notice of the Commission during the truing up of the capital cost of the project.

In compliance to the above direction of the Hon'ble Commission, OPGC vide its letter dated 06.02.2023 (**Annexure-I**) communicated GRIDCO for initiating the discussion and resolve any issues, if any, in a meeting. Consequently, a meeting was convened on 27.09.2023 at the Office of the Chief General Manager (Power Purchase), GRIDCO. The meeting was attended by representatives from both GRIDCO and OPGC, during which GRIDCO's concerns were meticulously discussed.

In alignment with the consensus reached during the meeting, GRIDCO has subsequently communicated its queries via email on 29.09.2023. GRIDCO in its mail dated 19.12.2023 (**Annexure-II**) has again requested to submit the requisitioned data/information expeditiously. In response to these queries, OPGC hereby submits its replies, providing the requisite clarification and information.

1. **GRIDCO's Comment:** Original Scope of Work, as has been repeatedly referred to in OPGC reply (Filing No.4 dated 01.11.2022)) made before OERC.

   OPGC's Reply: The terms "*Original Scope of Work"* has neither been defined in CERC nor in OERC Regulations. In regulatory and contractual contexts, "*Scope of Work*" typically refers to a detailed description of the tasks, responsibilities, deliverables associated with a particular project or set of activities. In this context, the term "*Original Scope of Work*" may imply the initial or original set of tasks and responsibilities outlined at the beginning of a project in a contract or Detailed Project Report (DPR).

166

The overarching objective of the project was the establishment and operationalization of two (2) units of 660 MW supercritical coal-based thermal power plant, as an extension to the existing Units -1&2. The Detailed Project Report (DPR), denoted as 'Annexure-4', has been formally submitted as an integral component of the Main Petition presented before the Hon'ble Commission in the matter of approval for the Capital Cost and tariff determination for Units 3 & 4 in Case No. 96 of 2021. GRIDCO, having assumed the role of Respondent in this matter, possesses a copy of the DPR and hence not shared herewith.

It may be noted that the entire project was executed under 5 different work packages namely,

i. Main Power Plant comprising of Boiler, Turbine, Generator and associated auxiliaries;
ii. Balance of Plant (BoP) covering Coal Handling Plant (CHP), Water Treatment Plant (WTP), Ash Handling Plant (AHP) etc.;
iii. Ash Water Recycling System (AWRS);
iv. Merry Go Round System (MGR) for transportation of coal from the allocated mine to Power Plant; and
v. Ash Pond for storage of bottom ash and Fly Ash (PFA) generated at Thermal Power Stations.

Throughout the project execution, a multitude of change orders/ amendment to the original contracts and few other contracts were enacted for successful completion of the Project. As the complete array of these contracts is extensive / voluminous, extracts of the principal contracts related to Scope of Work are appended as **Annexure-III** for ready reference. Elaboration on the scope of work delineated within these contracts may be shared upon request, subject to considerations of reasonableness and confidentiality.

2. **GRIDCO's Comment:** Change Orders issued by OPGC based on which the cost of work carried out have been modified and more cost have been incurred *vis-a-vis* original scope of Work.

OPGC's Reply: A Change Order Contract functions as a mechanism for modifying/amending contract terms without necessitating the annulment of the original agreement. Serving as an extension of the initial contract, it establishes a framework for comprehending the revised duties and expectations of all involved parties. This legal instrument encapsulates the precise alterations mandated, offering formal notice of any

adjustments to both the price and timeline, thereby ensuring transparency and clarity in contractual modifications.

The events corresponding to the Change Orders admitted by OPGC are as under:

a. Price variation.
b. Variations in taxes.
c. Procurement of additional services.
d. Changes (additions/deletions) in design during execution phase.
e. Implementation of GST

It is affirmed that all modifications fall within the parameters of the original scope of work and have received due approval from the competent authorities. The Board of Directors (BoD) of OPGC, in its 217th meeting convened on 24.06.2020, formally accorded approval of the issued Change Orders. A copy of the Minutes of the Meeting (MoM) was previously submitted as Appendix 2 in the Rejoinder dated 01.11.2022, while responding to the comments from GRIDCO Ltd. presented through an affidavit dated 10.10.2022 in Case No 96/2021. For convenient reference, the same is once again appended herewith as **Annexure-IV**. The Memorandum depicting detailed information regarding Change Orders issued to contractors, along with the corresponding costs has also been attached for further reference.

3. **GRIDCO's Comment:** Clarification on Miscellaneous Contracts executed for different Works pertaining to OPGC Stage II.

OPGC's Reply: In addition to the contracts awarded to M/s BHEL, M/s BGRESL, M/s Driplex Water Engineering Pvt. Ltd. etc., various miscellaneous contracts were secured on a firm-price basis for the procurement of materials and services. These contracts were necessitated by the fact that the specified works were not encompassed within the scope of the contracts awarded to the aforementioned contractors. The majority of these miscellaneous contracts were procured through competitive bidding process.

OPGC hereby affirms that these miscellaneous contracts are aligned with the original scope of work. Specific works pertaining to the miscellaneous contracts related to OPGC Stage-II are outlined as follows:

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

168

i. **BTG**: Hiring of construction equipment, UPVC Pipe, RCC Hume Pipe, Materials for Road Work, Roof water proofing at PHB & Mill Building, Hiring of Front cabin Hydra, etc.

ii. **BoP**: Construction of the RIO room for Units 3&4, Neoprene Rubber Sheet, High gloss enamel paint, Black EPOXY Paint, Door/ Windows Aluminium Glazed Partition at PHB & Mill Bunker, Manhole Cover, Erection of Aluminium panel false ceiling, Plumbing work in PHB & Mill bunker, Rail fixing work in Transformer Yard, Supply & installation of dewatering pump, Painting work at power house building, etc.

iii. **Ash Pond**: Diversion of 33kV over-head transmission line OPGC-II Switch Yard through 33KV cable, Construction of 3 Nos Temporary Barrack, Ash Pond police barracks Electrification, Hiring Tractor, Tanker with Tool Pump, Construction of toilet & Bathing Facility Tilia, Arc Flash Study, Hiring of DG Set, Topographical Survey, Soak pit installation with material, Rechargeable 55-watt halogen search light, hiring charges for Fogging Machine, Deepening of Tihadi & Deh Ponds at Tilia, etc.

The above details are selected few of the miscellaneous expenses. Further details can be provided upon request or as per the requirements of the ongoing proceedings, subject to considerations of reasonableness and confidentiality.

4. **GRIDCO's Comment:** At Page 9 of the Filing No.4, it has been submitted by OPGC that the additional capitalization claimed beyond COD is towards the works within the original scope of work in accordance with CERC Tariff Regulations, 2019. Please clarify with specific Regulations as per which expenses have been incurred by OPGC.

OPGC's Reply: The particulars concerning the additional capitalization, both incurred and projected for future years was appended as Annexure-14 to the main Petition filed under Case No. 96 of 2021. It is noteworthy that the additional capitalization up to the cut-off date of 31.08.2022 is asserted in accordance with Regulation 24(1) of the CERC Generation Tariff Regulations. This regulatory provision governs the treatment of additional capitalization within the specified regulatory framework. Such works majorly comprises but not limited to the following

a. Undischarged liabilities recognized to be payable at a future date;
b. Works deferred for execution;
c. Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23;
d. Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law;
e. Change in law or compliance of any existing law; and
f. Force Majeure events:

The additional capitalisation beyond the cut-off date i.e. 31.08.2022 has been claimed under Regulation 25 (1) of the CERC Generation Tariff Regulations. Such works majorly comprises but not limited to the following

a. Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;
b. Change in law or compliance of any existing law;
c. Deferred works relating to ash pond or ash handling system in the original scope of work;
d. Liability for works executed prior to the cut-off date;
e. Force Majeure events;

The Regulations against which the additional capitalisation has been claimed along with justification are provided in the Table below:

170

Package wise Capitalisation

Sl. No.	Particulars	DPR Cost	Capitalisation up to CoD of Unit-4	FY 19-20	FY 20-21	FY 21-22	FY 22-23	Total as on 31.03.2023
1	Land and land Rights	149.00	0.24	0.00	39.67	95.10	0.80	135.82
2	BTG	3892.00	4,060.29	0.00	0.00	0.00	29.27	4,089.55
3	BoP	2877.00	1,562.57	0.00	38.95	0.00	96.46	1,697.98
4	MGR	670.00	313.82	0.00	0.00	904.82	64.16	1,282.80
5	Township & Colony	200.00	113.00	0.00	18.96	31.73	0.00	163.68
6	Ash Pond	289.00	0.00	0.00	89.00	0.22	8.74	97.97
7	Pre-Commissioning (Trial-Run Expenses)	475.00	175.39	0.00	3.01	0.00	0.00	178.40
8	Overheads	391.00	135.79	0.00	10.42	16.52	8.20	170.29
	Total Hard Cost	**8943.00**	**6,361.10**	**0.00**	**200.01**	**1,047.76**	**207.63**	**7,816.50**
9	IDC & IEDC	1223.00	2,235.10	0.00	25.19	441.47	29.93	2,731.69
	Total Capitalisation	**10,165.00**	**8,596.20**	**0.00**	**225.20**	**1,489.23**	**237.56**	**10,548.18**

Justification for Yearwise Additional Capitalistion beyond CoD

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
BTG	FY 22-23	29.27	The items were procured as Initial Capital Spares and has been capitalised as per Regulations. Primarily, the cost includes a. Due to change in law, taxes and duties price increased b. Disputed claims of Contractor required time for resolution c. Control Switching Device: Generating Transformer (GT) is designed to remain in back-charged condition for auxiliary power. GT experiences heavy inrush of current during back-charging process, which may lead to GT failure, reduced life of transformer & associated	Reg. 24(1), 25(1)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			components. To prevent the same, Control Switching device is required to reduce stress on GT. - d. TDBFP Availability: TDBFP is very critical to run the unit continuously with maximum load. One set of TDBFP gearbox is required to be kept as spares (Against total population of 4 numbers) to reduce equipment downtime & to minimize Generation loss & APC. e. TG Hydro motor Assembly: Barring gear motors are critical for turbine and generator safety during rolling and coasting down. If hydro motor fails, importing a spare requires lead time of approx. 12 months. Keeping a spare on hand ensures operational continuity, minimizing downtime. f. TDBFP Turbine Rotor Assembly: TDBFP is very critical for full load power generation, 1 TDBFP+1 MDBFP can generate 85% of power. Delivery duration of new rotor is very high and unavailability of TDBFP can lead to huge generation loss and higher APC. g. TG Last stage Blades (LHS & RHS) along with fastening material: BHEL turbines experience last stage blade failures, and the 18-month lead time for blade procurement poses a risk of extended downtime and generation loss. To mitigate this, a full set of last stage blades for the LP Turbine, along with its accessories, has been procured. h. FD & ID Fan Rotor Assembly: To ensure continuous and reliable operation of each unit, which relies on two (2) FD Fans and two (2) ID Fans running continuously and the availability of fans is crucial. Since there's no standby fan, any outage directly impacts plant generation, resulting in a 50% loss in generation. Recognizing the risk, especially absence of Fan Impeller Hub assembly in BHEL's spares and its 12-month lead time, 1 complete ID Fan Rotor Assembly and 1 complete FD Fan Rotor Assembly has been procured against the four (4) fans, thereby mitigating the risk of extended downtime and ensuring the plant's operational stability. i. Generator Exciter Assembly: The lead time for procurement of Generator Exciter Assembly is approximately 1 year, and having this spare part readily available enhances the ability to	

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			quickly address any issues with the generator exciter, contributing to the overall efficiency and reliabjlity of the equipment.	
BoP	FY 20-21	38.95	The majority of the items procured are part of Initial Capital Spares and has been capitalised as per Regulations. Primarily, the cost includes a. Due to change in law, taxes and duties price increased b. Disputed claims of Contractor required time for resolution c. Primary Air (PA) Fan Rotor Assembly: To ensure continuous full-load operation of each unit, both PA Fans run continuously. Any fan outage directly impacts plant generation, resulting in a 50% loss in unit generation. There's a significant risk associated with the absence of the Fan Impeller Hub assembly in BHEL's spares, and the 12-month lead time for this item is considerable. To address this risk, 1 complete PA Fan Rotor Assembly has been procured against the 4 fans, aiming to reduce downtime and enhance the overall reliability of the plant. d. Conversion of HFO Forwarding Pumps into LDO Forwarding Pump- 4 Numbers: To comply with statutory requirements and reduce water and coal consumption while improving the station heat rate, Light Diesel Oil (LDO) instead of Heavy Fuel Oil (HFO) is being used as the primary supporting fuel. As part of this modification, all four (4) existing HFO Forwarding Pumps, which experience a significant (4-6 kg/cm^2) pressure drop when pumping LDO, has been replaced with new LDO forwarding pumps. This change was essential for the smooth implementation of the modified system and is expected to enhance overall efficiency while addressing issues related to pressure drop and pump life reduction. e. Installation of Mercury Analyser in Both Units: The installation of an online Mercury (Hg) Analyzer is now mandatory for Units exceeding 500 MW, including Units 3&4. Compliance with this statutory requirement involves the installation of one analyzer with two sampling probes or sampling tubes. This condition has been added as an additional requirement in the	Reg. 24(1)

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			Consent to Operate (CTO) for Units 3&4, ensuring adherence to environmental regulations and monitoring of mercury emissions. f. Construction of Settling Pit: The plant has two discharge points towards the eastern boundary. The first point deals with storm water and groundwater seepage from the low-lying area near the ash silo (OPGC-2). The 2nd point carries storm water from MGR area to outside plant boundary. In October 2019, heavy rain resulted in ash being washed out from within the boundary, reaching surrounding agricultural fields. In response to public complaints, officers from the OSPCB regional office visited the plant and recommended the construction of two settling pits at the outlets. As of FY 2020-21, one settling pit has already been constructed as part of the measures to address the issue. g. Procurement of Servomotors for HPSV, HPCV, IPSV, IPCV, Overload Valve (1 Qty. of each): The procurement of Servomotors for HPSV, HPCV, IPSV, IPCV, and Overload Valve (1 Qty. of each) is crucial due to the absence of spares on-site for addressing emergency situations. The availability of these servomotors is vital for the continuous operation of the unit. Following OEM practices, these servo valves are not repairable on-site, requiring the complete assembly to be sent to the OEM works for rectification and repair. This process could result in an approximate outage time of 45 days from unit stoppage. To minimize downtime, it is proposed to keep complete assemblies of servo motors on-site, reducing the outage time for maintenance to a maximum of 15 days instead of 45 days. h. Conduit for drainage of Slurry water pump at Track Hopper-2: For Statutory Compliance of ensuring Zero Discharge. i. Ion Chromatograph for Sodium and Chloride: Ion chromatography is essential for conducting elemental analysis of water samples. Maintaining the ionic purity of boiler water, feed water, and steam within specified limits is crucial to prevent scaling and corrosion. The use of ion chromatography allows for precise measurement and control of ion concentrations in water.	

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			j. Lightning arrestors at all areas of CHP-2: The absence of lightning arresters and separate earth pits at Transfer Points and conveyor galleries in CHP-2 poses a safety concern. To meet safety requirements, it is necessary to install lightning arresters and establish separate earth pits in these areas. k. Compressors for DFDS at Pre crushing area: The compressors play a crucial role in coal dust suppression, contributing to a safer and cleaner working environment by minimizing the dispersion of coal dust during handling and transportation processes. l. Higher Capacity Rail Clamp x 7 No.s: These are essential for the TTR modification aimed at achieving a higher feed rate. Incidents of multiple ramming of the TTR have been observed in the past, posing a risk to the equipment. The installation of higher capacity rail clamps is crucial as they will effectively secure the TTR, preventing ramming and safeguarding other machinery from potential damage. m. Aluminium cup lock scaffolding: The Aluminium Cup Lock Scaffolding helps to introduce a quick-erect aluminium scaffolding system. This initiative is expected to result in a time savings of approx. four (4) days during the annual/capital overhauling of the boiler. The implementation of this system is expected to increase unit availability and PLF. n. Installation of Plant information (PI) System: The Plant Information (PI) System comprises of software modules designed for plant-wide performance monitoring and analysis. These modules handle the collection, storage, and retrieval of important plant performance data for analysis and improvement. The PI System is instrumental in plant performance optimization, management information systems, decision-making processes, ensuring equipment reliability, and meeting environmental compliance standards. o. CCTV Camera installation in critical areas of CHP-2: Installation of CCTV camera & cable laying to be done for CHP area surveillance & security purpose.	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			p. Stack Kit Set & BOD incubator: BOD (Biochemical Oxygen Demand) incubator facilitates the analysis of effluent water samples in the laboratory. BOD is a critical parameter in assessing water quality in both the water industry and environmental monitoring. q. Motor Oven: The Motor Oven is necessary for the heating of motor windings and the rapid curing of motor winding varnish. This equipment is crucial in minimizing downtime during motor failures by expediting the curing process. r. Breaker Analyser: Required for Analyser breaker timing & essential to be checked for fault clearing (Tripping) & closing operation. s. Transformer Oil filtration machine 10/12 KL: Machine is required for oil filtration of transformers (GT, UT, UAT, SAT, RAT etc.) t. Transformer NAS filter machine: Machine is required for oil filtration of transformers (GT, UT, UAT, SAT, RAT etc.) u. LVDH & Oil filtration Machine: Lubricants being used in Ash Handling Plants needed to be filtrated on regular basis for improving Oil quality. v. Sieve Shaker: Required for measuring Coal fineness. This equipment plays a crucial role in analyzing mill performance and aids in reducing unburnt coal.	
	FY 22-23	96.46	The majority of the items procured are part of Initial Capital Spares and has been capitalised as per Regulations. Primarily, the cost includes a. Chlorine dioxide System Installation: The plant is configured for chlorine dosing in cooling water and raw water pre-treatment, with a chlorine storage license for 94 tonnes (78 for CW Chlorination and 16 for RW Chlorination). However, the storage of chlorine tonners poses significant safety concerns due to the potential wide-ranging impact of even a single leak,	

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			posing life hazards. In a 5th District Crisis meeting, the District Magistrate and Collector of Jharsuguda have recommended minimizing the use of chlorine and exploring alternative chemicals. b. Installation of upgraded Scrapper for CHP: The upgraded scraper has been installed to enhance the environment within the Coal Handling Plant. c. Installation of upgraded Skirt Rubber for CHP: Installation of upgraded skirt rubber has been done to improve environment inside Coal handling plant. d. Online DGA monitoring (9 Gas) of GT and RAT transformer: Current generator transformer monitoring is being handled by the existing online monitor from M/s BHEL, focuses solely on moisture and hydrogen levels. To address historical challenges, especially stage-2 transformer failures, and considering equipment criticality, an Online Dissolved Gas Analysis (DGA) device has been installed. This advanced system will monitor all nine (9) critical gases in real-time, facilitating early issue detection. In case of abnormalities, it will trigger an immediate alarm in the control room, allowing for proactive measures. The proposed implementation will occur in two phases: i. FY22-23: Installation on three transformers ii. FY23-24: Installation on four transformers	Reg. 24(1), 25(1)
Township	FY 20-21	18.96	Due to extended completion of work.	Reg. 24(1)
	FY 21-22	31.73	Due to extended completion of work.	Reg. 24(1)
Ash Pond	FY 20-21	89.00	a. Due to Change in law, impacted increase in taxes and duties price. b. Scope gap (Reduction in contract price). c. Disputed claims of Contractor d. Arbitration	Reg. 24(1)

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
	FY 21-22	0.22	a. Due to Change in law, impacted increase in taxes and duties price. b. Scope gap (Reduction in contract price). c. Disputed claims of Contractor d. Arbitration e. Ash Pond height Raising: Raising of bund height for Phase # 1 ash pond at Tilia will be required, f. Consultancy for Ash Pond height Raising: Consultancy from IIT for raising of height for Tilia ash Pond has been taken and time to time stability study was conducted. g. Approach road along ash Pipeline Corridor: Approach road alongside ash pipeline corridor for surveillance & ease of maintenance was constructed. h. Ash Pond Site Store & Store Room Construction: Construction of Maintenance site office, Store room in Tilia ash pond. i. Installation of 2 numbers of Flow meter at Tilia Ash Pond: In accordance with the Central Ground Water Authority's notification dated 26.10.2020, it is mandatory for all industrial users to install digital water flow meters equipped with telemetry. The purpose of these meters is to accurately quantify water withdrawal and facilitate the seamless transmission of data to the CGWA site. Considering that two bore wells have been recently drilled at the Tilia Ash Pond, two digital water flow meters were installed to comply with these regulatory requirements. j. CCTV Camera installation in Ash Pond: CCTV camera has been installed & cable laying has been done for Ash dyke surveillance & security purpose.	Reg. 24(1)
	FY 22-23	8.74	Raising of bund height of Ash Pond at Tilia	Reg. 24(1), 25(1)
MGR	FY 21-22	904.82	a. Due to change in law, impacted increase in taxes and duties price. b. Delay in handing over of land parcel of 1.73 Km. (Jan 2020). c. Disputed claims of Contractor.	Reg. 24(1)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Pkg	Year	Amount (Rs. Cr.)	Justification	CERC Regulations
			d. Arbitration.	
	FY 22-23	64.16	a. Procurement of 25 New Wagons for MGR: Due to the inadequacy of the current 110 racks to meet the demand for transporting 22,000 MT/day of coal from Manoharpur, there is a pressing need for an additional 25 wagons to facilitate the operation of four racks from Manoharpur. The estimated cost per wagon is approximately Rs. 36.00 Lakh (excld. GST). b. Installation of Solar Panels at various station of MGR from Plant site to Manoharpur.	Reg. 24(1), 25(1)
Overheads	FY 20-21	10.42	Due to extended completion of work.	Reg. 24(1)
	FY 21-22	15.88	Due to extended completion of work.	Reg. 24(1)
	FY 22-23	8.20	Due to extended completion of work.	Reg. 24(1), 25(1)

5. **GRIDCO's Comment:** Status of all Arbitration proceedings going on/completed pertaining to OPGC Stage II.

OPGC's Reply: The status of the ongoing/completed arbitration proceedings pertaining to OPGC Stage II are as follows:

Sl.	In the matter of	Parties	Status
1	25804/HTG- MGR railway line	L&T Vs OPGC	Ongoing
2	Tilia Ash Pond	SBEL Vs OPGC	Ongoing
3	ARBP-28/2022- Delivery of railway wagons and break vans	Titagarh Wagon Ltd Vs OPGC	Ongoing
4	MSEFC No-50 of 2022 OPGC is a pro forma defendant	Kalinga Insulation Vs AES(India) Pvt. Ltd.	Ongoing
5	MSEFC No-53 of 2022 OPGC is a pro forma defendant	Kalinga Insulation Vs OPGC	Closed
6	Construction and Renovation of existing Township	NCC Vs OPGC	Closed

6. **GRIDCO's Comment:** What are the LD provisions provided in various Contracts?

OPGC's Reply: Liquidated damages (LD) embody a predetermined monetary sum that the contractor commits to remit to the project owner in the event of a designated breach, typically associated with delays in project completion and performance. The fundamental objective of liquidated damages is to furnish compensation for the losses incurred by the owner as a consequence of the aforementioned delays. The exact provisions concerning liquidated damages may diverge contingent upon factors such as the type of contract, jurisdictional considerations, and the intrinsic nature of the project.

The extracts of the principal contracts related to LD provisions, for BTG, BoP, MGR, AWRS, and Ash Pond executed under the aegis of OPGC Stage-II expansion projects are herewith appended as **Annexure-V** for ready reference.

7. **GRIDCO's Comment:** The Clarifications provided in Filing No. 4 dated 01.11.2022 filed before OERC does not contain the specific Regulations under which different claims have been made. Therefore, the specific Regulations may please be provided in Tabular Form.

OPGC's Reply: Please refer to the response to the Comment No. 4.

8. **GRIDCO's Comment:** Whether all the contracts pertaining to OPGC Stage-II have been closed or still work is going on?

   OPGC's Reply: A contract is deemed closed upon the fulfilment of all obligations and the attainment of performance standards, with the specific criteria contingent on the terms stipulated within the contract itself. It's worth noting that certain miscellaneous contracts including construction of Township awarded to M/s. NCC have been successfully concluded. However, the primary contracts for BTG, BoP, MGR, AWRS, and Ash Pond remain open. Resolution of various legal and contractual disputes is pending and awaits adjudication in the appropriate forums.

In addition to addressing above queries of GRIDCO, it is pertinent to note that the detailed information requested in Case No 96 of 2021, by the Hon'ble Commission and GRIDCO, has been diligently provided through Filing-1 to 5 during the proceedings. Also, the reasons for the deferred CoD and its subsequent impact have been comprehensively outlined in the main Petition.

Reasonableness of Hard Cost: The Hon'ble CERC in its Order dated 04.06.2012 has specified benchmark Hard Cost, for a coal based thermal power station with 2x660 MW capacity, with December, 2011 Indices as the base. This comprehensive cost encompasses various components, including the Steam Generator/Boiler Island, Turbine Generator Island, associated Auxiliaries, Transformers, Switchgear, cables, cable facilities, Grounding & Lighting Packages, Control & Instrumentation, Initial Spares for BTG, BoP including cooling tower, water system, Coal Handling Plant, Ash Handling Plant, fuel oil unloading & storage, Mechanical Miscellaneous Package, switchyard, chimney, and emergency DG Set. It does not include merry-go-round and Railway siding, unloading equipment at jetty, and rolling stock, locomotive, and Transmission Line till the tie point.

It is noteworthy that the benchmark Hard Cost is not static but rather dynamic, being influenced by market trends and indices. According to data published by the Ministry of Commerce and Industry, GoI, the WPI for March 2023 stood at 151, marking a 44.22% increase from the April 2012 figure of 104.7.

Hard Cost of Units 3&4

Particulars	Units	Formulae	Exp. till 31.03.2023
Hard Cost	Rs. Crore	A	7,816.50
Less:			
MGR	Rs. Crore	B	1,282.80
Overheads	Rs. Crore	C	170.29
Pre-Commissioning (Trial-Run) Expenses	Rs. Crore	D	178.40
Hard Cost for comparing CERC Benchmark Hard Cost	**Rs. Crore**	**E=A-(B+C+D)**	**6,185.01**
Cost per MW	**Rs. Cr./MW**	**F= E ÷ (2×660)**	**4.69**

It may be observed that the Hard Cost for Units 3&4 till 31.03.2023 works out to be Rs. 4.69 Cr./MW which is well within the CERC benchmark Hard Cost escalated with WPI Inflation till March 2023.

Treatment of Time and Cost Overrun: The Independent Auditor appointed by the Hon'ble Commission has thoroughly examined the capital expenses, adding an additional layer of scrutiny to the submitted information. It is suggested that, the information submitted as a part of the Petition No 96/2021 may be read collectively for a more comprehensive understanding.

The delay in achieving the project CoD is attributed to the delay in commissioning of the 400 KV OPGC-Lapanga Transmission line, a critical activity for overall project completion. Even though there was delay in completion of certain activities by the contractors beyond the scheduled or agreed date as per contracts, the same have not come under critical path of the project schedule. The Hon'ble APTEL in its Judgement dated 27.04.2011 in Appeal No 172 of 2010 has dealt with sharing of the increase in project cost due to time overrun in the following manner:

i. Generator bears costs for its attributable factors, retains LDs and insurance proceeds
ii. For uncontrollable factors, additional costs become part of the project cost, and LDs and insurance proceeds offset capital costs
iii. In the cases not covered above, the LDs and insurance proceeds may be shared between the generator and consumers.

The relevant extract from the Hon'ble APTEL's Judgement is reproduced below:

"7.4. The delay in execution of a generating project could occur due to following reasons:

i. *due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.*
ii. *due to factors beyond the control of the generating company e.g. delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.*
iii. *situation not covered by (i) & (ii) above.*

In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.

7.5. In our opinion, the above principles will be in consonance with the provisions of Section 61(d) of the Act, safeguarding the consumers' interest and at the same time, ensuring recovery of cost of electricity in a reasonable manner."

In view of the above, the time and cost overrun are to be treated, as per the above settled principle.

ANNEXURE - I

ODISHA POWER GENERATION CORPORATION LTD.
(A Government Company of the State of Odisha)
CIN : U40104OR1984SGC001429

Regd. Off : Zone - A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar - 751 023, Odisha.
Ph. : 0674-2303765 - 66, Fax : 0674 - 2303755 / 56
Web : www.opgc.co.in

Ref: OPGC/Unit 3&4/2022-23/210

February 06, 2023

To
Chief General Manager (PP),
GRIDCO Ltd.,
Janpath, Bhubaneswar

(WITHOUT PREJUDICE)

Sub: Compliance of Hon'ble OERC Order in Case No 96 of 2021

Ref: OERC Order dated 07.01.2023 in Case No 96/2021

Sir,

Hon'ble OERC has passed its order in Case No 96 of 2021 on January 07, 2023 determining the Tariff of Unit #3&4, since Commissioning of Unit #3 on 03.07.2019 till FY 2023-24. At Para-16 of the Order, the Hon'ble Commission has observed as follows:

"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. .....

..... 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."

In view of the above, it is requested to kindly let us know the data/information required by GRIDCO to discuss and resolve the issues, if any, in a meeting which may be scheduled thereafter.

Thanking You,

Yours' faithfully

6/2/23

Haresh Kumar Satapathy
AGM (C&RA)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

184

Haresh Satapathy

From:	Pp <sgm.pp@gridco.co.in>
Sent:	29 September 2023 13:37
To:	Haresh Satapathy
Cc:	mdgridco; u sahoo puri; srikanta gridco; Satyabrata Samal; Smohanty; Pragnya Punam Dash; PK Mohapatra; Ajit Panda; Nrusingha Panda; Director Finance
Subject:	Re: Meeting for discussion in respect of Capital/Project Cost of OPGC Stage-II-Regarding

Respected Sir,

As per the schedule , the meeting was held at 5:30 PM on 27.09.2023 at O/o CGM (PP), GRIDCO to discuss regarding the Capital Cost of OPGC Stage II. As per the preliminary discussion held and as directed , the following documents /clarification may please be furnished before proceeding with further discussion.

1. Original Scope of Work , as has been repeatedly referred to in OPGC reply(Filing No.4 dated 01.11.2022)) made before OERC.

2. Change Orders issued by OPGC based on which the cost of work carried out have been modified and more cost have been incurred vis-a-vis original scope of Work.
3. Clarification on Miscellaneous Contracts executed for different Works pertaining to OPGC Stage II.

4. At Page 9 of the Filing No.4, it has been submitted by OPGC that the additional capitalization claimed beyond COD is towards the works within the original scope of work in accordance with CERC Tariff Regulations,2019. Please clarify with specific Regulations as per which expenses have been incurred by OPGC.

5. Status of all Arbitration proceedings going on/completed pertaining to OPGC Stage II.

6. What are the LD provisions provided in various Contracts.

7. The Clarifications provided in Filing No. 4 dated 01.11.2022 filed before OERC does not contain the specific Regulations under which different claims have been made. Therefore, the specific Regulations may please be provided in Tabular Form.

8.Whether all the contracts pertaining to OPGC Stage II have been closed or still work is going on?

Apart from the above, further clarifications if any shall be intimated by this office.

Regards
DGM-PP
O/o: CGM-PP
GRIDCO Ltd

From: "haresh satapathy" <haresh.satapathy@opgc.co.in>
To: "Bijay Kumar Das" <sgm.pp@gridco.co.in>
Cc: "mdgridco" <mdgridco@gmail.com>, "u sahoo puri" <u.sahoo.puri@gmail.com>, "srikanta

ODISHA POWER GENERATION CO. LTD. BHUBANESWAR

185

gridco" <srikanta.gridco@gmail.com>, "Satyabrata Samal" <fin.ssamal@gridco.co.in>, "Smohanty" <ele.smohanty@gridco.co.in>, "Pragnya Punam Dash" <ele.ppdash@gridco.co.in>, "PK Mohapatra" <pkm@opgc.co.in>, "ajit" <ajit.p@opgc.co.in>, "Nrusingha Panda" <nrusingha.panda@opgc.co.in>
Sent: Friday, September 22, 2023 12:01:30 PM
Subject: RE: Meeting for discussion in respect of Capital/Project Cost of OPGC Stage-II-Regarding

Dear Sir,

May kindly reschedule the meeting to 27th September 2023, as there is a Board Meeting of OPGC on 26th September 2023.

Regards
Haresh Kumar Satapathy
OPGC Ltd.
77520 20405

From: Pp <sgm.pp@gridco.co.in>
Sent: 22 September 2023 11:54
To: Haresh Satapathy <haresh.satapathy@opgc.co.in>
Cc: mdgridco <mdgridco@gmail.com>; u sahoo puri <u.sahoo.puri@gmail.com>; srikanta grid <srikanta.gridco@gmail.com>; Satyabrata Samal <fin.ssamal@gridco.co.in>; Smohanty <ele.smohanty@gridco.co.in>; Pragnya Punam Dash <ele.ppdash@gridco.co.in>
Subject: Meeting for discussion in respect of Capital/Project Cost of OPGC Stage-II-Regarding

Sir,

Inviting reference to the subject cited above and the direction of Hon'ble OERC given in Tariff order dated 07.01.2023 in Case No. 96 of 2021(Para 16) , it is hereby intimated that a meeting is scheduled to be held at GRIDCO Conference Hall on **26.09.2023 at 4 PM**. It is therefore requested to attend the meeting.

--
With Regards,

Chief General Manager(PP)
GRIDCO Ltd.
Mob : 9438907699

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

186

Haresh Satapathy

From:	Pp <sgm.pp@gridco.co.in>
Sent:	19 December 2023 12:05
To:	Haresh Satapathy; Pravat Sahoo
Cc:	srikanta gridco; Bijay Kumar Das; Smohanty; Pragnya Punam Dash; Satyabrata Samal
Subject:	Reminder mail regarding furnishing of requisite documents/clarification in respect of capital cost of OPGC Stage-II

Respected Sir,
Referring to the subject cited above, this is to intimate that pursuant to meeting dated 27.09.2023 held between GRIDCO and OPGC for discussion on issues regarding capital cost of OPGC Stage-II. GRIDCO vide mail dated 29.09.2023 had sought for the following information/clarifications from OPGC pertaining to the capital cost of OPGC Stage-II. However we have not received any reply yet. This is to remind once again to furnish the following at the earliest for further discussions in this regard.

1. Original Scope of Work , as has been repeatedly referred to in OPGC reply(Filing No.4 dated 01.11.2022)) made before OERC.

2. Change Orders issued by OPGC based on which the cost of work carried out have been modified and more cost have been incurred vis-a-vis original scope of Work.
3. Clarification on Miscellaneous Contracts executed for different Works pertaining to OPGC Stage II.

4. At Page 9 of the Filing No.4, it has been submitted by OPGC that the additional capitalization claimed beyond COD is towards the works within the original scope of work in accordance with CERC Tariff Regulations,2019. Please clarify with specific Regulations as per which expenses have been incurred by OPGC.

5. Status of all Arbitration proceedings going on/completed pertaining to OPGC Stage II.

6. What are the LD provisions provided in various Contracts.

7. The Clarifications provided in Filing No. 4 dated 01.11.2022 filed before OERC does not contain the specific Regulations under which different claims have been made. Therefore, the specific Regulations may please be provided in Tabular Form.

8.Whether all the contracts pertaining to OPGC Stage II have been closed or still work is going on?

--
With Regards,

Chief General Manager(PP)
GRIDCO Ltd.
Mob : 9438907699

energy output from the Project will be sold under long term PPA and/or on merchant basis. It is important that the Project is properly structured in terms of risk allocation between various counterparties involved with the Project (such as the Buyer, Seller, Financing Parties, Off-taker, and the fuel supplier) to enable the Financing Parties to accept the Project risk profile. To this end, any Bid submitted by a Bidder shall not expose the Project to any risks, including commercial and technical risks, which would not be acceptable to the Financing Parties. Buyer has applied to Ministry of Power, Government of India to obtain "Mega Power Project (MPP)" status for the Project.

3.4 Scope of Work

The Scope of work ("Scope") shall comprise of two (2) packages as mentioned below, to be completed on fixed price basis with guaranteed delivery, performance and completion schedule.

Package 1: Supply of:

(a) Equipment - (i) Design, (ii) engineering, (iii) manufacturing, (iv) procurement of equipment and materials, (v) inspection and testing of equipment at supplier's/subcontractor's works, (vi) packing, despatch, shipping to Indian port, of the Main Plant comprising Steam Turbine and Generator and its auxiliaries along with condensate and feed cycle equipment, Steam Generator and its auxiliaries, HP/LP piping, electrostatic precipitator, auxiliary cooling water system, condensate polishing unit, station compressors, emergency diesel generator set, station crane, control and switchgear, transformers, cabling, lighting, DCS and C&I system, HVAC, fire detection and protection, design and supply of materials for Steam Turbine building and Control buildings, and rectifying or remedying defects during defect liability period

(b) Special Tools;

(c) Spares;

Package 2: Technical Advisory Services comprising of:

(a) (1) Engineering related to the integration of Equipment of Main Plant, (2) Technical Field Services for (i) material identification at site, (ii) erection, testing, commissioning and Reliability Tests (iii) monitoring and review of performance guarantee testing (iv) facilitating handing over to Buyer in coordination with erection contractor of Main Plant and (3) Training of O&M Personnel

(b) All services and procurement of all clearances necessary for custom clearance of the Equipment at Port, and

(c) All services related to transportation and procurement of all clearances

necessary for inland transportation and delivery of the Equipment to Site;

The Main Plant shall be designed to provide a minimum capacity of 2x660 MW (gross) at the guaranteed conditions specified in the Contract. The design of the proposed Main Plant must be proven, reliable, meet the requirements of the Contract and the purpose of the Project. Bidders shall exercise their own discretion in optimizing the reliability, maintainability, operational flexibility, environmental impacts, and cost impacts, while proposing a configuration of Equipment that shall meet the Performance Guarantees, and meeting the requirement and intent of the Technical Specifications. Bidder's willingness t accept the risks associated with plant design will form an important part of th commercial evaluation.

The detail scope including Technical specifications are included in of Part – IV.

4.0 BIDDING PROCESS

The Buyer intends to conduct a bidding process based on an ICB process.

4.1 Two Stage Bidding Process

The bidding process will follow a two stage bidding process as enumerated below.

(i) Stage I: Techno-Commercial Bid (including Qualification)

In this first stage Buyer intends to qualify Bidders, who meet the Qualification Requirements and declare them as Qualified Bidders. Techno-Commercial Bid submitted in the specified formats of Qualified Bidders will be evaluated as per the criteria specified in section 7.7 of Instructions to Bidders. Bidders meeting the requirements of Techno Commercial Bid documents will be declared as Shortlisted Bidder.

(ii) Stage II: Price Bid

In the second stage, Shortlisted Bidders will be asked to submit Price Bids. Price Bids will be evaluated as per the evaluation criteria specified in section 8.8 of the Instructions to Bidders. The preferred Bidder will be selected through this process who shall be the successful bidder (Successful Bidder) to whom the Contract for performing the work in relation to Main Plant shall be awarded.

	Dedicated railway network (Merry Go Round system (MGR)) of approx 50 kms will be constructed for transporting coal from coal mine to ITPS. Land acquisition and other permits required for construction is in progress

3.3 Project Structure

The Project will be financed on a non-recourse basis. The electric capacity and energy output from the Project will be sold under long term PPA and/or on merchant basis. It is important that the Project is properly structured in terms of risk allocation between various counterparties involved with the Project (such as the Owner, Bidder, Financing Parties, Off-taker, and the fuel supplier) to enable the Financing Parties to accept the Project risk profile. To this end, any Bid submitted by a Bidder shall not expose the Project to any risks, including commercial and technical risks, which would not be acceptable to the Financing Parties. Owner has applied to Ministry of Power, Government of India to obtain "Mega Power Project (MPP)" status for the Project.

3.4 Scope of Work

The Scope of work ("Scope") shall comprise of two (2) packages as mentioned below, to be completed on fixed price basis with guaranteed delivery, performance and completion schedule.

Package 1: Supply of:

(a) Equipment - (i) Design, (ii) engineering, (iii) manufacturing, (iv) procurement of equipment and materials, (v) inspection and testing of equipment at supplier's/subcontractor's works, (vi) insurance, (vii) packing and dispatch (viii) ocean transportation in case of Offshore Supplies and (ix) rectifying or remedying defects during the Warranty Period;

(b) Special Tools;

(c) Spares.

Package 2: Services comprising of:

(a) Design and engineering related to the civil works, erection and installation of the Equipment and the Free Issue Material at Site;

(b) All services and procurement of all clearances necessary for importation and custom clearance of the Equipment, Special Tools and Spares at Port;

(c) All services related to transportation and procurement of all clearances necessary for inland transportation and delivery of the Equipment, Special Tools and Spares to Site;

190

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

(d) Unloading, storage and in-site transportation of the Equipment, Special Tools, Spares and Free Issue Material at the Site;

(e) Erection, testing and commissioning of all Equipment and Free Issue Material of the Project;

(f) Insurance for all the services included in Package 2.

The Bidder shall work in coordination with and under technical advice of the Main Plant Contractor to undertake storage of the Equipment, Special Tools & Spares related to Main Plant at the Site and design of civil works, erection, testing & commissioning of the Free Issue Material of the Main Plant.

The BOP shall be designed to facilitate the Facility to provide a minimum capacity of 2x660 MW (gross) at the guaranteed conditions specified in the Contract. The design of the proposed BOP must be proven, reliable, meet the requirements of the Contract and the purpose of the Project. Bidders shall exercise their own discretion in optimizing the reliability, maintainability, operational flexibility, environmental impacts, and cost impacts, while proposing a configuration of equipment that shall meet the performance guarantees, and meeting the requirement and intent of the Technical Specifications. Bidder's willingness to accept the risks associated with plant design will form an important part of the commercial evaluation.

The detailed scope and Technical specifications are included in of Part – IV.

4.0 BIDDING PROCESS

The Owner intends to conduct a bidding process based on an ICB process.

4.1 Two Stage Bidding Process

The bidding process will be a two stage process as enumerated below.

(i) Stage I: Techno-Commercial Bid (including Qualification)

The Owner intends to qualify Bidders who meet the Qualification Requirements and declare them as Qualified Bidders. The Techno-Commercial Bids of the Qualified Bidders that are responsive to the requirements of the RFP will be evaluated as per the criteria specified in section 7.7 of Instructions to Bidders. If the Techno Commercial Bid of a Qualified Bidder meets the specified requirements, then such Qualified Bidder will be declared as a Shortlisted Bidder.

(ii) Stage II: Price Bid

The Shortlisted Bidders will be asked to submit Price Bids. Price Bids will be evaluated as per the evaluation criteria specified in section 8.8 of the Instructions to Bidders. The Shortlisted Bidder who submits a Price Bid that is responsive to the requirements of the RFP will be evaluated and will be declared as the Successful Bidder to whom the Contract

191

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

3.3. Project Structure

The Project comprising the power plant, coal mine development and coal transportation system has been financed on a non-recourse basis. The electric capacity and energy output from the Project will be sold under long term PPA and/or on merchant basis. It is important that the Project is properly structured in terms of risk allocation between various counterparties involved with the Project (such as Owner, Bidder, Financing Parties, Off-taker, and the fuel supplier) to enable the Financing Parties to accept the Project risk profile. To this end, any Bid submitted by a Bidder shall not expose the Project to any risks, including commercial and technical risks, which would not be acceptable to the Financing Parties

3.4. Scope of Work

The Scope of work ("Work") shall comprise of three (3) turnkey packages and for each shall include - (i) design, (ii) engineering, (iii) manufacturing (iv) procurement of equipment and materials, (v) inspection and testing of equipment at supplier's/ subcontractor's works, (vi) insurance, (vii) packing and dispatch and delivery of the equipment, to Site; (viii) unloading, storage and in-site transportation of the Equipment at Site (ix) civil and structural works (x) erection, testing & commissioning, performance testing and reliability testing of all equipment and packages and rectifying or remedying defects during the Warranty Period; as mentioned below, to be completed on fixed price basis with guaranteed, performance and completion schedule for the Project comprising

(a) Merry Go Round railway network of approximately 50 km long for transportation of coal from Manoharpur coal mine to ITPS.

(b) ~~Coal handling Plant (comprising of Crushers, Conveyor system, Rapid loading system) capable of loading 20,000 Tonne /day of 100 mm size on wagons.~~

(c) Water pipe line from ITPS to mine along the MGR corridor of 17 MLD capacity.

The design of the proposed coal supply system, coal handling plant at mine end and water pipe line from ITPS to mine shall be proven, reliable, meet the requirements of the Contract and the purpose of the Project. Bidders shall exercise their own discretion in optimizing the reliability, maintainability, operational flexibility, environmental impacts, and cost impacts, while proposing a configuration of equipment that shall meet the performance guarantees, and meeting the requirement and intent of the Technical Specifications. Bidder's willingness to accept the risks associated with plant design will form an important part of the commercial evaluation.

The detailed scope of Work and Technical specifications is included in Part – IV of the RFP.

4.0 BIDDING PROCESS

Owner intends to conduct a bidding process based on an International Competitive Bidding (ICB) process.

process and re-cycle the recoverable water from Ash Pond.

The information in this section is provided for the general guidance of the Bidders.

Location	**For the Power Plant** Village : Banharpalli, Dist: Jharsaguda Odisha, India - 768234 Latitude: 21° 48' North, Longitude: 83° 52' East **Ash pond:** Village - Tillia, Tahsil – Lakhanpur, District – Jharsuguda, Odisha, India Latitude: 21^0 38" to 21^0 38' 20" North Longitude: 83^0 55'00" to 83^{0}55" East
Consultants to Project	**Power Plant:** Development Consultant Pvt. Ltd. **AWRS:** Development Consultant Pvt. Ltd. **Ash Pond:** WAPCOS Limited
Access to Project	**Power Plant:** Road – Belpahar on NH-200 is 18 km from ITPS Rail - Belpahar on Howrah- Mumbai railway line is around 18 km from ITPS Airport – Bhubaneswar/Kolkata Sea Port – Paradip/Vizag **Ash Pond:** By Road - about 14 km from ITPS.

The total area of the proposed Ash Pond land is about 361 Acres. OPGC has initiated the survey and Geo Technical Investigation.

2.0 INVITATION TO BID

With this Request for Proposal ("RFP"), through Competitive Bidding Owner invites Techno Commercial Proposal and Price Proposal ("Proposal (s)") from reputed parties, ("Bidder(s)"), who meet the Qualification Requirements stated in section 4 hereof, for Construction of Ash Pond for Unit 3 & 4 complying with the terms and conditions stated in this RFP and associated Appendices & Annexures.

3.0 SCOPE OF WORK

The requirement of coal for the power plant, will be met from the coal blocks of

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

193

Manoharpur and Dip side of Manoharpur. The bottom ash is proposed to be conveyed to ash pond in lean slurry system whereas the fly ash will be conveyed to ash pond through High Concentration Slurry Disposal (HCSD) system. The OPGC desires to construct Ash Pond for the power plant near Village Tilia, District Jharsuguda (Odisha). For construction of Ash Pond, OPGC will carry out the necessary design and detail engineering through WAPCOS. All construction works will be carried out by the Successful Bidder.

Annexure II: Technical Specification consisting of Part-A, Part-B and Part-C deals with the Scope and Special Technical Requirements, General Technical Specifications and Sampling, Testing and Quality Assurance of civil works needed for the construction of the pond and associated works.

The Scope of Work to be performed consists of providing all labour, supervision, materials, scaffolding, construction, power, fuel, water, construction equipment, testing equipment, tools and plants, supplies, transportation, construction of cofferdams if required, dewatering, establishing stores and watch & ward, all incidental items not shown or specified, but reasonably implied or necessary for successful completion of the work including pollution control measures, approach / access / haulage roads, safety measures, Bidder's supervision and in strict accordance with the drawings and specifications.

The nature of work generally involves site clearance including removal of trees and obtaining necessary permission from the competent authority for performing this activity, excavation in all types of soils/ rock, foundation preparation, construction of cofferdams if required, dewatering, shoring, shuttering, backfilling, formation of embankment with the material of specified quality from the approved borrow areas, forming aggregate filter, sand chimney, sand blanket, sand filter, upstream and downstream slope protection, instrumentation, forming drains, RR masonry bedding / capping, providing impervious HDPE liner on bed, RCC spillways, water escape structure, supplying & laying of RCC hume pipes & MS pipes, road works etc. and other ancillary works associated with the completion of dyke embankment as per specifications, drawings, Schedule of Items and directions of the Owner.

The Scope of Work shall cover procurement of material, providing labour, supervision, Tools, equipment & machineries, consumables, watch & ward etc. as required to carry out the Works detailed in Technical Specifications.

The Work involved is mainly related, but not limited, to the following:

i. Preparation of work areas/clearing site/jungle clearance. This will also include removal of any existing permanent/ temporary structures, encroachments, graveyards, hutments etc. and relocation of any existing roads, Nallah and transmission lines.
ii. Excavation for cut off trench and filling the same with borrow area earth in layers
iii. Ground stripping.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

194

iv. Foundation preparation along with formation of steps and key pockets on sloping ground and steep gradient respectively.
v. Formation of the dyke section with earth.
vi. Formation of the dyke section with ash.
vii. Providing of sand chimney, sand blanket and sand filter.
viii. Construction of dyke rock toe, rip rap and filters as well as toe drain.
ix. Dyke outer slope protection with turfing.
x. Dyke inner slope protection with turfing.
xi. Construction of dyke chute drains, kerb wall & cross drain.
xii. Levelling, dressing & compaction of area inside Ash pond for laying of HDPE liner. Laying of 1.5MM thick HDPE liner.
xiii. Construction of RCC works for water escape structures, Hume pipe cross drainage for bituminous inspection roads, RCC peripheral Drain & RCC Spillways.
xiv. Laying and embedding RCC/MS pipes.
xv. WBM Road works on top of dyke.
xvi. Installation of instruments (piezometers) for monitoring purpose.
xvii. Illumination of dyke area (by Solar Lamps).
xviii. Walkway to Collector well & walk way to Valve chamber in PST including arrangement for chemical dozing.
xix. Construction of RCC apron at all the discharge points.
xx. Construction of Security cabin (04 nos).
xxi. Providing of Guard Posts all along the bund.
xxii. Fixation of Signage board.

The Ash dyke shall be constructed using selected earth & ash for a height of 15m as per approved drawing. The slope of dyke shall be considered not steeper than 2 horizontal (H) to 1 vertical (V) in case of earth and 3H:1V in case of ash. The starter dyke construction shall be carried out by the successful Bidder.

The Ash Pond is proposed to consist of two (2) phases. Phase I Ash Pond shall be an ash dyke of about 125 acres area with height of 10 m. from the maximum NSL to be made operational in nine (9) months from execution of Contract. Phase II Ash Pond shall be Ash dyke covering the balance area and raising the Phase I Ash Pond area up to 15 m from the maximum NSL simultaneously with dumping of ash in Phase I Ash Pond. Both phases are required to be taken up simultaneously with completion of the Phase I in 9 months and Phase II in 24 months from execution of the Contract. OPGC will start dumping Ash in Phase I Ash Pond immediately on completion.

The Scope of Work shall be carried out by the contractor on unit rate contract basis. The scope of work is detailed further in Annexure II Technical specifications. Bill of Quantity (BOQ) for the Work is specified in Appendix A hereof. As the survey and Geo-Technical

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

195

Investigation on site are yet to be done the BOQ is expected to undergo changes in due course.

Wherever discrepancy between technical specification and item description of BOQ arises then BOQ shall take precedence over technical specification on specific detailing of items however execution of item shall be complying with brief description of BOQ as detailed in technical specification. Due care has been taken while describing the items in BOQ, however, the same shall be interpreted to be in line with good industry practice if not duly detailed in technical specification.

4.0 QUALIFICATION REQUIREMENTS

Bidders shall meet both the technical and financial Qualification Requirements stated in 4.1 and 4.2.

4.1. Technical Qualification Requirement

Bidder shall be a company, corporation or entity registered in India; AND,

Bidder should, within the preceding seven (7) years from the Proposal Submission Date:

a. Have executed embankment work in earthen dam or dyke or ash dyke (including raising of ash dyke) or reservoir embankment or canal embankment or guide bunds along water courses or railway embankment or road embankment; AND,

b. Have executed a cumulative progress of at least 10 Lacs Cu.M of earthwork in embankment in any one (1) year period, in maximum two (2) concurrently running contracts.

The followings shall be noted while submitting the document in support of the Technical Qualification Requirement.

i. Sand / substitute filter media as filter either in chimney or in blanket or both; used in embankment shall be considered in earthwork quantity calculations. Rock toe shall not be considered.

ii. The word "executed" in this clause means the Bidder should have achieved the criteria specified in the qualifying requirements within the preceding seven (7) year period even if the contract has been started earlier and /or is not completed / closed.

iii. The word "Embankment" for the purpose of 4.1 (b) shall mean to include any structure designed as water retaining structures (Earth dams, ash dykes and

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

196

APPENDIX A

SCOPE OF WORK

The Scope of work shall be construction of AWRS Package on turnkey basis and shall include- (i) design, (ii) engineering, (iii) manufacturing (iv) procurement of equipment and materials, (v) inspection and testing of equipment at supplier's/ subcontractor's works, (vi) insurance, (vii) packing and dispatch and delivery of the equipment, to Site; (viii) unloading, storage and in-site transportation of the Equipment at Site (ix) civil and structural works (x) erection, testing & commissioning, performance testing and reliability testing of all equipment and rectifying or remedying defects during the Warranty Period; as mentioned below, to be completed on fixed price basis with guaranteed, performance and completion schedule for the AWRS Package.

AWRS Package consists of Ash Water Re-Cycling System, Ash Water Pipeline, Cooling Tower Blow Down Treatment System and Transmission Line. Various components of each package has been detailed in Annexure II Technical Specification. A brief description of each package is presented below.

Ash evacuation and disposal system from Unit- 3&4 (2 x 660 MW plant) shall be by the following modes:

- Bottom Ash (BA): Wet disposal by lean phase slurry mode to Ash Pond.
- Fly Ash (FA): Dry disposal as well as Wet disposal by HCSD from Silo.

A. Ash Water Recycling System:

About 70% of water is expected to be recycled from lean slurry disposal of BA while very less or negligible quantity from HCSD of FA will be available for recycling from ash pond. Recovery water from decantation well, located inside the ash pond will be collected through gravity pipes to overflow lagoon (by other agency) where further settling of recovery water is carried out. From over flow lagoon (OFL), a 600 NB gravity outlet pipe is fed to Ash water settling cum storage tank (of RCC construction). Chemical dosing shall be administered in this settling cum storage tank to assist coagulation of suspended ash particle carried over from OFL by a pump in recirculation mode. After settlement of the suspended ash particle in sludge sumps of settling tank, the treated ash water will be led to recycling water transfer pump sump. There shall be three nos. (2W+1S) recycling water transfer pumps installed at sump and two (2) dedicated 450 NB pipelines to transfer the recycled water to Ash water sump inside the plant boundary. It shall be noted that normally a single pump and pipeline will be in operation while two pumps and both pipelines shall be engaged to cater the excess water during the torrential rainfall/monsoon season.

This Ash water settling cum storage tank will having two compartments and the same will be connected to recycle water pump sump through connecting channels located inside plant boundary. The storage capacity of Ash water settling cum storage tank has been selected such that the recycle water pumps can run continuously for 2 (two) hrs. Accordingly, effective capacity of this tank has been selected as 1800 cum (minimum). Ash Water will be pumped through Ash Water Pipeline to sump at Power plant end.

Recovered ash water gravity pipe, coming from decantation well of Ash ponds through overflow lagoon, will be terminated by other agency at about 1.0 m away from Overflow Lagoon. From this point onwards up to Ash water/ Ash slurry reservoir sump inside plant boundary of IBTPS, the entire Ash water recycling system is under scope of Bidder.

The Scope of Ash Water Recycling System includes the followings but not limited to:

- Ash Water Re-Cycling Pump House, mechanical, electrical and C&I equipment and accessories along with civil works;
- Complete piping system including pipes, valves, fittings, specialties, supports, hangers etc. three (3) nos. recycling water transfer pumps shall be installed at sump.
- Mandatory spares as specified in respective Technical Specifications of Equipment and System and Bidder's recommended spares.
- Tools and tackles as specified in respective Technical Specifications of Equipment and System for maintenance, overhaul and replacement of various equipment.

B. Ash Water Pipeline

The discharge pipeline from recycle water pumps to ash water sump located at Power Plant will be supported over pedestal and will be routed along the incoming ash slurry piping corridor towards ash dyke. Two (2) dedicated 450 NB pipelines to transfer the recycled water to Ash water sump inside the plant boundary.

C. Cooling Tower (CT) Blow Down Treatment System :

Since zero liquid discharge concept has been adopted for this plant, cooling tower blow down will be treated in a RO plant to produce clarified water quality make up to cooling tower fore-bay.

As per water balance in Power Plant only 40 cum/hr of CT blowdown will be required to be diverted to Ash water system make up and balance quantity of CT blow down, which is approximately 374 cum/hr, will be reused as cooling tower fore-bay make up conforming to the latest MoEFCC standard for specific water consumption for thermal power plants. By installing a dedicated RO plant, exclusively for CT blow down treatment, this surplus CT blowdown water can be reused as cooling tower fore-bay make up conforming to the latest MoEFCC standard for specific water consumption for

thermal power plant by installing 2 working streams of RO unit, each having inlet flow as 200 cum/hr has been planned.

Cooling tower blow down water pipe, coming from Cooling Tower blowdown header, will be terminated by other agency at about 6.0 m away from CT Blowdown reservoir. From this point onwards upto Clarified water reservoir and Ash slurry sump inside plant boundary of IBTPS, the entire cooling tower blowdown treatment system is under scope of Bidder.

The Scope of Cooling Tower Blow Down Treatment System includes the followings:

- Cooling Tower Blow Down Treatment System, mechanical, electrical and C&I equipment and accessories along with civil works;
- Complete piping system, valves, fittings etc. as required for the complete Cooling Tower blowdown treatment system upto/from respective terminal points.
- Mandatory spares, as specified in respective Technical Specifications of Equipment & system and bidder's recommended spares.
- Tools and tackles as specified in respective Technical Specifications of Equipment and System for maintenance, overhaul and replacement of various equipment.

D. Transmission System for Ash Water Re-Cycling System

A Double Circuit 33kV transmission line is to be constructed from existing switchyard up to pump house gate (3 km) with NBLS towers and it will be terminated at the existing pole located at boundary wall near pump house gate. Power line from the boundary wall to existing Ash Pond shall be carried through existing Transmission line.

Another conventional Double circuit line to be constructed from Existing Ash Pond to New Ash Pond. For this purpose a 4-pole structure near the existing Ash Pond is to be constructed to connect the 'New' line with the existing line.

The Scope for Transmission System consists of the following

- Extension of 2 no. 33KV bays near the existing switchyard at plant and 1 no. bays inside the colony.
- 33KV Transmission line from existing switchyard to Plant boundary (3 km) through NBLS towers.
- 33KV Transmission line from existing Ash Pond to new Ash Pond (6 km) through conventional towers
- 33/6.6 kv substation near AWRS Pump house

EXTRACT OF THE
MINUTES OF 217TH MEETING OF BOARD OF DIRECTORS
OF ODISHA POWER GENERATION CORPORATION LTD.
HELD ON 24.06.2020 AT 5.00 P.M.

**** **** **** ****

Item No.11 Change order issued to contractor of OPGC- II Project
Memorandum No. OPGC- 2597

The summary of the Change orders issued in respect of 5 major contracts under OPGC -II Expansion Project on account of scope changes, change in law and other issues by following due process of approval as laid down in the memorandum as a part of information to Board was deliberated and noted.

**** **** **** ****

True copy attested

3.10.2023

Company Secretary

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

200

MEMORANDUM NO. 2597

SUB: CHANGE ORDER ISSUED TO CONTRACTOR OF OPGC II PROJECT

For execution of 2X660 MW (Unit #3 & Unit#4), 5 major Contracts for Main Plant, Balance of Plant, Merry Go Round- Railway Infrastructure, Ash Pond and AWRS Package were awarded to BHEL, BGRE, L&T, SBEPL & Driplex. During execution of these projects, due to scope changes, change of law and other issues, various change orders issued have been issued following due approval process of change order issuance. Details are given below for information and record.

a) **Main Plant BTG (BHEL):** OPGC had placed contract to BHEL for supply and services on the 27th day April 2013 of main plant equipment of 2 X 660 MW Power station Project at Banharpalli. During execution, OPGC has issued 16 nos. of change order having a total value of **INR 76.37 Cr**, under supply and service contract as per provisions of contract. The summary of change orders issued so far is attached as **Annexure-1.**

b) **Balance of Plant (BGRE):** OPGC had placed contract to BGRE for supply and services on the 11th day July 2013 of complete Balance of Plant of 2 X 660 MW Power station Project at Banharpalli. During execution, OPGC has issued 18 nos. of change order having a value of **INR 60.21 Cr**, under supply and service contract as per provisions of contract. The summary of change orders issued so far is attached as **Annexure-2.**

c) **MGR (L&T):** OPGC has placed Lum Sum Turnkey Engineering, Procurement and Construction Contract to **Larsen and Toubro Ltd** on the 8th day May 2015 of complete Merry Go Round and Water pipeline system of 2 X 660 MW Power station Project at Banharpalli. During execution, OPGC has issued 14 nos. of change order having a value of **INR 118.15 Cr**, under contract as per provisions of contract. The summary of change orders issued so far is attached as **Annexure -3.**

d) **Ash Pond (SBEPL):** OPGC has placed construction of Ash Pond at Tilia Village to **Shree Balaji Engicons Ltd** on 21st Dec 2016 for OPGC 2 X 660 MW Power station Project at Banharpalli. During execution, OPGC has issued 2 nos. of change order having a value of **INR 11.03 Cr**, under contract as per provisions of contract. The summary of change orders issued so far is attached as **Annexure-4.**

e) **AWRS (Driplex):** OPGC has placed Lum Sum, Turnkey, Engineering, Procurement and Construction Contract to **Driplex Water Engineering Private Limited** on the 23rd Oct 2017 of complete construction of Ash Water Re-Circulation system, Ash Water Pipeline Transmission Line and CTBD RO system of 2 X 660 MW Power station Project at Banharpalli. During execution, OPGC has issued 5 nos. of change order having a value of **INR 3.63 Cr**, under contract as per provisions of contract. The summary of change orders issued so far is attached as **Annexure-5.**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

201

The above is put up for Information.

ED Construction

Managing Director

Enclosure:

Annexure 1: List of Change Order Issued to BTG Package
Annexure 2: List of Change Order Issued to BOP Package
Annexure 3: List of Change Order Issued to MGR Package
Annexure 4: List of Change Order Issued to Ash Pond Package
Annexure 5: List of Change Order Issued to AWRS Package

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

292

BTG Contracts issued Change order details as on 13.06.2020

Annexure I

Sl. No.	Contractor's Name	Details of Change Order	Contract	Date of Change Order	Scope of Change Order	Value of Change Order		Total
						Supply	Services	
1	BHEL	BTG001	Supply	29.07.2014	Appendix B2 amendment-LHTP Supply			
2	BHEL	BTG002	Supply	10.06.2014	Appendix B1 amendment-CIF content Supply Contract			
3	BHEL	BTG003	Supply	02.06.2015	Price variation-Supply Contract	$47,943,993.00		$47,943,993.00
4	BHEL	BTG004	Services	02.06.2015	Price variation-Services Contract		8,918,067.00	8,918,067.00
5	BHEL	BTG005	Services	02.07.2018	Increase in service Tax amount - E&C due to change in Law		58,828,241.00	58,828,241.00
6	BHEL	BTG006	Supply	31.10.2018	Supply of Metal Decking	25,867,200.00		25,867,200.00
7	BHEL	BTG007	Services	31.10.2018	Services of Metal Decking		7,259,300.00	7,259,300.00
8	BHEL	BTG008	Services	01.11.2018	Mobilisation of 600MT additional crane-Services Contract		38,472,000.00	38,472,000.00
9	BHEL	BTG009	Services	14.07.2017	Increase in service Tax amount - Inland transportation due to change in Law		9,383,088.00	9,383,088.00
10	BHEL	BTG010	Supply	02.08.2017	Change in Seller Tax amount-Due to change in Law-Supply Contract	(18,411,586.00)		(18,411,586.00)
11	BHEL	BTG011	Supply	09.03.2018	Relocation of Auxiliary Boiler MCC and Control Room-Supply Contract	4,984,000.00		
12	BHEL	BTG012	Services	09.03.2018	Relocation of Auxiliary Boiler MCC and Control Room-Services Contract		1,200,000.00	
13	BHEL	BTG013	Supply	30.03.2019	Supply splitting payment milestone-1st Tranche			
14	BHEL	BTG014	Services	30.03.2019	Services splitting payment milestone-1st Tranche			
15	BHEL	BTG015	Supply	23.03.2020	GST Change-order due to change in Law	25,404,124.00		25,404,124.00
16	BHEL	BTG016	Services	23.03.2020	GST and E&C Change order due to change in Law		53,849,545.00	53,849,545.00
					Change order Value	585,787,731.00	177,918,241.00	763,697,972.00
					Original Contract Dated 27.07.2013	36,090,700,000.00	4,419,300,000.00	40,510,000,000.00
					Total Contract Value	36,676,487,731.00	4,597,218,241.00	41,273,697,972.00

38

203

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure 2

BOP Contracts issued Change order details as on 13.06.2020

Sl.No.	Contractor's Name	Details of Change Order	Contracts	Date of Change Order	Scope of Change Order	Value of Change Order		Total
						Supply	Services	
1	BGRE	BOP/001	Services	18.09.2014	Service contract LWTP Deliverables- Appendix -00			
2	BGRE	BOP/002	Supply	25.02.2015	Price Adjustment for Supply Contract	112,182,527.00		112,182,527.00
3	BGRE	BOP/003	Services	25.02.2015	Price Adjustment for Service Contract		42,233,023.00	42 233,023.00
4	BGRE	BOP/004	Supply	24.03.2015	Appendix 82 Supply Contract - Unpriced PO			
5	BGRE	BOP/005	Supply	22.05.2015	AHP Supply Contract	253,051,437.00		253,051,437.00
6	BGRE	BOP/006	Services	22.05.2015	AHP Service Contract		63 871,562.00	63 871,562.00
7	BGRE	BOP/007	Services	21.07.2016	Change of Law-Change in Service Tax		26,309,154.00	26,309,154.00
8	BGRE	BOP/008	Services	25.05.2017	Change of Law-Change in Service tax amount due to implication Krishi Kalyan Cess		4,208,428.00	4,208,428.00
9	BGRE	BOP/009	Supply	15.01.2018	Supply splitting payment milestone- 1st Tranche			
10	BGRE	BOP/010	Services	19.01.2018	Services splitting payment milestone-1st Tranche			
11	BGRE	BOP/011	Services	06.10.2018	Services splitting payment milestone-3rd Tranche			
12	BGRE	BOP/012	Supply	01.12.2018	GST Change order due to change in Law	15,611,011.00		15,611,011.00
13	BGRE	BOP/013	Services	01.12.2018	GST Change order due to change in Law		24,760,522.00	24,760,522.00
14	BGRE	BOP/014	Supply	25.01.2019	Supply splitting payment milestone-3rd Tranche			
15	BGRE	BOP/015	Supply	30.01.2019	Supply splitting payment milestone-4th Tranche			
16	BGRE	BOP/016	Services	30.01.2019	Services splitting payment milestone-4th Tranche			
17	BGRE	BOP/017	Supply	22.01.2020	Supply splitting payment milestone-5th Tranche			
18	BGRE	BOP/018	Services	22.01.2020	Services splitting paytuent milestone-5th Tranche			
19	BGRE	BOP/019	Supply	07.01.2020	Modification of payment milestone of 4th tranche			
20	BGRE	BOP/20	Supply	18.05.2020	Advance payment to BGRE for completion of balance AHP rectification works & ADPL line			
21	BGRE	BOP/21	Services	18.05.2020	Advance payment to BGRE for completion of balance AHP rectification works & ADPL line			
					Total Change Order Value	440,845,047.00	161,282,689.00	602,127,736.00
					Original Contract Dated 27.07.2013	9,469,360,680.00	4,261,179,320.00	13,730,700,000.00
					Total Contract Value	9,910,205,727.00	4,422,462,009.00	14,332,827,736.00

ODISHA POWER GENERATION CORPORATION LTD * BHUBANESWAR

Annexure - 3

MGR Contracts Issued Change order Details as on 13.06.2020

Sl.No.	Contractor's Name	Details of Change Order	Contracts	Date of Change Order	Scope of Change Order	Value of Change Order	Price of Contract after Change Order	Status of change order	Initial Contract Value
1	L&T	L&T/002	Services	09.12.2016	MGR Performance Security			Closed	
2	L&T	L&T/003	Services	17.05.2017	Plan B Change Order			Closed	
3	L&T	L&T/004	Services	12.12.2017	Tree Felling work in Forest Land up to 60% ,20% & 20% of (Km 18/500 - Km 35/500) and (Km 35/500 – Km 47/418)	19,446,654.00	10,279,446,654.00	Closed	10,260,000,000.00
4	L&T	L&T/005	Services	18.01.2018	1st Interim hard rock quantity by blasting variation of 8,91,391 cum beyond the upper limits specified in the contract payable at a price of 260 per cubic meter****	231,262,180.00	10,533,708,834.00		10,279,446,654.00
5	L&T	L&T/006	Services	07.02.2018	Relocation/ Modification/ Re-Construction of Civil Works and Construction of Haul Road Works in MCL Area - Payment towards Construction of Haul road Completed upto G38 Level	16,600,000.00	10,517,808,834.00		10,511,208,834.00
6	L&T	L&T/007	Services	28.02.2018	Relocation/Modification of the increased number of Power Line Crossings in New MCL Area and MCL Lakhanpur Area in MGR Corridor - Payment towards the executed work as on Jan-2018******	62,207,840.00	10,600,016,674.00		10,537,808,434.00
7	L&T	L&T/008	Services	01.06.2018	Construction of additional bridges/ culverts/ structures (beyond contract scope), modification to bridges due to change of law and deletion to bridges scope	163,943,515.00	10,363,960,209.00		10,600,016,674.00
8	L&T	L&T/009	Services	21.06.2018	CO for Splitting of Payment Milestones for Prorated payment, on account of delay in hand over of land parcels		10,263,960,209.00		10,263,960,209.00
9	L&T	L&T/010	Services	31.12.2018	Goods and Services Tax (GST) due to change of law for Merry Go Round Plan B - distributed & balance portion over the milestones left to be paid as of 01-July-2017 on prorata basis of the respective milestone********	649,958,121.00	11,313,958,311.00		10,763,960,209.00
10	L&T	L&T/013	Services	31.12.2018	Construction of 2 no's manned level crossings in place of Bridges no's 21 & 54 in MGR Corridor - Payment towards Construction of manned level crossing at Br. No. 31 or at any other designated location Completed	2,300,000.00	11,211,254,311.00		11,213,958,311.00
11	L&T	L&T/011	Services	07.03.2019	Interim hard rock quantity by blasting variation of 891391 cum beyond upper limits specified in the contract payable at a GST impacted price of Rs.25.68 per cum out of the revised price for excavation 285.68 (260/- + 25.68 (GST Impacted Rate)) per cubic meter**********	22,890,971.00	11,244,149,303.00		11,221,258,311.00
12	L&T	L&T/013	Services	07.03.2019	Supply and installation and erection of 2nos additional in-motion weigh bridges below MGR Track (including supervision and AMC for 3 years)- Payment towards supply , installation and erection of 1st additional in-motion weigh bridge completed(including supervision and AMC for 3 years)	7,600,000.00	11,251,749,303.00		11,244,149,303.00
13	L&T	L&T/014	Services	08.03.2019	Carrying out dismantling of existing rail and replacement with 99.57MT of 60kg new rail, beyond L&T's contractual scope under MGR contract- 100% payment towards carrying out dismantling of existing rail and replacement with 99.57MT of 60kg new rail	7,483,744.00	11,259,133,047.00		11,251,749,303.00

89

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

205

14	L&T	L&T/015	Services	12.04.2019	2nd interim hard rock quantity by blasting variation of 3, 86,705 cum beyond the upper limits specified in the contract and 1st interim hard rock by blasting variation of 8, 91, 393 cum payable at a price of 285.68 (260/- + 25.68 (GST Impacted Rate)) per cubic meter********* & interim hard rock quantity by chiseling (where blasting is not permitted) variation of 18,033 cum beyond the upper limits specified in the contract payable at a price of 665.40 (600/- + 65.40 (GST Impacted Rate)) per cubic meter*********	122,330,202.00	11,381,563,249.00		11,259,233,041.00
15	L&T	L&T/016	Services	04.05.2019	Scope deletion - deletion of Bridge No 71 from the scope (no longer required to be constructed)	(25,827,201.00)	11,355,736,048.00		11,381,563,249.00
16	L&T	L&T/017	Services	15.06.2019	3rd hard rock quantity by blasting variation of 2,48,737.29 cum beyond the upper limits specified in the contract and 1st interim hard rock by blasting variation of 8, 91, 393 cum payable at a price of 285.68 (260/- + 25.68 (GST Impacted Rate)) per cubic meter********* & hard rock quantity by chiseling (where blasting is not permitted) variation of 11010.51 cum beyond the upper limits specified in the contract payable at a price of 665.40 (600/- + 65.40 (GST Impacted Rate)) per cubic meter*********	78,582,819.00	11,434,318,867.00		11,355,736,048.00
17	L&T	L&T/018	Services	17.08.2019	Track Fitness	7,126,407.00	11,441,445,274.00		11,434,318,867.00
					Change order Value	1,181,445,274.00			

206

Annexure - 4

Ash Pond Contract Change Order details as on 13.06.2020		
Change order items	Value of Change Order in INR	Contract Price after Issuance of Change Order (INR)
		1,997,545,890.00
Construction of Ash Pond at Tilla Village -Change order for carrying out add. Itms of work	47,609,592.00	2,045,155,482.00
Interim change order for change in law,implementation of GST	62,730,510.00	2,107,885,992.00
Total	110,340,102.00	2,107,885,992.00

207

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

AWRS Contracts Issued Change Order details as on 13.06.2020							
Sl.No.	Contractor's Name	Details of Change Order	Contracts	Date of Change Order	Scope of Change Order	Value of Change Order	Price of Contract after Change Order
	-						
1	DWEPL	AWRS/001	Services	09-Apr-19	Splitting & Modification of Payment Milestone		INR 1,073,500,000.00
2	DWEPL	AWRS/002	Services	28-Oct-19	Additional Civil Works of AWRS Piping and 33 KV Transmission Line due to Change in Route of Piping Corridor from End of Pond A to Start of New Ash Pond at Tilia.	INR 36,329,843.00	INR 1,109,829,843.00
					Total	INR 36,329,843.00	INR 1,109,829,843.00

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

208

Supply

ANNEXURE - V

EXTRACT OF BTG SUPPLY CONTRACT

APPENDIX A

COMPLETION AND PERFORMANCE GUARANTEE TERMS LIQUIDATED DAMAGES AND OTHER GUARANTEES

1.0 Guaranteed Completion Dates:

1.1 The Delivery of Equipment/System at Site of following are guaranteed:

Sl. No	Equipment / System	Delivery at Site from NTP (Days)**		Delivery Delay Liquidated Damages Amount (INR/day) A #
		Unit 3	Unit 4	
		From Main Plant NTP	From Main Plant NTP	
1	**Engineering Deliverables**			
(a)	Engineering Deliverables, specified in Appendix DD and marked as "#"	As in Appendix DD		As per Appendix DD
2	**Boiler and accessories**			
(a)	Completion of supply of Structural Steel	390	510	1,000,000/-
(b)	Completion of supply of Boiler Pressure Parts	690	840	1,000,000/-
3	**Turbine Building**			
(a)	Completion of supply of Turbine Building Structurals.	570	690	2,000,000/-
(b)	Completion of supply of Turbine Building roof and side claddings.	660	780	2,000,000/-
4	**Completion of supply of Generator Transformers (GT) , 400/21KV**	870	990	2,000,000/-

Notes:

(1) "**" These delivery details will be converted into a date for completion of Equipment/System Delivery at NTP.

1.2 The following ramp rates will be applied to the Liquidated Damages for delay in Delivery, mentioned above

S. No.	Delay from the Guaranteed Details – Delivery at Site from NTP	Delivery Delay Liquidated Damages Amount (INR/day)
1	During day 1 to day 5 (both days inclusive)	**@ 3.00% of A**
2	During day 6 to day 10 (both days inclusive)	**@ 7.00% of A**
3	During day 11 to day 15 (both days inclusive)	**@ 10.00% of A**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

MKTG. BHEL House, Siri Fort, N.D.-49

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

299

4	From day 16 onwards	@ A

1.3 The following completion dates are guaranteed

Sl. No	Unit completion	Unit 3	Unit 4	Completion Delay Liquidated Damages Amount (INR/day)
		Guaranteed Completion Date from NTP (Months)		
1	Substantial Completion of Unit 3	44 months *		18,200,000/-
2	Substantial Completion of Unit 4	48 months *		18,200,000/-

Sl. No	Facility completion	Guaranteed Completion Date from NTP (Months)
1	Final Completion of the Main Plant	51 months *

* To be converted into dates based on months from the NTP Date at NTP.

2.0 Performance Guarantees

See Tables A1 and A2 in Attachment 1 hereto for the Guarantee Conditions and design coal specifications.

2.1 Performance Guarantees Having Liquidated Damages Amounts

Sl. No	Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
1	2	3	4	5
1	Gross Capacity Guarantee Unit 3.	The As-Tested Gross Capacity Unit 3 shall be greater than or equal to 660 MW.	₹ 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As-Tested Gross Capacity Unit 3 is less than the Gross Capacity Guarantee Unit 3.	The As-Tested Gross Capacity Unit 3 shall be greater than or equal to ninety seven and half percent (97.5 %) of the Gross Capacity Guarantee Unit 3 (the "Minimum Gross Capacity Guarantee Unit 3").
2	Gross Capacity Guarantee Unit 4.	The As-Tested Gross Capacity Unit 4 shall be	₹ 92,600/- (Indian Rupees Ninety Two Thousand Six	The As-Tested Gross Capacity Unit 4 shall be greater

210

Sl. No	Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
1	2	3	4	5
		greater than or equal to 660 MW.	Hundred Only) for each kilowatt by which the As-Tested Gross Capacity Unit 4 is less than the Gross Capacity Guarantee Unit 4.	than or equal to ninety seven and half percent (97.5 %) of the Gross Capacity Guarantee Unit 4 (the "Minimum Gross Capacity Guarantee Unit 4").
3	Auxiliary Power Consumption Guarantee Unit 3.	The As-Tested Auxiliary Power Consumption Unit 3 shall be less than or equal to 21432 kW.	₹ 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As-Tested Auxiliary Power Consumption Unit 3 is more than the Auxiliary Power Consumption Guarantee Unit 3.	The As-Tested Auxiliary Consumption Unit 3 shall be less than or equal to one hundred five percent (105 %) of the Auxiliary Power Consumption Guarantee Unit 3 (the "Maximum Auxiliary Power Consumption Guarantee Unit 3").
4	Auxiliary Power Consumption Guarantee Unit 4.	The As-Tested Auxiliary Power Consumption shall be less than or equal to 21432 kW.	₹ 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As-Tested Auxiliary Power Consumption Unit 4 is more than the Auxiliary Power Consumption Guarantee Unit 4.	The As-Tested Auxiliary Consumption Unit 4 shall be less than or equal to one hundred five percent (105%) of the Auxiliary Power Consumption Guarantee Unit 4 (the "Maximum Auxiliary Power Consumption Guarantee Unit 4").
5	Gross Heat Rate Guarantee Unit 3.	The As-Tested Gross Heat Rate Unit 3 shall be less than or equal to 2078 kcal/kWh [(HHV)].	₹ 16,850,000/- (Indian Rupees Sixteen Million Eight Hundred Fifty Thousand Only) for each kCal/kWh (HHV) by which the As-Tested Gross Heat Rate Unit 3 exceeds the Gross Heat Rate Guarantee Unit 3.	The As-Tested Gross Heat Rate Unit 3 shall be less than or equal to one hundred five percent (105%) of the Gross Heat Rate Guarantee Unit 3 (the "Maximum Gross Heat Rate Guarantee Unit 3").

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BHARAT HEAVY ELECTRICALS LTD. EXIM House, Siri Fort

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

21

Sl. No	Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
1	2	3	4	5
6	Gross Heat Rate Guarantee Unit 4.	The As Tested Gross Heat Rate of Unit 4 shall be less than or equal to 2078 kcal/kWh [(HHV)].	₹ 16,850,000/- (Indian Rupees Sixteen Million Eight Hundred Fifty Thousand Only) for each kCal/kWh (HHV) by which the As-Tested Gross Heat Rate Unit 4 exceeds the Gross Heat Rate Guarantee Unit 4.	The As-Tested Gross Heat Rate Unit 4 shall be less than or equal to one hundred five percent (105%) of the Gross Heat Rate Guarantee Unit 4 (the "Maximum Gross Heat Rate Guarantee Unit 4").
7	CW side pressure drop Guarantee Unit 3.	The As-Tested CW side pressure drop Unit 3 shall be less than or equal 4.6 mwc subject to a maximum of 8.50 mwc.	₹ 11,436,100/- (Indian Rupees Eleven Million Four Hundred Thirty Six Thousand One Hundred Only) for each 1 (one) mwc by which the As-Tested CW side pressure drop Unit 3 is more than 8.50 mwc but equal to or less than 9.00 mwc. ₹ 22,872,200/- (Indian Rupees Twenty Two Million Eight Hundred Seventy Two Thousand Two Hundred Only) for each 1 (one) mwc by which the As-Tested CW side pressure drop Unit 3 is more than 9.00 mwc.	Not Applicable
8	CW side pressure drop Guarantee Unit 4.	The As-Tested CW side pressure drop Unit 4 shall be less than or equal to 4.6 mwc subject to a maximum of 8.50 mwc.	₹ 11,436,100/- (Indian Rupees Eleven Million Four Hundred Thirty Six Thousand One Hundred Only) for each 1 (one) mwc by which the As-Tested	Not Applicable

212

Sl. No	Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
1	2	3	4	5
			CW side pressure drop Unit 4 is more than 8.50 mwc but less than or equal to 9.00 mwc. ₹ 22,872,200/- (Indian Rupees Twenty Two Million Eight Hundred Seventy Two Thousand Two Hundred Only) for each 1 (one) mwc by which the As-Tested CW side pressure drop Unit 4 is more than 9.00 mwc.	

Notes:

(1) The list of auxiliaries that contribute to Auxiliary Power Consumption of Unit is listed in Attachment-2 to Appendix A.

(2) "mwc" means meter of water column.

2.2 Emissions Guarantees

Seller shall, at a minimum, meet the requirements for Unit 3 and Unit 4 emissions set forth in this Section 2.2. Compliance with each of the requirements set forth in this Section 2.2 is mandatory; hence, there are no liquidated damages.

Parameter	Guarantee Value
NOX Emission Guarantee	260 grams per gigajoules of heat input
Particulate Guarantee	50 mg/Nm^3

Notes:

(1) Normal conditions for Nm^3 as 0°C and one (1) atmosphere of pressure.

(2) All pollutant concentrations for coal firing are to be corrected to 6% oxygen, dry basis (assumes 350 Nm^3/GJ).

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BHARAT HEAVY ELECTRICALS LTD. BHEL House, Siri Fort

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

213

2.3 Noise Compliance Guarantee

Facility noise levels during the Acceptance Tests shall not exceed limits shown in the table below or result in a maximum increase in background level of 3 dBA at the nearest receptor location identified off-Site.

Parameter	Day time Guarantee Value dBA	Night time Guarantee Value dBA
One (1) meter from each piece of equipment	85	85
At the Property Boundary	70	70
At receptor [A]	70	70
At receptor [B]	70	70
At receptor [C]	70	70
At receptor [D]	70	70

Notes:

(1) The Receptors are shown in Drawing No (K8BO9-DWG-M-003A) as part of Appendix I.

(2) Daytime hours standards are from 07:00 to 22:00 hours.

2.4 Fuel Supply and Back-feed Power

(1) Fuel Supply

Seller assures that the Fuel for the start-up, commissioning and testing of the Unit 3 and Unit 4 until Substantial Completion Unit 3 and Substantial Completion Unit 4, as per the recommended start-up, commissioning and testing procedures and program of Seller and meeting the provisions of Appendix D and Prudent Utility Practices for the Equipment supplied by the Seller, in amounts shall not exceed the quantity as provided in Table 1: Fuel Limit, below:

Table 1: Fuel Limit

S. No.	Fuels for Unit 3 and Unit 4	Units	Quantity for Unit 3 and Unit 4
1	Coal	Tonnes	4,80,000
2	HFO	KL	25,000
3	LDO	KL	6,000

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BHARAT HEAVY ELECTRICALS LTD. PS-M&TG

214

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Seller has considered the specification for worst Coal given in Table A2: Design Coal Specifications (As fired) forming part of Attachment 1 to Appendix A for providing the quantity of Coal in Table 1: Fuel Limit.

(2) Back-feed Power

Seller assures that electricity at a maximum rated voltage of 400 kV (the "Backfeed Power Limit") for the start-up, commissioning and testing of the Unit 3 and Unit 4, until Substantial Completion Unit 3 and Substantial Completion Unit 4, as per the recommended start-up, commissioning and testing procedures and program of Seller and meeting the provisions of Appendix D and Prudent Utility Practices, at the physical electrical connection point identified in Technical Specification shall not exceed Eighty Million (80,000,000) kilowatt-hours.

3.0 Reliability Guarantee of each Unit

Parameter	Reliability Guarantee Value
Reliability guarantee	The Equivalent Availability Factor over a period of fifteen (15) consecutive days (the "Reliability Test Period") shall be greater than or equal to ninety-six percent (96%).

4.1 Guaranteed Start-up Times of each Unit

Unit 3

Type of Start	Time for Synchronization from start of boiler purge (expected) (minutes)	Time for Minimum Stable Load without Oil Support from Synchronization (expected) (minutes)	Time for Gross Capacity Guarantee from beginning of boiler purge (guaranteed) (minutes)
Cold Start	*	*	360
Warm Start	*	*	220
Hot Start	*	*	110

BHARAT HEAVY ELECTRICALS LTD. BHEL House, Siri Fort N.D.-49 PS-MI&TG.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

215

Unit 4

Type of Start	Time for Synchronization from start of boiler purge (expected) (minutes)	Time for Minimum Stable Load without Oil Support from Synchronization (expected) (minutes)	Time for Gross Capacity Guarantee from beginning of boiler purge (guaranteed) (minutes)
Cold Start	*	*	360
Warm Start	*	*	220
Hot Start	*	*	110

Note:

(1) "*" BHEL to provide during detail engineering stage.
(2) The Guaranteed Start-Up Times for each Unit as indicated in Section 4.1 above shall be demonstrated during the Capability Tests.

4.2 Guaranteed Minimum Stable Load of each Unit

Parameter	With Oil Support (MW)	Without Oil Support (MW)
Unit 3	20% BMCR	40% BMCR
Unit 4	20% BMCR	40% BMCR

Note:

(1) The Guaranteed Minimum Stable Load as indicated in Section 4.2 above shall be demonstrated during the Capability Tests.

4.3 Guaranteed Fuel consumption during start-up till synchronization of each Unit

Type of Start	Coal (Tonne)	HFO (KL)	LDO (KL)
Cold Start	0	160	80
Warm Start	160	32	16
Hot Start	100	24	16

Note:

(1) The guaranteed Fuel consumption as indicated in Section 4.3 above shall be demonstrated during the Capability Tests.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BHARAT HEAVY ELECTRICALS LTD. PS-M&CC BHEL House, Siri Fort, N.D.

216

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

APPENDIX A
Services Contract

COMPLETION GUARANTEE TERMS
LIQUIDATED DAMAGES AND OTHER GUARANTEES

1.0 Guaranteed Completion Dates

1.1 The completion dates for Activity/System are guaranteed as following:

Table 1: Services being carried out for the Facility

Sl. No.	Activity / System	Guaranteed Completion Date from NTP (Days)*		Delay Completion Liquidated Damages Amount (INR/Day) #A
		Unit 3	Unit 4	
		From Main Plant NTP	From Main Plant NTP	
1.	TG hall EOT Cranes (A-B bay crane) erected and cleared for commissioning	630	750	50,000/-
2.	Testing and commissioning of RAT complete	780		50,000/-
3.	HT Switch Gears (3.3 KV) installed and released for cabling	930	1050	50,000/-
4.	Generator stator lifted and placed on its foundation	870	990	50,000/-
5.	Steam Generator Hydro test completed and IBR approval received	900	1020	50,000/-
6.	DCS installed and ready for powering on	1020	1020	50,000/-
7.	Boiler Light up successfully completed	1110	1230	50,000/-
8.	Turbine on Barring Gear operation	1170	1290	50,000/-
9.	Steam Blowing completed and pipes restored	1200	1320	50,000/-

Notes to Table 1:

(1) " * " - the Guaranteed Completion Dates will be converted into a date for completion of Activity / System at NTP.

1.2 The following ramp rates will be applied to the Liquidated Damages for delay in achieving Guaranteed Completion Dates as mentioned in Table 1 above:

217

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

S. No.	Delay from the Guaranteed Completion Date	Completion Delay Liquidated Damages Amount (INR/day)
1	During day 1 to day 5 (both days inclusive)	@ of A
2	During day 6 to day 10 (both days inclusive)	@ 3 times of A
3	During day 11 to day 15 (both days inclusive)	@ 4 times of A
4	From day 16 onwards	@ 40 times of A

1.3 **The following completion dates are guaranteed.**

Sl. No	Unit completion	Unit 3	Unit 4	Completion Delay Liquidated Damages Amount (INR/day)
		Guaranteed Completion Date from NTP (Months)		
1	**Substantial Completion Unit 3**	44 *		18,200,000/-
2	**Substantial Completion Unit 4**	48 *		18,200,000/-

Sl. No	Facility completion	Guaranteed Completion Date from NTP (Months)
1	**Final Completion of the Main Plant**	51 *

Notes:

1. * * * The Guaranteed Completion Dates (in Months) will be converted into a date for completion of Activity/System at NTP.
2. The sum of Delay Completion Liquidated Damages (INR/Day), as computed per Table 1, Section 1.2 and section 1.3 above, will not exceed Rs 18,200,000/- per Day.

2.0 **Noise Compliance Guarantee**

Facility noise levels during the Performance Tests shall not exceed limits shown in the table below or result in a maximum increase in background level of 3 dBA at the nearest receptor location identified off-Site.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BHARAT HEAVY ELECTRICALS LTD. PS-MKTG.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

218

Parameter	Daytime Guarantee Value dBA	Nighttime Guarantee Value dBA
One (1) meter from each piece of equipment	85	85
At the Property Boundary	70	70
At receptor [A]	70	70
At receptor [B]	70	70
At receptor [C]	70	70
At receptor [D]	70	70

Notes:

1) The Receptors are shown in Drawing No (K8BO9-DWG-M-003A) as part of Appendix I.
2) Daytime hours standards are from 07:00 to 22:00 hours.

3.0 Liquidated Damages Caps

Liquidated Damages	Percentage % of Contract Price
Delay Liquidated Damages Cap	14.00
Overall Liquidated Damages Cap	14.00

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

219

APPENDIX A
Supply

COMPLETION AND PERFORMANCE GUARANTEE TERMS: LIQUIDATED DAMAGES AND OTHER GUARANTEES

1 Guaranteed Completion Dates

The following completion schedule is guaranteed:

Table - 1

Sl. No	Activity / System	Guaranteed Completion Date from BOP NTP (Days)		Delay Completion Liquidated Damages Amount (INR/Day)
		Balance of Plant Unit 3	Balance of Plant Unit 4	
1	Substantial Completion	44 Months *	48 Months*	18,200,000/-

Table - 2

Sl. No	Activity / System	Guaranteed Completion Date from Balance of Plant (BOP) NTP (Days)
1	Final Completion of Balance of Plant	51 Months *

Notes:

1. " * " - the Completion Dates will be converted into a date for completion of Activity /System completion at BOP NTP.

2. Performance Guarantees

See Tables A1/1, A1/2 and A2 in Attachment 1 hereto for the Guaranteed Conditions, Performance Requirements for Cooling Tower and design coal specifications.

ODISHA POWER GENERATION CORPORATION LTD. * BHUBANESWAR

BGR Energy Systems Limited * Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. * BHUBANESWAR

220

2.1. Performance Guarantees Having Liquidated Damages

Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
1	2	3	4
Auxiliary Power Consumption Guarantee Balance of Plant Unit 3 when Unit 3 is in operation at 100% TMCR	The As Tested Auxiliary Power Consumption Balance of Plant Unit 3 shall be less than or equal to 10188.5 kW	INR 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As Tested Auxiliary Power Consumption Balance of Plant Unit 3 is more than the Auxiliary Power Consumption Guarantee Balance of Plant Unit 3.	The As Tested Auxiliary Power Consumption Balance of Plant Unit 3 shall be less than or equal to one hundred twenty three percent (123%) of the Auxiliary Power Consumption Guarantee Balance of Plant Unit 3 (the "Maximum Auxiliary Power Consumption Guarantee Balance of Plant Unit 3").
Auxiliary Power Consumption Guarantee Balance of Plant Unit 4 when Unit 4 is in operation at 100% TMCR.	The As Tested Auxiliary Power Consumption Balance of Plant Unit 4 shall be less than or equal to 10188.5 kW	INR 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As Tested Auxiliary Power Consumption Balance of Plant Unit 4 is more than the Auxiliary Power Consumption Guarantee Balance of Plant Unit 4.	The As Tested Auxiliary Power Consumption Unit 4 shall be less than or equal to one hundred twenty three percent (123%) of the Auxiliary Power Consumption Guarantee Balance of Plant Unit 4 (the "Maximum Auxiliary Power Consumption Guarantee Balance of Plant Unit 4").
Cooling Tower Performance Guarantee Balance of Plant Unit 3 when Unit 4 is in operation at 100% TMCR	The As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 3 shall be less than or equal to 32.8°C subject to a maximum of 33.00°C.	INR 18,300,000/- (Indian Rupees Eighteen Million Three Hundred Thousand Only) for each 0.1°C by which the As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 3 is more than Cooling Tower Performance Guarantee Balance of Plant Unit 3.	The As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 3 shall be less than or equal to 33.50°C (the "Maximum Cooling Tower Performance Guarantee Balance of Plant Unit 3").

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BGR Energy Systems Limited Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

221

Parameter	Performance Guarantee	Performance Liquidated Damages	Minimum Performance Guarantee
Cooling Tower Performance Guarantee Balance of Plant Unit 4 when Unit 4 is in operation at 100% TMCR	The As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 4 shall be less than or equal to 32.8 °C subject to a maximum of 33.00°C.	INR 18,300,000/- (Indian Rupees Eighteen Million Three Hundred Thousand Only) for each 0.1°C by which the As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 4 is more than Cooling Tower Performance Guarantee Balance of Plant Unit 4.	The As Tested Cooling Water temperature at the Cooling Tower outlet Balance of Plant Unit 4 shall be less than or equal to 33.50°C (the "Maximum Cooling Tower Performance Guarantee Balance of Plant Unit 4").

Note:

(1) The list of auxiliaries that contribute to Auxiliary Power Consumption of Balance of Plant Unit 3 and of Balance of Plant Unit 4 is listed in Attachment 1 to Appendix D.

(2) "Cooling Tower Performance" means the cooling water temperature at the outlet of cooling tower at rated flow of 80,000 m3/hr for each Balance of Plant Unit at Guarantee Conditions and performance requirement for cooling tower, as per Table A-1/1 and Table A-1/2 of Attachment 1 to Appendix A.

(3) "Cooling Tower Performance Guarantee" means the assurance specified in the column titled "Performance Guarantee" in the row "Cooling Tower Performance Guarantee" in Section 2.1 of Appendix A.

2.2. Emissions Guarantees

Seller shall, at a minimum, meet the requirements for Balance of Plant emissions set forth in this Section 2.2. Compliance with each of the requirements set forth in this Section 2.2 is mandatory; hence, there are no Liquidated Damages or other liquidated damages.

2.2.1. Liquid Effluent Guarantees

As per the Environment Clearance issued by the MOEF vide letter J-13011/59/2008-1A II (T) dated 04/02/2010 and Consent to establish the Power Plant accorded by State Pollution Control Board, Orissa vide letter 14266/IND-II-NOC-5037 dated 28/08/2010 the facility shall be designed for Zero Liquid Discharge Concept.

2.2.1.1. Liquid Discharge Limits in Central Monitoring Basin

Parameter	Guarantee Value
pH	5.5 - 9.0,
TSS	100 mg/l,
Oil & grease	10 mg/l

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BGR Energy Systems Limited Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

222

2.3. Noise Compliance Guarantee

Facility noise levels during the Performance Tests shall not exceed limits shown in the table below or result in a maximum increase in background level of 3 dBA at the nearest receptor location identified off-Site.

Parameter	Daytime Guarantee Value dBA	Nighttime Guarantee Value dBA
One (1) meter from each piece of equipment	85	85
At the Property Boundary	70	70
At receptor [A]	70	70
At receptor [B]	70	70
At receptor [C]	70	70
At receptor [D]	70	70

Notes for Table

1. The Receptors are shown in Drawing No (K8BO9-DWG-M-004A) as part of Appendix I.

2. Daytime hours standards are from 07:00 to 22:00 hours.

2.4. DM Water Quality Guarantee

Constituents	Limits
Total Electrolyte	0.05 ppm, max.
Total SiO_2	0.01 ppm SiO_2, max.
Iron as Fe	Nil
Free CO_2 ppm as CO_2	Nil
Total Hardness	Nil
pH value at 25 Deg. C	6.8 - 7.2
Conductivity, micro mho/cm	Less than 0.1 at 25 Deg. C

3. Liquidated Damages Caps

Liquidated Damages	Percentage % of Contract Price
Performance Liquidated Damages Cap	15.00
Delay Liquidated Damages Cap	15.00
Overall Liquidated Damages Cap	20.00

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BGR Energy Systems Limited Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

223

Appendix – A

Service

COMPLETION AND PERFORMANCE GUARANTEE TERMS:

LIQUIDATED DAMAGES AND OTHER GUARANTEES

1 Guaranteed Completion Dates

1.1 The completion dates for Activity/System are guaranteed as following:

Table 1: Erection, Commissioning and Civil Works

Sl. No	Activity / System	Guaranteed Completion Date from BOP NTP (Days) *		Delay Completion Liquidated Damages Amount (INR/Day)
		Unit 3	Unit 4	A#
1.	Steam Generator foundations (For first and second pass, APH) completed.	240	360	50,000/-
2.	STG Building foundations (A row and B row) completed.	300		50,000/-
3.	STG Deck completed and released for STG erection	630	690	50,000/-
4.	Feed cycle equipment (BFP & its Drives) foundations released for equipment erection	720	840	50,000/-
5.	FD, ID and PA fan foundations completed and released for equipment erection	660	780	50,000/-
6.	400 KV Switchyard back-charged from Grid	720	840	50,000/-
7.	Chimney ready for receiving flue gas	1020		50,000/-
8.	Coal handling system trial operation (without coal) completed	1020		50,000/-
9.	Ash handling system ready for trial operation	1020	1140	50,000/-
10.	Water Treatment Plant in operation with guaranteed water quality and effluent limits.	840		50,000/-

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BGR Energy Systems Limited Chennai 600 018

1 of 8

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

224

11.	Complete civil works of Cooling Tower completed and 50% of cells in operation	900	1020	50,000/-
12.	CW System ready for trial operation.	900		50,000/-
13.	Hydrant and Spray lines for Switchyard, Transformers (GT, UT, RAT, UAT and SAT) and cable gallery completed and ready for taking into service.	720		50,000/-
14.	Fuel oil system (LDO and HFO) ready for operation	1020		50,000/-

Notes to Table 1:

(1) " * " - the Completion Dates details will be converted into a date for completion of Activity / System completion at NTP.

1.2 The following ramp rates will be applied to the Liquidated Damages for delay in completion as mentioned in Table 1 above:

S. No.	Delay from the Guaranteed Completion Date – from BOP NTP	Delivery Delay Liquidated Damages Amount (INR/day)
1	During day 1 to day 5 (both days inclusive)	@ A
2	During day 6 to day 10 (both days inclusive)	@ 3 times of A
3	During day 11 to day 15 (both days inclusive)	@ 4 times of A
4	From day 16 onwards	@ 40 times A

1.3 The following completion schedule is guaranteed:

Sl. No	Activity / System	Guaranteed Completion Date from BOP NTP (Days)		Delay Completion Liquidated Damages Amount (INR/Day)
		Balance of Plant Unit 3	Balance of Plant Unit 4	
1	Substantial Completion	44 Months *	48 Months *	18,200,000/-

Sl. No	Activity / System	Guaranteed Completion Date from Balance of Plant (BOP) NTP (Days)
1	Final Completion of Balance of Plant	51 Months *

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

BGR Energy Systems Limited Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

225

Notes:

1. " * " - the Completion Dates will be converted into a date for completion of Activity /System completion at BOP NTP.

1.4 The sum of Delay Completion Liquidated Damages (INR/Day), as computed per Table 1 and section 1.3 above, will not exceed Rs 18,200,000/- per Day.

2. Noise Compliance Guarantee

Facility noise levels during the Performance Tests shall not exceed limits shown in the table below or result in a maximum increase in background level of 3 dBA at the nearest receptor location identified off-Site.

Parameter	Daytime Guarantee Value dBA	Nighttime Guarantee Value dBA
One (1) meter from each piece of equipment	85	85
At the Property Boundary	70	70
At receptor [A]	70	70
At receptor [B]	70	70
At receptor [C]	70	70
At receptor [D]	70	70

Notes for Table

1. The Receptors are shown in Drawing No (K8BO9-DWG-M-004A) as part of Appendix I.

2. Daytime hours standards are from 07:00 to 22:00 hours.

3. Liquidated Damages Caps

Liquidated Damages	Percentage % of Contract Price
Delay Liquidated Damages Cap	15.00
Overall Liquidated Damages Cap	15.00

BGR Energy Systems Limited Chennai 600 018

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

226

COMPLETION AND PERFORMANCE GUARANTEE TERMS; LIQUIDATED DAMAGES

1.0 Guaranteed Completion Dates

1.1 The completion dates for the following activity/system at Site is guaranteed:

Sr. No.	Activity/System	Guaranteed Completion Date from NTP (Days)	Completion Delay Liquidated Damage Amount (INR/Day)
1	Receipt of designs as well as construction drawings approved by Government Authority (Indian Railways) for the Rail-Over-Rail Bridge over Howrah-Mumbai Rail Line	270	2,00,000/-
2	Receipt of designs as well as construction drawings approved from Government Authority (State Highway) for the Rail-Over-Road bridge across NH 200	270	2,00,000/-

Note:

1. The Completion Delay Liquidated Damages Amount collected from the Contractor, if any, any delay in achieving the Guaranteed Completion Date for - (a) Receipt of design and construction drawings approved by Government Authority (Indian Railways) for the Rail-Over-Rail bridge over Howrah-Mumbai Rail Line; and (b) Receipt of designs and construction drawings approved from Government Authority (State Highway) for the Rail-Over-Road bridge across NH 200 - will be refunded by Owner, without associated interest, in case the Contractor meets the Guaranteed Substantial Completion Date of Merry Go Round.

1.2 The completion dates for the following activity/system at Site is guaranteed:

Sr. No.	Activity/System	Guaranteed Completion Date from NTP (Days)	Completion Delay Liquidated Damage Amount (% of Price of the Merry Go Round, including associated Contractor Taxes per Day)
1	Substantial Completion of Merry Go Round	800	0.0556%
2	Final Completion of Merry Go Round	1440	None

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Sr. No.	Activity/System	Guaranteed Completion Date from NTP (Days)	Completion Delay Liquidated Damage Amount (% of Price of the Water Pipeline and associated Contractor Taxes per Day)
1	Substantial Completion of Water Pipeline	800	0.0556%
2	Final Completion of Water Pipeline	1440	None

2.0 Performance Guarantees

The Performance Guarantees are as follows.

2.1 Merry Go Round

Parameter	Performance Guarantee	Performance Liquidated Damages Amount	Minimum Performance Guarantee
Maximum Running Speed with fully loaded rake on the longest stretch of MGR route, excluding route length having speed restrictions (the "Maximum Running Speed Guarantee" or "MRSG")	The As-Tested MRSG shall be greater than or equal to 75 km/hr	Nil; Compliance to Performance Guarantee mandatory	The As-Tested MRSG shall not be less than 75 km/ Hr.
Turn-around Time taken by one(1) fully loaded rake per trip and number of turn-around trips over a continuous period of eighteen(18) hours (the "Turn-around Time Guarantee" or "TTG")	The As-Tested turn-around time taken by one (1) fully loaded rake per trip shall be less than or equal to 6 Hrs and the As-Tested minimum number of trips over a continuous period eighteen (18) hours shall be three (3)	Nil; Compliance to Performance Guarantee mandatory	The As-Tested turn-around time taken by one (1) fully loaded rake shall not be more than six(6) hours per trip and the As-Tested minimum number of trips over a continuous period of eighteen (18) hours shall not be less than be three(3).

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ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

228

2.2 Water Pipeline

Parameter	Performance Guarantee	Performance Liquidated Damages Amount	Minimum Performance Guarantee
Maximum Continuous Water Delivering Capacity Guarantee or (MCWDCG)	The As-Tested MCWDCG shall be greater than or equal to 250 M^3/ Hr at 1.5 kg/cm^2(g).	Nil; Compliance to Performance Guarantee mandatory.	The As-Tested MCWCCG shall be greater than or equal to equal to 250M^3/ Hr at 1.5 kg/cm^2(g).
Auxiliary Power Guarantee (APG) with list of auxiliaries in operation as per Table2: Water Pipeline (Auxiliary Loads during the Performance Tests) of Appendix D	The As-Tested APG shall be lower than or equal to 449 kW	Rs 92,600/- (Indian Rupees Ninety Two Thousand Six Hundred Only) for each kilowatt by which the As-Tested Auxiliary Power Guarantee is more than the Auxiliary Power Guarantee	The As-Tested APG shall be less than or equal to one hundred ten percentage (110%) of APG

2.3 Noise Guarantee for Water Pipeline

Parameter	Daytime Guarantee Value dBA	Nighttime Guarantee Value dBA
One (1) meter from each piece of equipment	70	70

3.0 Reliability Guarantee

The Reliability Guarantee of Merry Go Round is as follows

Parameter	Guarantee	Liquidated Damages Amount
Reliability Guarantee	During the entire Reliability Period, the MGR shall demonstrate that it is capable of achieving three(3) turn-around trips each of two(2) rakes of 62 wagons each in less than or equal to18 hours. During the entire Reliability Period, the Water Pipeline shall demonstrate that it is capable of 98.8% availability in operation supplying normal operating requirement.	None; compliance is mandatory

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ODISHA POWER GENERATION CORPORATION LTD.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

229

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4.0 Liquidated Damages Caps

	Delay Liquidated Damages Cap	Performance Liquidated Damages Cap	Overall Liquidated Damage Cap
Merry Go Round	10% of the Price of the Merry Go Round, which includes the associated Contractor Taxes	Nil	10% of the Contract Price
Water Pipeline	10% of the Price of the Water Pipeline, which includes the associated Contractor Taxes	10% of the Price of the Water Pipeline, which includes the associated Contractor Taxes	

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APPENDIX A

COMPLETION AND PERFORMANCE GUARANTEE TERMS; LIQUIDATED DAMAGES

1.0 Guaranteed Completion Dates

The following completion dates are guaranteed:

Sr. No.	Activity/System	Guaranteed Completion Date from NTP Date (Days)	Completion Delay Liquidated Damage Amount (INR per day)
1.	Substantial Completion of Phase I	365	1,00,000/-
2.	Substantial Completion of Phase II	730	10,00,000/-
3.	Final Completion	820	-

2.0 Liquidated Damages Caps

Activity/System	Delay Liquidated Damage Cap
Phase I Ash Pond	10% of the Contract Price
Phase II Ash Pond	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Shree Balaji Engicons Pvt.Ltd.

Managing Director

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

APPENDIX A

COMPLETION AND PERFORMANCE GUARANTEE TERMS: LIQUIDATED DAMAGES

1.0 Guaranteed Completion Dates

1.1 The completion dates for the following activity/system at Site is guaranteed:

Sr. No.	Activity/System	Guaranteed Completion Date from NTP (Days)	Completion Delay Liquidated Damage Amount (INR/Day)
1.	Completion of laying of two nos. of Ash Recycle water cross country pipeline from Recycle water pump house to Ash water Sump within the Power Plant.	300 days	50,000
2.	Charging of AWRS 415V Switchgear including the 33 kV transmission line along with other electrical infrastructure.	300 days	50,000
3.	CT Blowdown treatment system ready for Demonstration Test	300 days	50,000
4.	AWRS ready for Demonstration Test	330 days	50,000

Note:

1. The Completion Delay Liquidated Damages Amount collected from the Contractor, if any, for any delay in achieving the Guaranteed Completion Date for activities/systems mentioned above will be refunded by Owner, without associated interest, in case the Contractor meets the Guaranteed Substantial Completion Date of Facility.
2. The Guaranteed Completion Dates are inclusive of monsoon period.

1.2 The completion dates for the following activity/system at Site is guaranteed:

Sr. No.	Activity/System	Guaranteed Completion Date from NTP (Days)	Completion Delay Liquidated Damage Amount (% of the Contract Price per Week)
1	Substantial Completion of Facility	365	0.5%

Note: - Facility shall be completed within 12 Months including Testing & Commissioning and handed over to the Owner for Operation for use. Outstanding punch list items and any other test identified in the contract will have to be completed thereafter for achieving final completion.

2.0 Performance Guarantees

The Performance Guarantees are as follows.

Parameter	Performance Guarantee	Performance Liquidated Damages Amount	Minimum Performance Guarantee
Continuous Water Delivering Capacity Guarantee (CWDCG)	The As-Tested CWDCG shall be greater than or equal to 1000 m^3/hour	Nil; Compliance to Performance Guarantee mandatory.	The As-Tested CWDCG shall be greater than or equal to 1000 m^3/hour

Indranil Dutta

DRIPLEX WATER ENGINEERING PVT. New Delhi

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

232

OPGC
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RO Capacity and Quality	RO plant net capacity shall be 160 m^3/hour per stream consisting of two (2) streams and Outlet water TDS shall be less than 200 ppm considering Inlet water TDS as 1713.62 ppm.	Nil; Compliance to Performance Guarantee mandatory.	The As-Tested CWDCG shall be greater than or equal to 160 m^3/hour per stream consisting of two stream and Outlet water TDS shall be less than 200 ppm considering Inlet water TDS as 1713.62 ppm.
Auxiliary Power Guarantee (APG) with all auxiliaries in operation	The As-Tested APG shall be lower than or equal to 826 kW	Rs. 1,50,000/- (Indian Rupees One Lac Fifty Thousand Only) for each kilowatt by which the As-Tested Auxiliary Power Guarantee is more than the Auxiliary Power Guarantee	The As-Tested APG shall be less than or equal to one hundred ten percentage (110%) of APG

The Reliability Guarantee of AWRS and RO Process of Cooling Tower Blow Down system as follows.

Parameter	Guarantee	Liquidated Damages Amount
Reliability Guarantee	During the entire Reliability Period, the Facility shall demonstrate that it is capable of 98.8% availability in operation supplying normal operating requirement.	None; compliance is mandatory

3.0 Liquidated Damages Caps

	Delay Liquidated Damages Cap	Performance Liquidated Damages Cap	Overall Liquidated Damage Cap
Facility	10% of the Contract Price	5% of the Contract Price	15% of the Contract Price

Indranil Dutta

DRIPLEX WATER ENGINEERING PVT. New Delhi

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Annexure - 3

Asset Class Decription	Asset	Capitalized on	Description		Justification	
After Cut off date						
Buildings	1200000087	31-10-22	RCC flooring at TP 11,12, CRH TP14	1781529	It is highly unsafe during rainy season to work at these locations. Said Capex was conducted to facilitate operation supervision & maintenance in CHP area.	
Buildings	1200000088	31-01-23	RCC Paving of stacker walking both side	1729567.9	It is highly unsafe during rainy season to work at these locations. Said Capex was conducted to facilitate operation supervision & maintenance in CHP area.	Regulation 12 (4) (d)
Plant & Equipment	1300000302	13-09-22	Hydraulic rail clamp K-RC-05	3964800	Insurance spare	Regulation 12 (3) (d)
Plant & Equipment	1300000303	13-09-22	Hydraulic Power Unit K-RC-05	1007720	Insurance spare	
Plant & Equipment	1300000309	23-11-22	RECHARGEABLE LED TORCH LIGHT (LTT)	4602	Tools & tackles	Regulation 12 (4) (d)
Plant & Equipment	1300000310	24-11-22	Turbine Overspeed Protection System	2198163	Insurance spare	Regulation 12 (3) (d)
Plant & Equipment	1300000311	30-11-22	Loco Tools & tackles (LTT)	334521	Tools & tackles	
Plant & Equipment	1300000312	26-12-22	Polyster webbing Sling (LTT)	119380	Tools & tackles	
Plant & Equipment	1300000313	06-11-22	Old Diesel Electr LOCO WDG3A No 13121 /LOCO No-6	31899333	OPGC II has procured 03 numbers of WDG 4D LOCO (4500 HP) in the year 2017 & 2018 for OPGC II coal transportation from Manoharpur mines of OCPL, which is located at distance of 47 Km from ITPS. It is observed that one WDG4D LOCO is unable to pull 45 loaded wagons at higher gradients, so another LOCO is being used to push the rake at higher gradient. Accordingly, it has been decided to use two old LOCOs in push pull system for safety of rake movement and to maintain speed at higher gradient.	
Plant & Equipment	1300000314	06-11-22	Old Diesel Electr LOCO WDG3A No 13122 /LOCO No-7	31899332	OPGC II has procured 03 numbers of WDG 4D LOCO (4500 HP) in the year 2017 & 2018 for OPGC II coal transportation from Manoharpur mines of OCPL, which is located at distance of 47 Km from ITPS. It is observed that one WDG4D LOCO is unable to pull 45 loaded wagons at higher gradients, so another LOCO is being used to push the rake at higher gradient. Accordingly, it has been decided to use two old LOCOs in push pull system for safety of rake movement and to maintain speed at higher gradient.	Regulation 12 (4) (d)
Plant & Equipment	1300000316	14-01-23	CLAMPING PIECE-LPT LAST STAGE BLADE	1165840	Insurance spare (LPT last stage blade & associated spares)	
Plant & Equipment	1300000317	14-01-23	LOCKING PLATE-LPT LAST BLADE-ITEM NO.-8	159300	Insurance spare (LPT last stage blade & associated spares)	Regulation 12 (3) (d)
Plant & Equipment	1300000323	17-02-23	MAL DRAIN TEMP MONITORING	339840	Procurement & installation of thermocouples & pad in MAL drain (high pressure) drain lines to monitor valve passing issues and to improve efficiency due to early identification of valve passing issues & rectification of same at earliest.	
Plant & Equipment	1300000324	22-02-23	Handheld Pump & Digital PG (LTT)	638971	Tools & tackles	
Plant & Equipment	1300000325	22-02-23	Dip Lorry (LTT)	91332	Tools & tackles	
Plant & Equipment	1300000327	22-02-23	Solar Operated Heavy weight Battery Trolley (LTT)	363204	Solar track trolley procured for inspection/maintenance work of P-ways.	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

235

Plant & Equipment	1300000329	16-03-23	Circuit Breaker Timing Kit,0.1mS - 99.9S (LTT)	125080	Tools & tackles, for Electrical Lab	
Plant & Equipment	1300000330	16-03-23	Hydraulic Puller (LTT)	645821	Tools & tackles	
Plant & Equipment	1300000331	16-03-23	Hydraulic jack (LTT)	678382	Tools & tackles	
Plant & Equipment	1300000332	21-03-23	600L FILTRATION MACHINE & ACCESSSORIES (LTT)	1272040	600L Filtration machine procured for ESP rectiformers oil filtration thus maintaining oil quality, improving system reliability & availability.	
Plant & Equipment	1300000333	22-03-23	Cuplock Scaffolding Accessories (LTT)	7903	Tools & tackles	
Plant & Equipment	1300000334	22-03-23	PLASMA ARC CUTTING MACHINE (LTT)	280840	Tools & tackles	
Plant & Equipment	1300000335	22-03-23	Oxide Scale Tester (LTT)	668542.1	Tools & tackles for Boiler tube analysis	
Plant & Equipment	1300000336	22-03-23	Turbine FRF oil filtration machine	1814840	Oil filtration machine procured for Turbine FR oil filtration (i.e. LBPP & Control fluid system(thus maintaining oil quality, improving system reliability & availability.	Regulation 12 (4) (d)
Plant & Equipment	1300000337	27-10-22	settlement Pit for MGR III & IV	2210350.11	Part of Project Scope	Regulation 12 (2) (c)
Plant & Equipment	1300000339	28-03-23	Portable Ultrasonic FlowMeter (LTT)	695435.6	Tools & tackles	Regulation
Plant & Equipment	1300000343	30-03-23	FIBER OPTIC SPLICER MACHINE (LTT)	200306	Tools & tackles	12 (4) (d)
Plant & Equipment	1300000344	09-03-23	AHP clarifier sludge pump	423903	To extract sludge from AHP clarifier, Centrifugal sludge removal pump has been installed.	Regulation 12 (2) (c)
Plant & Equipment	1300000346	21-03-23	HPSV SERVOMOTOR-CGE1MF3/210/ 90/.100F20	6302024	Insurance spare	
Plant & Equipment	1300000347	21-03-23	HPCV SERVOMOTOR-CGE1MF3/230/ 90/.80F20	8107559	Insurance spare	
Plant & Equipment	1300000348	21-03-23	OVERLOAD SERVOMTR-CGE1MF3/160/90/.50F20	7179934	Insurance spare	
Plant & Equipment	1300000349	21-03-23	IPSV SERVOMOTOR-CGE1MF3/160/ 90/.208F20	7930896	Insurance spare	Regulation
Plant & Equipment	1300000350	21-03-23	IPCV SERVOMOTOR-CGE1MF3/200/ 90/.170F20	5124008	Insurance spare	12 (3) (d)
Plant & Equipment	1300000352	31-03-23	Conveying and slurry line pipe (3&4)	53895851.06	Construction of 3 slurry line was done to create redundancy in slurry disposal system. Cast basalt bends, Reducer & spool pieces were installed in Ash conveying leakages to avoid frequent erosion & ash leakages. Expansion joints are installed in conveying lines for accommodating thermal expansions.	Regulation 12 (2) (c)
Plant & Equipment	1300000354	31-03-23	Wire Rope Set f/Boiler Winch Machine 2T	20060	Tools & tackles	Regulation 12 (4) (d)
Plant & Equipment	1300000357	31-03-23	Ash Pond(Tilia) (2022-23)	76033896.62	Raising of embankment height for ash pond at Tilia (Unit # 3 & 4)- Phase-I from RL 208M to RL 212M. Same was necessary to enhance capacity of Ash Pond to sustain unit operation.	Regulation 12 (2) (c)
Furniture and Fixtures	1400000239	30-09-22	Steel Almirah	306800	Furniture	
Furniture and Fixtures	1400000243	13-02-23	Almirah	164208	Furniture	
Furniture and Fixtures	1400000244	13-02-23	ACOUSTIC OF ANUTONE PINEWOOD WOOL	1029918.75	Acoustic sound proofing of IB thermal club was done.	
Furniture and Fixtures	1400000245	31-03-23	Almirah 6 feet	14160	Furniture	
Office Equipment	1600000654	30-09-22	Split AC (2 T)	88978.63	Office equipment	
Office Equipment	1600000655	30-09-22	UV Based Online Water cooler purifier	48799	Office equipment	
Office Equipment	1600000656	30-09-22	UV Based Storage Water cooler purifier	185719.8	Office equipment	
Office Equipment	1600000657	25-10-22	Refrigerator, 215 Ltr capacity	30195	Office equipment	
Office Equipment	1600000660	08-12-22	Noise Meter	11649	Tools & tackles	
Office Equipment	1600000661	31-12-22	Ahuja - 50W PA Speaker	55578	Office equipment	
Office Equipment	1600000662	31-12-22	Jet Black wall mounted Blower for body	254880	Office equipment, for personal cleaning and to avoid use of service/instrument air for personal cleaning purpose.	
Office Equipment	1600000666	15-01-23	BTA -880, PA Portable Amplifier	18500	Office equipment	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

232

Office Equipment	1600000667	18-01-23	Coal Crusher Feed Size 12.5 mm	1139054	Coal crusher for efficiency lab	
Office Equipment	1600000668	10-02-23	Jet Black wall mounted Blower	254880	Office equipment, for personal cleaning and to avoid use of service/instrument air for personal cleaning purpose.	
Office Equipment	1600000670	14-02-23	WATER PURIFIER CUM COOLER (60 LPH)	160769	Office equipment	
Office Equipment	1600000675	16-03-23	TV LED 86"	785880	Office equipment for guest house	
Office Equipment	1600000677	23-03-23	BTA -880, PA Portable Amplifier	18500	Office equipment	
Office Equipment	1600000680	31-03-23	Bosch GLM 100-25 C 100 Meter Laser Distance Meter	17700	Tools & tackles	
IT Hardware	2200000171	16-12-22	CONFERENCE DELEGATE UNIT	155524	Office equipment, Upgradation of RC conference system	
IT Hardware	2200000172	16-12-22	CONFERENCE CHAIRMAN UNIT	26413	Office equipment, Upgradation of RC conference system	
IT Hardware	2200000173	16-12-22	CONFERENCE CONTROLLER UNIT	25960	Office equipment, Upgradation of RC conference system	
IT Hardware	2200000174	16-12-22	R300 WIRELESS LAVALIER SYSTEM & EXTENSION CABLE AS	1894	Office equipment, Upgradation of RC conference system	
IT Hardware	2200000175	31-12-22	Video wall	2037999	Large Video Wall procured for CCTV control room at new plant gate	
IT Hardware	2200000176	21-01-23	Desktop Computer	53194	Desktop computer was highly essential to manage the data of DIGITIZER of integrated MGR ITPS Weigh Bridge-1 and provide accurate weighment report.	
IT Hardware	2200000180	22-03-23	Poly Studio with Expansion Microphone	567108	Procurement of Poly Studio with Expansion Microphone. This was required to extend the VC facility (through MS team) at ITPS & Corporate office.	Regulation 12 (4) (d)
				258,769,368		

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

2337

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
Buildings	19-07-23	Fencing of warehouse area	1,238,943.55	Fencing of the Warehouse Area with structural walling structural and GCI sheets to avoid trespassing & to enhance security of WH area.	Regulation 12 (4) (d)
Plant & Equipment	24-07-20	Ash Pond(Tilia) resto./dismantling cost(Phase I)	-27,358.00	Part of project scope	Regulation 12 (2) (f)
Plant & Equipment	22-01-21	Ash Pond(Tilia) resto./dismantling cost(Phase II)	362,151.00	Part of project scope	
Plant & Equipment	17-02-23	MAL DRAIN TEMP MONITORING	613,600.00	Procurement & installation of thermocouples & pad in MAL drain (high pressure) drain lines to monitor valve passing issues and to improve efficiency due to early identification of valve passing issues & rectification of same at earliest.	Regulation 12 (4) (d)
Plant & Equipment	22-02-23	Solar Operated Heavy weight Battery Trolley (LTT)	111,123.00	Solar track trolley procured for inspection/maintenance work of P-ways.	
Plant & Equipment	22-03-23	Cuplock Scaffolding Accessories (LTT)	2,077,752.14	Tools & tackles	
Plant & Equipment	22-03-23	Turbine FRF oil filtration machine	486,254.00	Oil filtration machine procured for Turbine FR oil filtration (i.e. LBPP & Control fluid system(thus maintaining oil quality, improving system reliability & availability.	
Plant & Equipment	27-03-23	High pressure water pump settling pit	414,964.00	High pressure water pump procured & installed in CHP coal settling pit to meet environmental norms and zero water discharge.	
Plant & Equipment	31-03-23	Wire Rope Set f/Boiler Winch Machine 2T	56,640.00	Tools & tackles	
Plant & Equipment	23-06-23	Sieve shaker (LTT)	378,639.60	Tools & tackles, for efficiency lab	
Plant & Equipment	25-08-23	Remote Rack in/out device for CGL Breaker-CHP-2	604,798.00	Remote breaker rake-in, rake-out device procured on sample basis for safe operation of Electrical breakers of CHP and safety of operating manpower.	
Plant & Equipment	31-08-23	Hydraulic jack (LTT)	128,502.00	Tools & tackles	
Plant & Equipment	16-09-23	Surface plate and clamp (LTT)	280,126.00	Tools & tackles	
Plant & Equipment	29-09-23	Arial Work Plateform,WH 11M,Load 159 KG (LTT)	1,239,000.00	Tools & tackles, for ESP ALI maintenance	
Plant & Equipment	31-10-23	Control Panel for Elect Screw Jack 25T MAMCO (LTT)	466,100.00	Tools & tackles	
Plant & Equipment	23-11-23	Beck Actuator for FD FAN	1,954,080.00	Initially pneumatic actuators were being used in Unit-3 & 4 ID, FD, PA fan blade pitch control. This pneumatic system was having a lot of problems like a greater number of mechanical linkages, frequent chocking of air filters, failure of pneumatic positioners and air leakages in the system etc. due to which system Accuracy, Repeatability and Reliability were being compromised. To overcome the issue Beck Actuators procured for installation in ID Fan, PA Fan & FD Fan for improvement of availability, reliability and better control of BPC as per operational requirement.	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

238

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
Buildings	19-07-23	Fencing of warehouse area	1,238,943.55	Fencing of the Warehouse Area with structural walling structural and GCI sheets to avoid trespassing & to enhance security of WH area.	Regulation 12 (4) (d)
Plant & Equipment	24-07-20	Ash Pond(Tilia) resto./dismantling cost(Phase I)	-27,358.00	Part of project scope	Regulation 12 (2) (f)
Plant & Equipment	22-01-21	Ash Pond(Tilia) resto./dismantling cost(Phase II)	362,151.00	Part of project scope	
Plant & Equipment	17-02-23	MAL DRAIN TEMP MONITORING	613,600.00	Procurement & installation of thermocouples & pad in MAL drain (high pressure) drain lines to monitor valve passing issues and to improve efficiency due to early identification of valve passing issues & rectification of same at earliest.	Regulation 12 (4) (d)
Plant & Equipment	22-02-23	Solar Operated Heavy weight Battery Trolley (LTT)	111,123.00	Solar track trolley procured for inspection/maintenance work of P-ways.	
Plant & Equipment	22-03-23	Cuplock Scaffolding Accessories (LTT)	2,077,752.14	Tools & tackles	
Plant & Equipment	22-03-23	Turbine FRF oil filtration machine	486,254.00	Oil filtration machine procured for Turbine FR oil filtration (i.e. LBPP & Control fluid system(thus maintaining oil quality, improving system reliability & availability.	
Plant & Equipment	27-03-23	High pressure water pump settling pit	414,964.00	High pressure water pump procured & installed in CHP coal settling pit to meet environmental norms and zero water discharge.	
Plant & Equipment	31-03-23	Wire Rope Set f/Boiler Winch Machine 2T	56,640.00	Tools & tackles	
Plant & Equipment	23-06-23	Sieve shaker (LTT)	378,639.60	Tools & tackles, for efficiency lab	
Plant & Equipment	25-08-23	Remote Rack in/out device for CGL Breaker-CHP-2	604,798.00	Remote breaker rake-in, rake-out device procured on sample basis for safe operation of Electrical breakers of CHP and safety of operating manpower.	
Plant & Equipment	31-08-23	Hydraulic jack (LTT)	128,502.00	Tools & tackles	
Plant & Equipment	16-09-23	Surface plate and clamp (LTT)	280,126.00	Tools & tackles	
Plant & Equipment	29-09-23	Arial Work Plateform,WH 11M,Load 159 KG (LTT)	1,239,000.00	Tools & tackles, for ESP ALI maintenance	
Plant & Equipment	31-10-23	Control Panel for Elect Screw Jack 25T MAMCO (LTT)	466,100.00	Tools & tackles	
Plant & Equipment	23-11-23	Beck Actuator for FD FAN	1,954,080.00	Initially pneumatic actuators were being used in Unit-3 & 4 ID, FD, PA fan blade pitch control. This pneumatic system was having a lot of problems like a greater number of mechanical linkages, frequent chocking of air filters, failure of pneumatic positioners and air leakages in the system etc. due to which system Accuracy, Repeatability and Reliability were being compromised. To overcome the issue Beck Actuators procured for installation in ID Fan, PA Fan & FD Fan for improvement of availability, reliability and better control of BPC as per operational requirement.	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

238

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
Plant & Equipment	23-11-23	Beck Actuator for PA FAN	1,302,720.00	Initially pneumatic actuators were being used in Unit-3 & 4 ID, FD, PA fan blade pitch control. This pneumatic system was having a lot of problems like a greater number of mechanical linkages, frequent chocking of air filters, failure of pneumatic positioners and air leakages in the system etc. due to which system Accuracy, Repeatability and Reliability were being compromised. To overcome the issue Beck Actuators procured for installation in ID Fan, PA Fan & FD Fan for improvement of availability, reliability and better control of BPC as per operational requirement.	
Plant & Equipment	23-11-23	Beck Actuator for ID FAN	1,954,080.00	Initially pneumatic actuators were being used in Unit-3 & 4 ID, FD, PA fan blade pitch control. This pneumatic system was having a lot of problems like a greater number of mechanical linkages, frequent chocking of air filters, failure of pneumatic positioners and air leakages in the system etc. due to which system Accuracy, Repeatability and Reliability were being compromised. To overcome the issue Beck Actuators procured for installation in ID Fan, PA Fan & FD Fan for improvement of availability, reliability and better control of BPC as per operational requirement.	
Plant & Equipment	29-01-24	Electric Opearted winch Machine, 10MT	1,224,250.00	Tools & tackles	
Plant & Equipment	29-02-24	PA Fan Rotor Assembly	23,485,682.00	Insurance spare	Regulation 12 (3) (d)
Plant & Equipment	29-02-24	EXCITER ROTOR MANUAL STAND-30MT (LTT)	338,634.08	Special tools, for Generator OH work	Regulation 12 (4) (d)
Plant & Equipment	29-02-24	LP TURBINE STAND WITH ROTATOR 105MT (LTT)	1,823,100.00	Special tools, for LP turbine OH work	
Plant & Equipment	29-02-24	Turbine FRF oil filtration machine (LTT)	1,990,881.00	Oil filtration machine procured for Turbine FR oil filtration (i.e. LBPP & Control fluid system(thus maintaining oil quality, improving system reliability & availability.	
Plant & Equipment	21-03-24	Video Borescope f/Boiler Tube,20mtr,8mm	3,982,500.00	Tools & tackles, for in-situ inspection of Boiler pressure parts & other objects through Borescope	
Plant & Equipment	09-03-24	Wire Rope dia 18mm (LTT)	187,620.00	Tools & tackles	
Plant & Equipment	31-03-24	PORTABLE HARDNESS TESTER (LTT)	108,499.00	Tools & tackles	
Plant & Equipment	31-03-24	VFD POWER TRANSFORMER for Gehu pump 1.6MVA, 3.3KV	3,374,800.00	Insurance spare	Regulation 12 (3) (d)
Plant & Equipment	31-03-24	BCP Pump Motor Assembly without casing	57,230,000.00	Insurance spare	
Plant & Equipment	31-03-24	DCS Card, Siemens	7,080,000.00	Insurance spare	
Plant & Equipment	31-03-24	NEUTRAL GROUNDING TRANSFORMER	1,357,000.00	Insurance spare	
Plant & Equipment	31-03-24	Axial Piston Pump	4,818,731.00	Insurance spare	
Plant & Equipment	31-03-24	OVERRUNNING CLUTCH-MAIN TG BARRING GEAR	916,815.03	Insurance spare	
Plant & Equipment	31-03-24	SHAFT ITEM NO-.04-MAIN TG BARRING GEAR	613,280.28	Insurance spare	
Plant & Equipment	31-03-24	BEARING SHELL-MAIN TG BARRING GEAR	976,964.00	Insurance spare	
Plant & Equipment	31-03-24	Vacuum Pump, SHR22500, Make-Edwards	11,791,563.00	Insurance spare	
Plant & Equipment	31-03-24	Main turbine barring over run clutch & shaft assem	1,044,901.52	Insurance spare	
Plant & Equipment	31-03-24	BEARING SHELL ASY THDF115/67 -GEN-TE-U-4	8,230,500.00	Insurance spare	
Plant & Equipment	31-03-24	VFD for GEHO Pump 1020KW 3PHASE 690V 1020A, NXP050	2,421,588.00	Insurance spare	
Plant & Equipment	31-03-24	Stand alone PLC panel cooling unit	148,992.00	Modification to enhance cooling of PLC panels and to avoid malfunctioning/damages to PLC cards.	Regulation 12 (4) (d)

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
Plant & Equipment	31-03-24	Fixing of lightening spikes at CHP-2	2,040,656.23	There was no lightening arrester and separate earth pit at any TP and conveyor gallery at CHP-2. The point was raised during audit. To comply the same lightening spikes are fixed in various locations of CHP-2 for safety of manpower & equipment from lightening strike.	
Plant & Equipment	17-02-24	Motor 220VDC, 19.3KW, 220A, 2900RPM, 200M	3,929,007.00	Insurance spare	Regulation 12 (3) (d)
Plant & Equipment	31-08-22	Bottom Ash utiliz settl pit & erectin of ASDP pipe	5,053,114.00	Emergency Bottom ash settling pit constructed near Main ash Silo to discharge Bottom ash during emergency situations (i.e. during non availability of slurry discharge lines/slurry pump series) thus sustaining unit operations and avoiding generation loss.	Regulation 12 (2) (c)
Plant & Equipment	31-12-23	Bottom Ash slurry tank unit 3&4	7,125,874.00	Emergency Bottom ash settling pit constructed near Main ash Silo to discharge Bottom ash during emergency situations (i.e. during non availability of slurry discharge lines/slurry pump series) thus sustaining unit operations and avoiding generation loss.	
Plant & Equipment	15-09-20	Trolley Mounted canon water sprinkler (LTT)	696,200.00	2 numbers trolley mounted water spray canon procured to supress fugitive emission of dust, ash, coal dust etc.	
Plant & Equipment	02-12-19	Oil DGA Test kit	3,776,000.00	Equipment for Electrical Lab. Same is required for Dissolved gas analysis of transformers to ensure healthiness of transformer	Regulation 12 (4) (d)
Plant & Equipment	31-03-24	Ash Pond(Tilia) (2023-24)	40,905,862.98	Raising of embankment height for ash pond at Tilia (Unit # 3 & 4)- Phase-I from RL 208M to RL 212M. Same was necessary to enhance capacity of Ash Pond to sustain unit operation.	Regulation 12 (2) (c)
Furniture and Fixtures	14-12-23	Almirah	90,470.00	Office equipment	Regulation 12 (4) (d)
Vehicles	30-03-24	Mahindra Bolero Maxx Pik-Up HD 1.7L LX	978,000.75	1 pick-up has been procured for facilitate maintenance of Ash slurry discharge lines (As ash pond is situated ~14KM from Plant).	Regulation 12 (2) (c)
Office Equipment	15-06-16	Ceiling Fan	-24,389.38	Office equipment	Regulation 12 (4) (d)
Office Equipment	24-04-21	Energy Saver ceiling fan,26W,1200MM	-14,307.50	Office equipment	
Office Equipment	10-03-23	2 ton Room Split AC	293,871.75	Office equipment	
Office Equipment	16-03-23	TV LED 86"	780,216.00	Installation of LED TV in conference room for VC & presentations in place of projectors	
Office Equipment	30-04-23	2 ton Room Window AC	79,360.00	Office equipment	
Office Equipment	30-04-23	Infared Thermography Camera	418,900.00	Infrared Thermography Camera procured for condition based monitoring of Switchyard, HT motors, switchgears, Insulation survey etc.	
Office Equipment	31-05-23	Drone Camera	188,800.00	Drone procured for monitoring of Coal yard, Chimney shell, Duct insulation condition, Condition of Ash slurry disposal lines etc.	
Office Equipment	01-07-23	Large Video Screen	108,800.00	LVS procured & installed in AHP control room for better monitoring and control of operational parameters.	
Office Equipment	30-06-23	Digital Camera	41,498.64	Office equipment	

240

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
Office Equipment	26-07-23	UV based storage water cooler purifier	100,300.00	Office equipment	
Office Equipment	31-07-23	4 ton tower AC with all accessories	469,999.00	Office equipment	
Office Equipment	31-08-23	2 ton Room Split AC	48,978.62	Office equipment	
Office Equipment	16-09-23	Rechargeable LED Torch light	10,974.00	Tools & tackles	
Office Equipment	31-10-23	VHF Base Station,Make Kenwood,nx 1700	436,600.00	Office equipment	
Office Equipment	31-10-23	Walkie Talkie License Free ,Lenevo N99	129,800.00	Office equipment	
Office Equipment	15-11-23	4 ton tower AC with all accessories	239,000.74	Office equipment	
Office Equipment	15-11-23	Water cooler 40/80 ltr FSS	99,120.00	Office equipment	
Office Equipment	22-11-23	Trolley Mounted SCBA set	254,016.00	This a one of the rescue equipment required to be used in environment where the Oxygen supply is less or presence of toxic gases and to enable rescue from confined spaces.	
Office Equipment	30-11-23	CRM 100 DC Scope	127,440.00	We have approx. 60 ACBs & VCBs at CHP-2. During routine checking and after internal mechanism repair, we need to carry out Contact Resistance Meter check to ensure healthiness of the breakers.	
Office Equipment	30-11-23	Digital Gauss meter	41,890.00	Tools & tackles	
Office Equipment	18-01-24	Lenovo Walkie Talkie licence free N89	234,762.00	Office equipment	
Office Equipment	31-01-24	Portable Inflatable Emergency light system	176,234.00	Office equipment	
Office Equipment	19-02-24	Digital flow meter with telemetry system	141,364.00	Tools & tackles	
Office Equipment	17-08-19	Online Effluent Quality Monitoring system	1,326,320.00	Online effluent quality monitorting system purchase to meet statutory environment requirement.	Regulation 12 (4) (a)
Office Equipment	10-12-20	Gas Analyser	1,050,200.00	Tools & tackles	Regulation 12 (4) (d)
Office Equipment	19-02-20	Dew Point Analyzer	338,095.00	Tools & tackles	
Office Equipment	21-01-22	Fume Hood	300,900.00	Tools & tackles	
Office Equipment	31-03-20	HUmidity chamber	231,044.00	Tools & tackles	
Office Equipment	31-10-20	PH cond Meter	141,214.00	Tools & tackles	
Office Equipment	30-04-20	Do Meter	767,000.00	Tools & tackles	
Road, Bridge & Culvert	14-07-23	Retaining wall MGR at CHP level crossing	2,022,685.00	The railway track along with formation at unloading bulb from Chainage (-) 0 / 760 M to (-) 0 / 800 M was subsided due to heavy rain disrupting movement of rake in line no 2 of OPGC II track. We had repaired the formation immediately to meet our urgency for rake movement as per advice of M/S RITES on 17.09.2021. It was also suggested by M/S RITES to construct a RCC retaining wall at the toe of the formation. The existing retaining wall is to be extended in the distressed area as a permanent solution. Accordingly, RCC retaining wall has been constructed at Chainage (-) 0/760 M to (-) 0/800 M in line with advice of M/S RITES	
IT Hardware	01-12-17	Laptop Computer	-48,486.00		Regulation 12 (3) (c)
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	

241

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
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IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	15-06-23	Laptop LENOVO/LENOVO THINKPAD E14	104,583.40	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
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IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

242

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Laptop Computer - Model: HP ProBook 440 14 G9 Note	95,927.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
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IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	

243

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	18-10-23	Desktop Computer Core i5 - Model: HP ProOne 440 G9	71,626.00	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET PRO MFP 4104dw	38,176.53	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET PRO MFP 4104dw	38,176.54	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET PRO MFP 4104dw	38,176.53	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET MFP M438nda	62,245.33	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET MFP M438nda	62,245.34	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	12-12-23	HP LASERJET MFP M438nda	62,245.33	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	
IT Hardware	14-02-24	Extreme 5320 24Port Data Switch (Model: 5320-24T-8	155,921.17	Purchase regarding network materials for 3&4 Control Room and Ware House	Regulation 12 (4) (d)
IT Hardware	14-02-24	Extreme 5320 24Port Data Switch (Model: 5320-24T-8	155,921.17	Purchase regarding network materials for 3&4 Control Room and Ware House	

244

ODISHA POWER GENERATION CORPORATION BHUBANESWAR

Asset Class Decription	Capitalized on	Asset Description		Justification	Claimed Under Regulation
IT Hardware	14-02-24	Extreme 5320 24Port Data Switch (Model: 5320-24T-8	155,921.17	Purchase regarding network materials for 3&4 Control Room and Ware House	
IT Hardware	14-02-24	Extreme 5320 24Port Data Switch (Model: 5320-24T-8	155,921.17	Purchase regarding network materials for 3&4 Control Room and Ware House	
IT Hardware	14-02-24	Extreme 5320 24Port PoE+ Switch (Model: 5320-24P)	203,690.39	Purchase regarding network materials for 3&4 Control Room and Ware House	
IT Hardware	14-02-24	Extreme 5320 24Port PoE+ Switch (Model: 5320-24P	203,690.39	Purchase regarding network materials for 3&4 Control Room and Ware House	
Software	21-08-23	SAP professional license	3,768,118.00	OPGC was having SAP Professional User License: 275 and SAP ESS User License: 750 and all the Professional User licenses had been issued. However, foreseeing new employments and joinees, additional 50 numbers of Professional User Licenses were required.	
			230,433,874.09		

245

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure - 4

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

246

PART 1
FORM- I

Details of Assets De-capitalized during the period

Name of the Petitioner: Odisha Power Generation Corporation Limited
Name of the Generating Station: IB TPS Unit 3 & 4

(Amount in Rs. Crore)

S. No.	Name of the Asset	Nature of de-capitlization (whether claimed under exclusion or as additional capital expenditure)	Original Value of the Asset Capitalised	Year Put to use	Depreciation recovered till date of de-capitalization	Whether earning RoE at the normal rate of weightage average rate of interest on loan
1	2	3	4	5	6	7
	FY 2021-22					
1	Exhaust fan 300mm dia suitable to work on 230/250		0.01	2019-20	0.01	
2	Motorola Walkie Talkie satelite XIRP 3688		0.02	2021-22	0.00	
3	EDP Machines(2014)		1.05	2014-15	0.99	
4	Laptop Computer	ACE	0.19	2017-18	0.13	
5	**Total**		**1.27**		**1.14**	
	FY 2023-24					
1	Ceiling Fan		0.05	2016-17	0.05	
2	Energy Saver ceiling fan,26W,1200MM		0.00	2021-22	0.00	
3	Laptop Computer	ACE	0.18	2017-18	0.18	
			0.24		**0.23**	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure - 5

Debt and Equity

Particulars	Units	From COD of Unit 3 to COD of Unit 4	From COD of Unit 4 to March 31, 2020
Total debt	Rs. Crore	2535.82	6474.98
Total equity	Rs. Crore	875.41	2121.22

As approved by the Commission

Means of Finance of Additional capitalisation

Particulars	Units	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Additional capitalisation-Project	Rs. Crore	0.00	225.20	1489.23	208.87	0.00
Debt	%	75.99%	74.75%	74.87%	73.72%	0.00%
Equity	%	24.01%	25.25%	25.13%	26.28%	100.00%
Debt	Rs. Crore	0.00	168.34	1114.98	153.98	0.00
Equity	Rs. Crore	0.00	56.86	374.24	54.89	0.00
Additional capitalisation-Others	Rs. Crore	0.00	0.00	0.00	28.69	23.04
Debt	%	0.00%	0.00%	0.00%	0.00%	0.00%
Equity	%	100.00%	100.00%	100.00%	100.00%	100.00%
Debt	Rs. Crore	0.00	0.00	0.00	0.00	0.00
Equity	Rs. Crore	0.00	0.00	0.00	28.69	23.04
Total Debt	**Rs. Crore**	**0.00**	**168.34**	**1114.98**	**153.98**	**0.00**
Total Equity	**Rs. Crore**	**0.00**	**56.86**	**374.24**	**83.58**	**23.04**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

249

Annexure - 6

Calculation of Weighted Average Rate of Interest on Actual Loans

Name of the Petitioner: Odisha Power Generation Corporation Limited

PART-1
FORM- 13

Name of the Generating Station: IB TPS Units 3 & 4

(Rs. in Crore)

Sl. No	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
A	**Power Finance Corporation Limited**					
1	Gross loan - Opening	3,433.07	3,745.67	3,786.33	3,871.98	3,892.92
2	Cumulative repayments of Loans upto previous year	-	-	188.47	398.68	611.82
3	Net loan - Opening	3,433.07	3,745.67	3,597.86	3,473.30	3,281.10
4	Receipts during the year	312.60	40.66	85.65	20.94	5.14
5	Repayment during the year	-	188.47	210.21	213.14	214.51
6	Net loan - Closing	3,745.67	3,597.86	3,473.30	3,281.10	3,071.73
7	Average Net Loan	3,589.37	3,671.77	3,535.58	3,377.20	3,176.41
8	Rate of Interest on Loan	10.61	10.76	9.98	8.95	9.22
9	Interest on loan	385.14	394.15	351.53	299.58	291.50
10	Add : Finance Charges	0.11	0.11	0.11	0.09	0.13
11	Less: Interest During Construction	156.72	54.72	23.18	0.78	-
B	**REC Limited**					
1	Gross loan - Opening	3,453.44	3,811.54	3,852.20	3,865.75	3,865.75
2	Cumulative repayments of Loans upto previous year [Note-1]	-	-	191.78	449.38	1,668.29
3	Net loan - Opening	3,453.44	3,811.54	3,660.42	3,416.38	2,197.47
4	Receipts during the year	358.10	40.66	13.55	-	15.60
5	Repayment during the year	-	191.78	257.60	1,218.91	179.90
6	Net loan - Closing [Note-1]	3,811.54	3,660.42	3,416.38	2,197.47	2,033.17
7	Average Net Loan	3,632.49	3,735.98	3,538.40	2,806.92	2,115.32
8	Rate of Interest on Loan	10.61	10.68	10.43	8.96	9.14
9	Interest on loan	388.02	403.27	371.73	274.58	195.69
10	Add : Finance Charges	0.11	0.11	0.11	0.09	0.11
11	Less: Interest During Construction	157.44	56.27	24.91	0.80	-
C	**Indian Bank**					
1	Gross loan - Opening	-	-	-	-	1,000.00
2	Cumulative repayments of Loans upto previous year	-	-	-	-	20.00
3	Net loan - Opening	-	-	-	-	980.00
4	Receipts during the year	-	-	-	1,000.00	-
5	Repayment during the year	-	-	-	20.00	80.00
6	Net loan - Closing	-	-	-	980.00	900.00
7	Average Net Loan	-	-	-	490.00	940.00
8	Rate of Interest on Loan	-	-	-	7.75	8.30
9	Interest on loan	-	-	-	19.54	79.03
10	Add : Finance Charges	-	-	-	36.58	-
11	Less: Interest During Construction					
	Total Loan					
1	Gross loan - Opening	6,886.51	7,557.21	7,638.53	7,737.73	8,758.67
2	Cumulative repayments of Loans upto previous year	-	-	380.25	848.05	2,300.10
3	Net loan - Opening	6,886.51	7,557.21	7,258.28	6,889.68	6,458.57
4	Receipts during the year	670.70	81.32	99.20	1,020.94	20.74
5	Repayment during the year	-	380.25	467.80	1,452.05	474.41
6	Net loan - Closing	7,557.21	7,258.28	6,889.68	6,458.57	6,004.89
7	Average Net Loan	7,221.86	7,407.75	7,073.98	6,674.12	6,231.73
8	Rate of Interest on Loan	10.71%	10.76%	10.22%	8.90%	9.09%
9	Interest on loan	773.16	797.42	723.26	593.70	566.22
10	Add : Finance Charges	0.22	0.22	0.22	36.76	0.24
11	Less: Interest During Construction	314.16	110.99	48.09	1.58	-

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

257

Annexure - 7

EXTRACT OF THE
MINUTES OF 228TH MEETING OF BOARD OF DIRECTORS
OF ODISHA POWER GENERATION CORPORATION LTD.
HELD ON 22.09.2022 AT 11.00 A.M.

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Item No.9 **Refinancing of Term Loan availed from PFC & REC for OPGC Ph-2, Units- 3&4**

Memorandum No. OPGC- 2756

The Proposal for Refinancing of Term Loan availed from PFC & REC for OPGC Stage-2, as delineated in the Memorandum deliberated. The status of the refinancing exercise of term loan for construction of Unit 3 & 4 of Ib TPS availed from PFC and REC by way of availing fresh loans from different banks presented before the Board.

It was reported that Indian Bank has already sanctioned Rs.1,000 Cr and the Board of Directors in 227th meeting has approved the term loan sanction of Indian Bank. OPGC requested REC for issue of No Objection Certificate (NOC) for partial pre-payment of term loan and waiver of pre-payment charges vide letter dated 03.08.2022. OPGC is yet to receive the NOC from REC for partial pre-payment of term loan. During the course of discussion, it was informed to the Board that REC in the meanwhile reduced to interest rate of the project loan from 9.07 % p.a. to 8.81% p.a. (quarterly rest). However, REC letter is silent on the NOC part of the refinancing request.

Further, State Bank of India (SBI) has also sanctioned Rs 2000 Cr towards refinancing which was analysed and since the terms are not very favorable, SBI was requested by OPGC to revise the terms which is acceptable to OPGC.

It was also informed to the Board that Bank of Baroda has sanctioned Rs 1500 Cr on 20.9.2022 and few more sanctions from Banks like Union Bank of India, Odisha Gramya Bank and Indian Overseas Bank are in the pipeline.

Company Secretary
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

After detailed deliberation, the Board advised to prioritize to avail loan from Odisha Gramya Bank in view of the shareholding of the Odisha Government in the Odisha Gramya Bank. SBICAP to be informed accordingly.

Managing Director, OPGC was authorized to further negotiate with REC for prepayment Rs. 1000 Cr and to negotiate with SBI for the sanctioned Rs 2000 Cr loan for better terms as numerated herewith and other sanctioning banks as stated above.

Accordingly, the following resolutions were passed.

"RESOLVED THAT Managing Director of Odisha Power Generation Corporation Ltd. be and is hereby authorized negotiate and accept the credit facilities sanctioned by the State Bank of India for Rs.2,000 Cr (Rupees Two Thousand Core only) in terms of its sanction letter No. CBB/AMT-I/25/53 dated 20th August 2022 by takeover of Rs.1000 Cr (Rupees One Thousand Crore Only) from PFC and takeover of Rs.1000 Cr (Rupees One Thousand Crore Only) from REC with or without modification and agree to and accept any changes and modifications in the terms and conditions contained the said letter of sanction and Memorandum of Agreement and to accepts and execute any amendments to any deeds, documents and other writing including the agreement as and when necessary".

"RESOLVED FURTHER THAT Managing Director while accepting the credit facilities Rs 2000 Cr sanctioned by State Bank of India be and is hereby authorized to negotiate with the State Bank of India to have the sanction terms in line with or better than the terms provided in Indian Bank's credit facility of Rs 1000 Cr sanctioned vide sanction letter no MCB/NYP/OPGCL/2022-23/260 dated 14.072022 and approved by Board of Director in their 227th meeting dated 29.07.2022".

Company Secretary
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

254

"RESOLVED FURTHER THAT Managing Director be and is hereby authorized to negotiate with the Union Bank of India, Bank of Baroda, Puri Gramya Bank and Indian Overseas Bank for credit facilities for refinancing of the project loan on terms that is in line with or better than the terms provided by Indian Bank's credit facility of Rs 1000 Cr sanctioned vide sanction letter no MCB/NYP/OPGCL/2022-23/260 dated 14.072022 and approved by Board of Director in their 227th meeting dated 29.07.2022"

"RESOLVED FURTHER THAT Managing Director be and is hereby authorized to approve any request for disbursement(s) and interim disbursement(s) for the said credit facilities".

"RESOLVED FURTHER THAT the Company do accept to secure the loan by way of first pari passu charge by way of equitable mortgage of the Company's immovable assets and by Hypothecation of first pari passu charge on all movable assets and of 2x660 MW Unit 3 & 4 (save and except book debts, fuel stock, raw materials, finished and semi-finished goods consumable stores & spares and other current assets which is hypothecated / charge for working capital loan) including movable machinery, mandatory spares, tools and accessories, spares and materials at site, present and future, in favour of State Bank of India".

"RESOLVED FURTHER THAT the Company do accept to secure the loan by way of 2nd pari passu charge on the stock of raw materials, fuel stocks, semi-finished and finished goods consumable spares and such other movable as may be agreed for securing the borrowings for working capital requirements in the ordinary course of business".

"RESOLVED FURTHER THAT Managing Director and Chief Financial Officer be and is hereby individually and severally authorised to execute such deeds, documents or other writings, amendments, changes, modifications to such deeds, agreement as may be necessary or required for mortgage and / or hypothecation of the loan".

Company Secretary
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. 3 BHUBANESWAR

255

"RESOLVED FURTHER THAT the Common Seal of the Company be affixed on the security documents, and any other documents as may be required by State Bank of India in presence of Managing Director of OPGC, [Chief Financial Officer and Sr. Manager (Finance)] shall sign the same as witness thereof)".

"RESOLVED FURTHER THAT the Company do issue notice to PFC and REC for pre-payment of term loan of Rs.2,000 Cr (Rs. 1000 Cr each from PFC & REC) with pre-payment premium as may be applicable and Managing Director be and is hereby authorized to issue such notice to PFC and REC for pre-payment of loan to the extent of Rs.2,000 Cr. (Rs.1000 Cr each from PFC & REC) and approve the pre-payment charges as may be applicable".

**** **** **** ****

True copy attested

Company Secretary 7/2/2023

Company Secretary
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

256

D 36

Term Loan Agreement

This Term Loan Agreement executed at **MCB Nayapalli Bhubaneswar** on This 29TH December of 2022. Between **M/s Odisha Power Generation Corporation Ltd** carrying on business as **Power Generation** and having its Office at , Zone-A, 7th Floor, Fortune Tower, Chandrasekharpur, Bhubaneswar, Odisha-751023 hereinafter called the 'Borrower'which term shall mean and include his/her/its successors, executors, administrators and assigns, and Indian Bank, a body corporate constituted under the Banking Companies (Acquisition and Transfer of Undertakings) Act V of 1970, carrying on the business of banking and having its Head Office at 66, Rajaji Salai, Chennai 600 001 and Corporate Office at 254-260, Avvai Shanmugam Salai, Royapettah, Chennai 600014, and among other places a branch at **MCB Nayapalli**,hereinafter called the 'Bank', which term shall mean and include its successors and assigns: Whereas the 'Borrower' has applied to the Bank for a Term Loan of **₹.1000.00 Cr (Rupees One thousand Crores Only)** for the purposes set forth in the Borrower's proposal dated 06.05.2022 a copy whereof is annexed to this Agreement hereinafter called the 'Borrower's proposal'.And whereas the Bank has agreed to grant the said Term Loan of **Rs. 1000.00 Cr (Rupees One thousand Crores Only)** to the Borrower, on the terms and conditions set forth in these presents and their sanction ticket dated **29/12/2022** and other documents cited there under collectively referred to as "security documents". Now the Borrower agrees to the following terms and conditions of the loan:

1. The Borrower's proposal shall be deemed to constitute the basis of this agreement for the Term Loan to be granted and the Borrower hereby warrants the correctness of each and every one of the statements and particulars contained therein and undertake to duly carry out the proposals setforth therein.
2. The Borrower agrees that the said Term Loan of **Rs. 1000.00 Cr (Rupees One thousand Crores Only)** shall be governed by the terms contained herein as well as those embodied in the 'Security documents' listed in the schedule hereto except in so far as the security documents may expressly or by implication be modified by these presents.
3. The Borrower agrees to repay the Term Loan of ₹ **1000.00Cr (Rupees One thousand crores only)** in **50 quarterly installments** of ₹ *(As mentioned below) each, the first installment to commence from **March 2023.**

REPAYMENT SCHEDULE AS PER REVISED SANCTION FOR REC LIMITED			
Date	**After Repayment of Dec 2022 payment O/s 3223.00**	**%of our repayment**	**Repayment proportionate to Refinance of 1000 Cr**
31/03/2023	64.46	31.03%	20.00
30/06/2023	64.46	31.03%	20.00
30/09/2023	64.46	31.03%	20.00
31/12/2023	64.46	31.03%	20.00
31/03/2024	64.46	31.03%	20.00
30/06/2024	64.46	31.03%	20.00
30/09/2024	64.46	31.03%	20.00
31/12/2024	64.46	31.03%	20.00
31/03/2025	64.46	31.03%	20.00
30/06/2025	64.46	31.03%	20.00
30/09/2025	64.46	31.03%	20.00
31/12/2025	64.46	31.03%	20.00
31/03/2026	64.46	31.03%	20.00
30/06/2026	64.46	31.03%	20.00
30/09/2026	64.46	31.03%	20.00
31/12/2026	64.46	31.03%	20.00
31/03/2027	64.46	31.03%	20.00

Managing Director
Odisha Power Generation Corporation Ltd.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

257

30/06/2027	64.46	31.03%	20.00
30/09/2027	64.46	31.03%	20.00
31/12/2027	64.46	31.03%	20.00
31/03/2028	64.46	31.03%	20.00
30/06/2028	64.46	31.03%	20.00
30/09/2028	64.46	31.03%	20.00
31/12/2028	64.46	31.03%	20.00
31/03/2029	64.46	31.03%	20.00
30/06/2029	64.46	31.03%	20.00
30/09/2029	64.46	31.03%	20.00
31/12/2029	64.46	31.03%	20.00
31/03/2030	64.46	31.03%	20.00
30/06/2030	64.46	31.03%	20.00
30/09/2030	64.46	31.03%	20.00
31/12/2030	64.46	31.03%	20.00
31/03/2031	64.46	31.03%	20.00
30/06/2031	64.46	31.03%	20.00
30/09/2031	64.46	31.03%	20.00
31/12/2031	64.46	31.03%	20.00
31/03/2032	64.46	31.03%	20.00
30/06/2032	64.46	31.03%	20.00
30/09/2032	64.46	31.03%	20.00
31/12/2032	64.46	31.03%	20.00
31/03/2033	64.46	31.03%	20.00
30/06/2033	64.46	31.03%	20.00
30/09/2033	64.46	31.03%	20.00
31/12/2033	64.46	31.03%	20.00
31/03/2034	64.46	31.03%	20.00
30/06/2034	64.46	31.03%	20.00
30/09/2034	64.46	31.03%	20.00
31/12/2034	64.46	31.03%	20.00
31/03/2035	64.46	31.03%	20.00
30/06/2035	64.46	31.03%	20.00
TOTAL	**3,223.00**		1000.00

4. The Borrower agrees and undertakes to notify to the Bank in writing of any circumstances affecting the correctness of any of the particulars set forth in the Borrower's proposal within three days of the occurrence of such circumstances.

5. The Borrower shall furnish the Bank with certified true copies of documents in respect of all existing encumbrances by way of charge, mortgage or otherwise on any of his properties other than the properties secured to the Bank and all arrangements made with any other Bank or Credit Institution or hire purchase financing agency or any other person.

The borrower(s) hereby authorise(s) the Bank to charge and debit the said account with interest at the rate **3 Months MCLR+0.00***per cent per annum from this date to the date of payment in full with 3 Months rests payable at monthly interval, such interest being added to the balance outstanding on the last working day of every financial/calendar **Year** (Mention

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

258

here month/quarter/half-year/year as the case may be) and the said interest, if unpaid, will become part of the amount advanced and bear interest at the same rate.

The borrower(s) agree(s) that the Bank is entitled to charge a higher rate of interest than the rate stated above as per Reserve Bank of India policy directives/ Bank rules and agree to pay interest at such enhanced rate of interest.

The borrower(s) agree(s) that the Bank shall have the right to revise prime spread once in every 3 years/ 2 years/ 1 year / 6 Months/ 15 Days/ Overnight starting from the date of execution of this agreement {mark tick (√)against appropriate period as per scheme}..

The borrower(s) agree(s) that the Bank is entitled to revise the credit risk premium annually upwards or downwards based on the change in the risk profile of the Borrower as per sanction terms and conditions.

The borrower agree(s) that the Bank is entitled to increase the agreed / current rate of interest by suitably modifying the spread, in case there is downward migration in the rating grade, based on Audited Balance Sheet of the Borrower, whenever the loan account is reviewed / renewed.

The borrower(s) further agree(s) that in the event of default in payment of interest/instalments on the respective due dates or any irregularity in the account or non-complying with any of the terms and conditions contained herein, the bank is entitled to charge overdue interest on the defaulted amount at -------- % over and above the contractual/maximum interest rates or at such rates with monthly rests as per the Reserve Bank of India / Bank's rules in force from time to time.

Bank shall recognise incipient stress in loan accounts, in case of revolving credit facilities like cash credit, immediately on default[1], by classifying such assets as special mention accounts (SMA) as per the following categories:

Loans other than revolving facilities		**Loans in the nature of revolving facilities like cash credit/overdraft**	
SMA Sub-categories	Basis for classification – Principal or interest payment or any other amount wholly or partly overdue	SMA Sub-categories	Basis for classification – Outstanding balance remains continuously in excess of the sanctioned limit or drawing power,whichever is lower, for a period of:
SMA-0	Upto 30 days		
SMA-1	More than 30 days and upto 60 days	SMA-1	More than 30 days and upto 60 days
SMA-2	More than 60 days and upto 90 days	SMA-2	More than 60 days and upto 90 days

1. 'Default' means non-payment of debt (as defined under the IBC) when whole or any part or instalment of the debt has become due and payable and is not paid by the debtor or the corporate debtor, as the case may be. For revolving facilities like cash credit, default would also mean, without prejudice to the above, the outstanding balance remaining continuously in excess of the sanctioned limit or drawing power, whichever is lower, for more than 30 days.

Example-1: If due date of a loan account is March 31, 2021, and full dues are not received before the lending institution runs the day-end process for this date, the date of overdue shall be March 31, 2021. If it continues to remain overdue, then this account shall get tagged as SMA-1 upon running day-end process on April 30, 2021 i.e. upon completion of 30 days of being continuously overdue. Accordingly, the date of SMA-1 classification for that account shall be April 30, 2021.

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

259

Similarly, if the account continues to remain overdue, it shall get tagged as SMA-2 upon running day- end process on May 30, 2021 and if continues to remain overdue further, it shall get classified as NPA upon running day-end process on June 29, 2021.

Example-2: If due date of a loan account is Sept 15th, 2021, and full dues are not received before the lending institution runs the day-end process for this date, the date of overdue shall be Sept 15th, 2021. If it continues to remain overdue, then this account shall get tagged as SMA-1 upon running day-end process on Oct 15th, 2021 i.e. upon completion of 30 days of being continuously overdue. Accordingly, the date of SMA-1 classification for that account shall be Oct 15th, 2021.

Similarly, if the account continues to remain overdue, it shall get tagged as SMA-2 upon running day- end process on Nov 14th, 2021 and if continues to remain overdue further, it shall get classified as NPA upon running day-end process on Dec 14th, 2021.

The borrower(s) shall be deemed to have received notice of change in the rate of interest whenever the changes in the Repo rate / Spread are displayed/ notified at/by the branch / published in newspaper/made through entry of interest charged in the pass book/statement of accounts sent to the borrower(s). Individual notice regarding the change of interest is expressly waived by the borrower(s).

In case of loans with floating rate of interest, the borrower(s) shall abide by the option exercised by the borrower(s) and sanctioned by the Bank with regard to effective dates for change in interest rate which is linked either to the date of first disbursement of the loan / credit limit or to the date of review of Repo rate.

the borrower(s) agree(s) that the interest rate on the date of first disbursement, whether partial or full, shall be applicable till the end of the quarter.

The borrower(s) further agree(s) that when the RBI policy rates are revised, the Bank is entitled to change the rate of interest from the first date of the subsequent quarter or from such other date as may be approved by the Bank from time to time.

7. The Borrower(s) further agree(s) to pay all expenses and charges such as service charges, processing charges, commitment charges, incidental charges, godown charges, godown inspection charges, typing and postage expenses, legal notice expenses, fees/charges towards Information Utilities for electronic storage of financial information etc., which the bank may incur.

8. (i) Notwithstanding anything contained above, the Borrower further agrees that if the interest and instalment(s) payable by him/her/them is not paid by him/her/them on or before the due date for payment, the Bank shall at its discretion debit any of the other accounts maintained by him/her/them and credit the same to the Term Loan so as to get the interest and instalment (or portion of the interest/instalment as the case may be) on the Term Loan adjusted. It is further agreed and confirmed that the bank shall be at liberty and though not bound to effect the transfer referred to in this para without any reference to the Borrower.

(ii) Notwithstanding anything contained herein, in the event of the Borrower(s) remitting any instalment of principal or interest or any part of the dues, after the default, within the limitation period of three years from the date of default, such remittance shall give a fresh life on limitation and in such instances the original terms of sanction would get re-inducted without necessitating fresh documentation.

9. In the event of pre-payment of the loan by the borrower(s) before the stipulated repayment schedule, the bank is entitled to levy a pre-payment charge of % or at such rates as per the Bank's rules in force, on the applicable drawing limit or on the balance outstanding, whichever is higher.

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

260

The borrower(s) further agree(s) and undertakes to create a valid equitable mortgage by deposit of title deeds/Registered Mortgage of unencumbered property At District – New Unit 3 & 4 of Capacity 660*2 MW **Power Plant** at IB Thermal Power Station Village Banharpali Khata 73/231 Area of land for Mortgage **53.79** acre **Lease Hold** Village Banharpali Khata 73/236 Area of land for Mortgage **8.76** acre **Lease Hold.** Village Bargad Khata 44/86 Area of land for Mortgage **16.31** acre **Lease Hold.** Village Baragad Khata 44/85 Area of land for Mortgage **4.80** acre **Lease Hold.** Village Baragad Khata 44/96 Area of land for Mortgage **16.31** acre **Lease Hold.** Village Baragad Khata 44/53 Area of land for Mortgage **1.10** acre **Free Hold** Ash Pond land of area **357 .00** acre Pending for mortgage. Lease deed in favour of OPGC by IDCO completed.

The borrower(s) further agree(s) and undertakes to execute an agreement for hypothecation of the machineries now existing and to be purchased, as and when purchased as additional security for the Term Loan advanced.

10. The borrower(s) agree(s) and undertakes to pay all land revenue taxes and cesses due on the lands given as security on or before the due dates and forward the receipts for the payment thereof to the Bank.

11. The Borrower(s) undertakes that the Bank shall be promptly advised of all changes in their constitution or style. Further, where the Borrower is a partnership firm and a change occurs in the constitution of the firm by retirement, expulsion or death of any partner of the firm or otherwise the outgoing partner or the legal representatives of the deceased partner will not be discharged in respect of the liability of the firm incurred before its reconstitution by any subsequent credits to the account or to the accounts of the reconstituted firm or to any other separate account until the Bank finally agrees to the reconstituted firm taking over the liability or until the liability is fully paid off by all the partners of the old firm including the outgoing partners or the legal representatives of the deceased partner.

12. If the Borrower(s) be more than one individual all shall be bound hereby jointly and severally and if a firm or members of a firm such firm and all members from time to time thereof shall be bound hereby jointly and severally notwithstanding any changes in the constitution or style thereof and whether such firm consist of or be reduced to one individual at any time. And that if the Borrower be more than one individual at any time any notice served on any one of such individuals shall be deemed to be service of such notice on all of such individuals.

13. If the Borrower(s) be more than one individual each one or any of them is authorised and empowered by the others of them to admit and acknowledge their liability to the Bank by any payment into the account or by way of express writing and in any manner otherwise and any such admission and acknowledgement of the liability by one or more of them shall be construed to have been made on behalf of each of them.

14. The Borrower(s) will obtain its entire working capital requirements from the Bank subject to the Bank's terms and conditions and confine its entire banking transactions including available foreign exchange transactions with the Bank. The Borrower may, however, with permission in writing of the Bank in this regard and the extent allowed and on such other terms and conditions as may be stipulated, deal with any other Bank.

Notwithstanding anything herein or in the security documents contained, the Borrower agrees that the whole advance shall become forthwith due and payable by the Borrower to the Bank and the bank will be entitled to enforce its security upon the happening of any of the following events:

i. Any installment of principal or interest or any part thereof in respect of the said loan being unpaid for a period of **90 days** after the respective due date of repayment;

i. any interest remaining unpaid and in arrears for a period of three months after the same shall have become due whether demanded or not:

ii. the Borrower(s) committing any breach or default in the performance or observance of these presents and or 'The Borrowers' proposal' and/or conditions relating to the advance and/or 'The security documents' or any other terms of conditions relating to the advance;

iii. the Borrower(s) submitting any materially incorrect or false information or statement.

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

261

iv. the Borrower(s) entering into agreement or composition with his creditors or committing an act of insolvency;

v. execution or distress being enforced or levied against the whole or any part of the Borrower's property;

vi. the Borrower(s) being adjudicated insolvent or taking advantage of any law for the relief of insolvent debtor;

vii. a receiver being appointed in respect of the whole or any part of the property of the Borrower(s);

viii. the Borrower(s) ceasing or threatening to cease to carry on his activities;

ix. the occurrence of any circumstances which is prejudicial to or impairs or imperils depreciate or is likely to prejudice, impair, imperil or depreciate the security given to the Bank;

x. the borrower(s) not paying the increased rate of interest charged on the loan.

On the question whether any of the above events has happened, the decision of the Bank shall be conclusive and binding on the Borrower(s).

Provided always that the Bank may in its discretion refrain from forthwith enforcing its rights under this security in spite of the happening of any of the contingencies aforesaid.

18. The borrower(s) further agree(s) that he shall not without the written consent of the Bank, create in any manner, any charge, lien or other encumbrance on the securities given to the Bank in respect of such advance or create any interest in such securities in favour of any other party or person which will any way affect or prejudice the rights and the remedies of the Bank under these presents or the securities hereby created in favour of the Bank.

19. The borrower(s) agree(s) that he will upon every reasonable request of the Bank allow the Bank and any nominee, servant or Manager of the Bank to inspect the Borrower's business premises for ensuring that the Borrower had duly complied with the terms of advance.

20. The Borrower(s) shall insure to the satisfaction of the Bank and keep insured all properties constituting the Bank's security against fire (and all other risks) for a sum equivalent to its full market value with an approved insurer in the joint names of the Bank and the Borrower or otherwise as the Bank may require and shall duly and punctually pay all premiums and shall not do or suffer to be done any act which may invalidate or avoid such insurance and shall deposit the insurance policy (and all cover notes, premium receipts and other documents connected therewith) with the Bank. Any monies realised from such insurance shall at the option of the Bank be applied either in reinstating the security or in repayment of the loan advanced and interest. If the Borrower fails to perform any of his obligations under this clause and if the Bank insures any of the properties hereby secured in such amounts the Bank may think fit, the Borrower shall, on demand repay to the Bank the payments made by the Bank for that purpose and will also pay interest at % per annum from the date of demand until
repayment of any monies not repaid on demand as aforesaid and all monies and interest shall remain charged on the property given as security provided the Bank will be entitled at its option to debit all such monies and interest in other accounts which the Borrower may have with the Bank.

21. The borrower(s) further agree(s) and undertakes to secure the personal guarantee of the due repayment of the Term Loan in accordance with the terms and conditions on which the said loan has been granted.

22. The borrower(s) agree(s) to maintain a margin of 25% at all times and if the value of the security depreciates during the currency of the Term Loan, the Borrower shall on demand give other properties as security so as to maintain the stipulated margin.

23. The Borrower(s) shall not, during the continuance of this loan without the written consent of the Bank,

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

262

i. change or in any way alter the capital structure of the borrowing concern;
ii. effect any scheme of amalgamation or reconstitution;
iii. implement a new scheme of expansion/modernisation or take up an allied line of business or manufacture;
iv. Revaluing the assets of the company;
v. Changing the accounting system of the company radically;
vi. declare a dividend or distribute profits after deduction of taxes, except where the installments of principal and interest payable to the Bank are being paid regularly;
vii. enlarge the scope of other manufacturing/trading activities, if any undertaken at the time of the application and notified to the Bank as such;
viii. withdraw or allow to be withdrawn any monies brought in by its proprietors, partners, relatives and friends or proprietors/partners/promoters or directors;
ix. invest any funds by way of deposits, or loans or in share capital of any other concern (including subsidiaries) so long as any money is due to the Bank; the Borrower will however be free to deposit funds by way of security, with third parties in the normal course of business or if required for the business;
x. borrow or obtain credit facilities of any description from any other bank or credit agency or money lenders or enter into any hire purchase arrangement during the currency of the loan;
xi. any material change/s in the project.

24. The borrower(s) agree(s) that the Bank may hold all securities belonging to him (which may now be in Bank's possession or which may at any time hereinafter come into Bank's possession) and the proceeds thereof respectively not only for the specific advance made thereon but also as collateral security for any other monies now due or which may at any time be due from him whether singly or jointly with another or others.

25. The borrower(s) further agree(s) that in addition to any general lien or similar right to which Bank may be entitled by law, the Bank may at any time and without notice to the Borrower combine or consolidate all or any of the Borrower's accounts and set off or transfer any sum of sums standing to the credit of any one or more of such accounts in or towards satisfaction of any of Borrower's liabilities to the Bank on any other accounts or in any other respect, whether such liabilities be actual or contingent, primary or collateral and several or joint.

26. The borrower(s) further agree(s) to get the State Industrial Development Corporation Shri..... and/or associate to bring in additional funds by way of unsecured loans or deposits to meet any shortfall in financing the project and the Borrower further agrees to secure the consent of these persons not to withdraw the loans or deposits without the prior approval of the Bank. The payment of interest on unsecured loans/deposit shall be subordinate to the payment of interest as well as instalments of principal on the term loan from the Bank.

27. The borrower(s) agree(s) that the Term Loan of ₹.**1000.00Cr** be disbursed in stages as the project is implemented.

28. The borrower(s) agree(s) that he/she/they will not declare or pay any dividend (a) if instalment/s of principal is/are in arrears to the Bank and/or (b) if interest remains unpaid and is in arrears for a period of three months.

29. In case the other lending institutions impose any other conditions on the company such of those stipulations as may be considered appropriate by the Bank shall be deemed to apply to the Term Loan of **₹.1000.00 Cr** granted by the Bank to the Company.

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

30. The borrower(s) further agree(s) not to pay any commission to the promoters, directors etc., for furnishing co-obligancies/guarantees, counter-guarantees or indemnities or for undertaking any other liabilities in connection with any financial assistance for the company.

31. The borrower(s) agree(s) to step up repayment of the instalments in case capital expenditure envisaged in the Cash Flow Statement is not actually incurred in any year as also when the level of profits and cash accruals are more than what is envisaged in the profitability estimates and cash flow statements submitted in support of term loan application.

32. The Borrower(s) covenants with the Bank that he has no objection to the Bank approaching RBI/IDBI/another financial institution for refinance at their discretion and on such terms and conditions to be agreed between the Bank and the financial institution giving refinance by charging, if necessary, movable/immovable property/properties charged to the Bank. The borrower further covenants with the Bank that the Bank shall be at liberty to furnish any information or report whether received by the Bank from the borrower or otherwise in Bank's possession to RBI/IDBI/any other financial institutions as may be required.

33. The Borrower(s) agrees and undertakes to pay to the bank **NIL** of the total loan sanctioned as `up front fee' and also a commitment charge at the rate of **Nil** on the unavailed portion if any at the Bank's option and the same shall be debited to any of the deposit accounts of the Borrower(s).

34. In the event of the Bank availing refinance from the IDBI/ SIDBI/ NABARD/ EXIM Bank in respect of the above advances, the borrower(s) hereby authorises the bank to charge and debit the said account with interest at% per annum or at the rate at which the bank is entitled to charge interest as on
the date of sanction of refinance assisted by ---------- (fill in the name of the refinancing agency) as per the refinance arrangement that the bank has with ———— (fill in the name of the refinancing agency) whichever is higher and the said interest if unpaid will become part of the amount advanced and bear interest at the same rate.

35. The borrower(s) agree(s) and undertakes that the loan amount will be used only for the purpose/purposes mentioned in the borrower's proposal and for which it has been sanctioned and the borrower(s) further agree(s) notwithstanding anything contained in this agreement, the Bank shall have the right to recall the entire loan amount together with interest and other charges or any part thereof in case the loan amount is/has been used for any purpose other than for which it has been sanctioned or if the bank apprehends or it has reason to believe that the Borrower(s) has violated or is violating the condition.

36. The Borrower(s) further agrees that the Bank may at its sole discretion enter into inter bank participation arrangement with any Bank or Banks or Institutions of its choice without any reference to the Borrower(s). The borrower(s) agree(s) that such participation arrangement, if any, arrived at by the Bank with other Bank(s)/Institution, shall be a matter between the Bank and the other Bank(s)/Institutions and the Borrower(s) is unconcerned with the same. However the Bank shall be at liberty to furnish any information relating to the Borrower(s) to such participating Bank(s)/Institution. The Borrower(s) further confirms that notwithstanding such participation arrangement between the Bank and other Bank(s)/Institution the Borrower(s) shall be liable to make payment of the entire liabilities to the Bank.

37. When there is a default by the borrower(s) in repayment of loan instalment and/or servicing of interest beyond ninety days or any other period stipulated by Bank under the directives of RBI, all borrowal accounts of the borrower(s) shall be categorised as Non-Performing Asset (NPA). Such categorisation entails disqualification of the borrower(s) from seeking

i. additional/adhoc credit facilities (fund based or non-fund based)
ii. waiver of overdue interest charges

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

264

iii. softening recovery measures by the Bank, etc.

38. The Borrower(s) hereby agree(s) as a precondition of the loan/advance given to him/her/them by the Bank that in case he/she/they commit/s default in the repayment of the loan/advances or in the repayment of interest thereon or any of the agreed instalment of the loan on due date/s, the Bank and/or Reserve Bank of India will have an unqualified right to disclose or publish his/her/their name/s or the name of our company/firm/unit and its directors/partners/proprietor as defaulter in such a manner and through such medium as the Bank/Reserve Bank of India in their absolute discretion may think fit.

39. The borrower(s) hereby undertake and covenant that the Bank may avail the services of the statutory auditors engaged by the borrower(s) from time to time for the purpose of obtaining Stock Audit / Balance Sheet / A&L Statements / Certification of end use of funds / Progress Reports / Operating Statements/ Inspection Reports and other such financial statement(s) duly certified on quarterly basis. In the event of any of these certification / statement(s) turning out to be incorrect / fudged / false, Bank is at liberty to initiate all / any kind of legal action against the borrower(s) and as well as the Auditors, after giving prior due notice of 7 days. The borrower(s) specifically undertake that all extant Reserve Bank of India guidelines, modified from time to time would be binding upon the borrower(s) and my / our Auditors.

40. ** The borrower Company agrees and undertakes that No Director / Partner / Member / Trustee, as the case may be, of the borrower(s) has been declared to be a wilful defaulter and neither the name of the Borrower(s) nor its Director(s) figure in any list of defaulters circulated by RBI or any Bank and financial institution or any Credit Information Companies and if such a person is found to be in the Board of the Borrower Company, expeditious and effective steps will be taken for his / her removal from the Board.

41. The Borrower(s) hereby gives specific consent to the Bank/Lender for disclosing / submitting the 'financial information' as defined in Section 3 (13) of the Insolvency and Bankruptcy Code, 2016 ('Code' for brief) read with the relevant Regulations/ Rules framed under the Code, as amended and in force from time to time and as specified there under from time to time, in respect of the Credit/ Financial facilities availed from the Bank/ Lender, from time to time, to any 'Information Utility' ('IU' for brief) as defined in Section 3 (21) of the Code, in accordance with the relevant Regulations framed under the Code, and directions issued by Reserve Bank of India to the banks from time to time and hereby specifically agree to promptly authenticate the 'financial information submitted by the Bank/Lender, as and when requested by the concerned 'IU'

42. The Borrower(s) hereby agree(s) and consents to the Bank for the disclosure of all or any such

i. information and data relating to the borrowers

ii. information or data relating to his/her/their obligations in any credit facility granted/to be granted by the bank and availed by the borrower (s) and

iii default if any, committed by the borrower in discharge of his/her/their obligations

as the Bank may deem appropriate and necessary, to disclose and furnish to Credit Information Bureau (India) Ltd., and any other agency authorised by Reserve Bank of India in this behalf.

43. The borrower further agrees and consents that the

i. Credit Information Bureau (India) Ltd., and any other agency so authorised may use, process the said information and data disclosed by the bank in the manner as deemed fit by them and

ii. Credit Information Bureau (India) Ltd., and any other agency so authorised may furnish for consideration, the processed information and data or products thereof prepared by them, to Banks / Financial institutions and other credit grantors or registered users, as may be specified by RBI in this behalf.

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

265

44. The borrower(s) also agrees that the Bank shall be entitled to transfer the loan account to any of the branches of the Bank, after giving due notice to the borrower(s).

SCHEDULE

Sl.No.	Date	Parties to Documents	Description of Documents
1	06.05.2022	Borrower to Bank	Borrower's Proposal
2	11.08.2022	Bank to Borrower	Sanction Ticket
3	29.12.2022	Bank to Borrower	Revised Sanction

In the witness where of the Borrower and the Bank have signed this Agreement on the 29th of December 2022 and year first above written.

Borrower **Bank**

M/s. Odisha Power Generation Corporation Ltd Through its authorized signatory Mr. in pursuance to the board resolution dated 29/12/2022
Address: Zone-A, 7th Floor, Fortune Tower, Chandrasekharpur, Bhubaneswar, Odisha-751023

Managing Director
Odisha Power Generation Corporation Ltd.
Bhubaneswar

Witness:
1. Ajit Kumar Panda, Chief Financial Officer, OPGC
29/12/2022
2. Gyanendra Kumar Mishra, Sr. Manager (Fin), OPGC

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

266

Calculation of Sharing of Loan Refinancing Gains

Name of the Petitioner: Odisha Power Generation Corporation Limited
Name of the Generating Station: IB TPS Units 3 & 4

(Rs. in Crore)

Sl. 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					
		49	224					
1	2	3	4	5	6	7	8	9
1	Interest on Loan before Refinancing	0.00	0.00	0.00	0.00	0.00	22.56	93.70
2	Interest on Loan after Refinancing	0.00	0.00	0.00	0.00	0.00	19.54	79.03
3	Refinancing Charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Gains due to Refinancing	0.00	0.00	0.00	0.00	0.00	3.02	14.67
5	Sharing of Gains due to Refinancing	0.00	0.00	0.00	0.00	0.00	1.51	7.33

Note: Refinancing charges stated as amortised during the financial year out of total refinancing cost of Rs.36.58 crore

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure - 8

MONTHLY ESTIMATION OF GAIN/LOSS DUE TO VARIATION OF NORMS

FY	Gen	Sch Gen (SG)	Coal Cons_MT (Actual)	Total Oil Cons_KL	SOC(ml/Kwh) Actual	Aux Cons_MU	Aux % (Actual)	Norm Aux(%)	HR Actual (@ as fired GCV)	Norm HR(Coal)	Coal Cons_MT (w.r.t Norm HR)	Coal Deviation MT (Norm Cons - Actual Cons)	Coal Cost (Rs/MT)	Norm SOC (Ml/Kwh)	Wt Avg Oil Cost (Rs/KL)	ECR_Normative	ECR _Actual (with As fired GCV)	Gain/Loss
Apr-20	489.459	454.100	368263	356.903	0.729	33.492	6.84	6.25	2315	**2176.8**	326917	-41346	1769	0.50	38861.9	**1.281**	1.379	-445.86
May-20	584.138	546.349	464475	62.234	0.107	36.509	6.25	6.25	2313	**2176.8**	415705	-48770	1731	0.50	38861.9	**1.334**	1.400	-361.01
Jun-20	590.129	551.995	454740	0.000	0.000	36.611	6.20	6.25	2302	**2176.8**	412942	-41798	1605	0.50	33363.7	**1.216**	1.266	-277.68
Jul-20	622.822	581.668	492037	13.899	0.022	39.323	6.31	6.25	2299	**2176.8**	432371	-59666	1615	0.50	33057.6	**1.213**	1.265	-297.83
Aug-20	452.035	414.255	404054	520.312	1.151	35.870	7.94	6.25	2390	**2176.8**	325068	-78986	1641	0.50	33057.6	**1.276**	1.448	-713.64
Sep-20	238.318	216.830	211380	302.038	1.267	22.521	9.45	6.25	2355	**2176.8**	163563	-47817	1610	0.50	33057.6	**1.196**	1.367	-369.38
Oct-20	242.002	220.155	202444	260.197	1.075	21.439	8.86	6.25	2314	**2176.8**	167833	-34611	1645	0.50	33057.6	**1.235**	1.370	-297.35
Nov-20	294.372	269.828	231508	146.270	0.497	22.552	7.66	6.25	2273	**2176.8**	204302	-27206	1650	0.50	33057.6	**1.239**	1.313	-198.92
Dec-20	544.121	504.138	443046	164.747	0.303	38.155	7.01	6.25	2246	**2176.8**	382400	-60646	1642	0.50	33057.6	**1.248**	1.291	-213.76
Jan-21	655.687	611.794	498238	66.829	0.102	40.388	6.16	6.25	2227	**2176.8**	444779	-53459	1649	0.50	33017.1	**1.210**	1.223	-74.28
Feb-21	598.994	552.083	483099	89.336	0.149	36.778	6.14	6.25	2221	**2176.8**	410308	-72791	1687	0.50	32996.7	**1.250**	1.261	-61.96
Mar-21	655.351	602.858	508860	311.378	0.475	40.511	6.18	6.25	2228	**2176.8**	472774	-36086	1657	0.50	32996.7	**1.292**	1.321	-169.73
Apr-21	455.479	418.571	355142	276.979	0.608	33.956	7.45	6.25	2271	**2176.8**	295485	-59657	1637	0.50	32996.7	**1.150**	1.219	-286.92
May-21	699.106	648.848	530079	0.000	0.000	41.218	5.90	6.25	2213	**2176.8**	465652	-64427	1685	0.50	32996.7	**1.215**	1.213	13.95
Jun-21	499.118	459.404	449939	301.064	0.603	38.080	7.63	6.25	2298	**2176.8**	337771	-112168	1839	0.50	32996.7	**1.345**	1.444	-452.64
Jul-21	619.777	576.640	494628	45.798	0.074	41.708	6.73	6.25	2248	**2176.8**	444768	-49860	2048	0.50	32996.9	**1.586**	1.630	-257.65
Aug-21	626.394	581.783	494316	86.930	0.139	42.367	6.76	6.25	2235	**2176.8**	445412	-48904	2102	0.50	32996.9	**1.612**	1.651	-228.51
Sep-21	635.864	590.503	495560	8.517	0.013	42.205	6.64	6.25	2228	**2176.8**	434232	-61328	2042	0.50	32996.9	**1.505**	1.529	-140.58
Oct-21	533.317	499.507	377962	220.580	0.414	33.100	6.21	6.25	2206	**2176.8**	354774	-23188	2035	0.50	32996.9	**1.462**	1.477	-78.61
Nov-21	544.564	507.662	387741	293.197	0.538	35.069	6.44	6.25	2214	**2176.8**	340143	-47598	2007	0.50	32996.9	**1.355**	1.382	-137.45
Dec-21	543.073	506.981	386158	301.488	0.555	35.300	6.50	6.25	2226	**2176.8**	364779	-21379	1944	0.50	32997.4	**1.411**	1.448	-189.70
Jan-22	631.262	564.050	447310	337.118	0.534	40.406	6.40	6.25	2205	**2176.8**	418859	-28451	1922	0.50	32996.8	**1.378**	1.399	-118.26
Feb-22	690.786	577.904	476067	102.961	0.149	39.085	5.66	6.25	2172	**2176.8**	442961	-33106	1905	0.50	32996.7	**1.321**	1.297	136.56
Mar-22	757.814	629.019	523019	185.151	0.244	41.728	5.51	6.25	2166	**2176.8**	483423	-39596	2147	0.50	33329.2	**1.479**	1.451	174.82
Apr-22	431.704	401.597	307576	0.000	0.000	26.995	6.25	6.25	2161	**2176.8**	274499	-33077	1794	0.50	33329.2	**1.235**	1.208	106.96
May-22	761.168	640.829	530481	296.818	0.390	43.914	5.77	6.25	2167	**2176.8**	470771	-59710	1826	0.50	33329.2	**1.222**	1.206	101.35
Jun-22	776.718	628.622	541165	113.734	0.146	44.028	5.67	6.25	2165	**2176.8**	487368	-53797	1920	0.50	33329.2	**1.303**	1.275	173.32
Jul-22	731.603	616.087	511338	177.004	0.242	41.257	5.64	6.25	2171	**2176.8**	462351	-48987	1933	0.50	33329.2	**1.321**	1.299	131.97
Aug-22	810.663	671.013	578319	30.528	0.038	45.282	5.59	6.25	2168	**2176.8**	505675	-72644	1914	0.50	34095.0	**1.291**	1.261	206.00
Sep-22	802.417	655.014	563612	76.210	0.095	43.852	5.47	6.25	2165	**2176.8**	507474	-56138	2121	0.50	34095.0	**1.449**	1.415	224.89
Oct-22	819.768	686.028	588789	0.000	0.000	44.865	5.47	6.25	2168	**2176.8**	504275	-84514	1946	0.50	34095.0	**1.295**	1.261	230.57
Nov-22	746.147	613.850	520742	246.192	0.330	41.299	5.54	6.25	2175	**2176.8**	466839	-53903	2012	0.50	34095.0	**1.361**	1.343	109.44
Dec-22	835.033	685.027	602941	0.000	0.000	45.690	5.47	6.25	2169	**2176.8**	526409	-76532	2002	0.50	34095.0	**1.364**	1.330	233.18
Jan-23	635.207	534.712	437410	237.984	0.375	39.223	6.17	6.25	2178	**2176.8**	417046	-20364	2043	0.50	34095.0	**1.449**	1.444	27.28
Feb-23	726.099	585.096	486675	140.800	0.194	39.698	5.47	6.25	2164	**2176.8**	481152	-5523	1948	0.50	34724.1	**1.395**	1.364	182.14
Mar-23	854.388	680.347	595033	15.268	0.018	47.453	5.55	6.25	2161	**2176.8**	576793	-18240	1360	0.50	34724.1	**0.998**	0.966	218.02
Apr-23	844.645	797.912	587533	19.949	0.024	46.099	5.46	6.25	2160	**2176.8**	585599	-1934	1851	0.50	34724.1	**1.388**	1.348	315.88
May-23	883.931	835.313	611615	0.000	0.000	47.069	5.32	6.25	2155	**2176.8**	621238	9623	1825	0.50	34724.1	**1.386**	1.341	381.64
Jun-23	739.501	698.630	519879	378.931	0.512	42.164	5.70	6.25	2187	**2176.8**	513692	-6187	1834	0.50	36914.7	**1.379**	1.377	10.25
Jul-23	846.987	798.347	592879	91.845	0.108	46.848	5.53	6.25	2168	**2176.8**	591048	-1831	1807	0.50	38729.1	**1.366**	1.334	253.11
Aug-23	758.031	708.913	528350	248.229	0.327	44.653	5.89	6.25	2161	**2176.8**	537169	8819	1793	0.50	38729.1	**1.376**	1.353	159.23
Sep-23	743.730	696.728	517974	19.270	0.026	42.787	5.75	6.25	2153	**2176.8**	533561	15587	1793	0.50	38729.1	**1.393**	1.351	291.08
Oct-23	521.496	487.553	365579	368.548	0.707	31.297	6.00	6.25	2157	**2176.8**	373458	7879	1812	0.50	39111.2	**1.405**	1.398	36.91
Nov-23	822.298	774.450	571718	148.582	0.181	44.472	5.41	6.25	2149	**2176.8**	583269	11551	1791	0.50	41375.5	**1.377**	1.334	337.04
Dec-23	698.744	660.023	481882	328.602	0.470	39.653	5.67	6.25	2141	**2176.8**	492748	10866	1796	0.50	44163.9	**1.375**	1.343	209.22
Jan-24	913.698	862.085	640276	0.000	0.000	47.824	5.23	6.25	2137	**2176.8**	645071	4795	1788	0.50	46945.5	**1.372**	1.308	552.62
Feb-24	808.187	761.180	570807	108.497	0.134	44.552	5.51	6.25	2148	**2176.8**	571723	916	1781	0.50	46945.5	**1.369**	1.323	352.08
Mar-24	711.936	667.848	490223	87.000	0.122	41.297	5.80	6.25	2133	**2176.8**	502334	12111	2579	0.50	46945.5	**1.966**	1.899	447.76

ANNUAL ESTIMATION OF GAIN/LOSS DUE TO VARIATION OF NORMS

FY	Gen_MU	SG_MU	Total Oil Cons_KL	SOC(ml/Kwh) Actual	Aux Cons_MU	Aux % (Actual)	Norm Aux(%)	GCV (As Fired)	Actual HR (considering As Fired GCV)	Norm HR(Coal)	Coal Cost (Rs/MT)	Norm SOC (Ml/Kwh)	Wt Avg Oil Cost (Rs/KL)	Loss/Profit (Oil)	Net Loss/Profit (in Lakhs)	ECR Normative	ECR Actual	Net Gain/Loss (in Lakhs)	ECR _Actual (with As fired GCV)	Gain/Loss
FY 20-21	5967.429	5526.050	2294.143	0.384	404.150	6.77	6.25	2854.717	2282	2177	1659.829	0.50	34114.890	235.445	-9760.691	**1.252**	1.437	**-10215.28**	1.315	**-3481.41**
FY 21-22	7236.554	6560.870	2159.784	0.298	464.220	6.41	6.25	2960.849	2220	2177	1947.915	0.50	33031.661	481.900	-10814.877	**1.404**	1.571	**-10893.52**	1.427	**-1564.99**
FY 22-23	8930.914	7398.220	1334.538	0.149	503.558	5.64	6.25	3088.256	2168	2177	1899.811	0.50	33974.727	1065.634	-10210.619	**1.306**	1.418	**-8458.07**	1.279	**1945.11**
FY 23-24	9293.184	8748.979	1799.454	0.194	518.715	5.58	6.25	3086.823	2154	2177	1865.066	0.50	40655.830	1160.611	2550.718	**1.424**	1.387	**3304.23**	1.386	**3346.80**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

270

Annexure - 9

Energy Charges for Thermal Generation

Name of the Petitioner : Odisha Power Generation Corporation Limited

Name of the Generating Station: IB TPS Units 3 & 4

Particulars	Units	Reference	FY 2019-20			FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
			03-Jul-19 to 20-Aug-19	21-Aug-19 to 31-Mar-20	Total				
			49	224					
Operational Parameter									
Number of Units									
Upto 250 MW									
More than 250 MW			1	2		2	2	2	2
Total Capacity	MW		660	1320		**1320**	**1320**	**1320**	**1320**
Availability	%		85%	85%		85.00%	85.00%	85.00%	85.00%
PLF	%		85%	85%		85.00%	85.00%	85.00%	85.00%
Gross Generation	MU		659.74	6031.87	6691.61	9828.72	9828.72	9828.72	9855.65
Auxiliary Energy Consumption	%		5.75%	5.75%		6.25%	6.25%	6.25%	6.25%
Auxiliary Energy Consumption	MU		37.93	346.83	384.77	614.30	614.30	614.30	615.98
Net Generation	MU		621.80	5685.04	6306.84	9214.43	9214.43	9214.43	9239.67
Heat Rate	kcal/kwh		2171.51	2171.51		2181.90	2181.90	2181.90	2181.90
Fuel Parameters									
Calorlflc Value for Different Fuels									
Fuel 5 (Indigenous Coal)	kcal/Kg	From 15 (C)	3103	3018		3091	3123	3335	3488
Fuel 4 (Imported Coal)	kcal/Kg	From 15 (C)							
Fuel 1 (HFO)	kcal/Ltr.	From 15 (O)	10000	10000		10000	10000	10000	10000
Fuel 2(HSD)	kcal/Ltr.	From 15 (O)							
Fuel 3 (LDO)	kcal/Ltr.	From 15 (O)	10600	10600		10600	10600	10600	10600
Landed Fuel Price for different fuels									
Fuel 5 (Indigenous Coal)	Rs/MT	From 15 (C)	1785.02	1786.68		1687.95	1645.53	1992.58	1986.68
Fuel 4 (Imported Coal)	Rs/MT	From 15 (C)							
Fuel 1 (HFO)	Rs/KL	From 15 (O)	41401	41406		47177	34698	34699	34698
Fuel 2(HSD)	Rs/KL	From 15 (O)							
Fuel 3 (LDO)	Rs/KL	From 15 (O)	48609	45078		52988	52989	52379	63363
Specific Fuel Consumption									
Fuel 5 (Indigenous Coal)	Kg/kWh		0.70	0.72		0.70	0.70	0.65	0.62
Fuel 4 (Imported Coal)	Kg/kWh								
Fuel 1 (HFO)	ml/kWh		0.40	0.40		0.40	0.40	0.40	0.40
Fuel 2(HSD)	ml/kWh								
Fuel 3 (LDO)	ml/kWh		0.10	0.10		0.10	0.10	0.10	0.10
Total Fuel Consumption									
Fuel 5 (Indigenous Coal)	MT		460614	4330259		6920827	6851038	6415037	6150071
Fuel 4 (Imported Coal)	MT								
Fuel 1 (HFO)	KL		263	2406		3931	3931	3931	3942
Fuel 2(HSD)	KL								
Fuel 3 (LDO)	KL		67	610		983	983	983	986
Heat Content (each fuel separately)									
Fuel 5 (Indigenous Coal)	Million kcal		1429285	13067745		21395551	21395551	21395551	21454169
Fuel 4 (Imported Coal)	Million kcal								
Fuel 1 (HFO)	Million kcal		2632	24063		39315	39315	39315	39423
Fuel 2(HSD)	Million kcal								
Fuel 3 (LDO)	Million kcal		707	6462		10418	10418	10418	10447
Total Fuel Cost									
Fuel 5 (Indigenous Coal)	Rs Crore		82.22	773.68	855.90	1168.20	1127.36	1278.25	1221.82
Fuel 4 (Imported Coal)	Rs Crore								
Fuel 1 (HFO)	Rs Crore		1.09	9.96	11.05	18.55	13.64	13.64	13.68
Fuel 2(HSD)	Rs Crore								
Fuel 3 (LDO)	Rs Crore		0.32	2.75	3.07	5.21	5.21	5.15	6.24
Total fuel Cost			**83.63**	**786.39**	**870.02**	**1191.96**	**1146.21**	**1297.04**	**1241.74**
Energy Charges per unit			**134.50**	**138.33**	**137.95**	**129.36**	**124.39**	**140.76**	**134.39**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

272

Annexure - 10

Particulars	DPS	DPS (Rs. Crore)
DPS Upto July'2020	33913914	3.39
DPS For Aug'2020	18730890	1.87
DPS For Sep'2020	17426609	1.74
DPS For Oct'2020	15639607	1.56
DPS For Nov'2020	8301257	0.83
DPS For Dec'2020	4769591	0.48
DPS For Jan'2021	3641712	0.36
DPS For Feb'2021	1885640	0.19
DPS For Mar'2021	2007297	0.20
DPS For April'2021	2203705	0.22
DPS For May'2021	-3040542	-0.30
DPS For Jun'2021	1061176	0.11
DPS For July'2021	1099667	0.11
DPS For Aug'2021	1102121	0.11
DPS For Sep'2021	1075367	0.11
DPS For Oct'2021	1130002	0.11
DPS For Nov'2021	1042670	0.10
DPS For Dec'2021	1111943	0.11
DPS For Jan'2022	1113488	0.11
DPS For Feb'2022	1006073	0.10
DPS For Mar'2022	1114798	0.11
DPS For Apr'2022	1079370	0.11
DPS For May'2022	1132585	0.11
DPS For Jun'2022	924056	0.09
DPS For Jul'2022	1031144	0.10
DPS For Aug'2022	1032194	0.10
DPS For Sep'2022	998898	0.10
DPS For Oct'2022	1032194	0.10
DPS For Nov'2022	998898	0.10
DPS For Dec'2022	1032194	0.10
DPS For Jan'2023	1032194	0.10
DPS For Feb'2023	949570	0.09
DPS For Mar'2023	1099765	0.11
DPS For Apr'2023	4779303	0.48
DPS For May'2023	58540015	5.85
DPS For Jun'2023	56783941	5.68
DPS For Jul'2023	45774494	4.58
DPS For Aug'2023	45768007	4.58
DPS For Sep'2023	44295730	4.43
DPS For Oct'2023	45775552	4.58
DPS For Nov'2023	44298921	4.43
DPS For Dec'2023	45775552	4.58
DPS For Jan'2024	39525737	3.95
DPS For Feb'2024	35572889	3.56
DPS For Mar'2024	38026191	3.80
DPS For Apr'2024	36791243	3.68
DPS For May'2024	38913023	3.89
DPS For Jun'2024	38422255	3.84
DPS For Jul'2024	38376704	3.84
DPS For Aug'2024	56022315	5.60
DPS For Sep'2024	19525401	1.95
DPS For Oct'2024	20223663	2.02
DPS For Nov'2024	19484505	1.95
Total	**901355491**	**90.14**

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Annexure - 11

Details of revised estimated additional capitalisation for FY 2024-25 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
1	Fly ash system Augmentation in Unit#3 & 4 ESP	37.20	35.10	Plant & Equipment	Originally installed AHP system was able to support operation of units up to 520MW per Unit with design worst coal of (43.7% ash). This required constant dumping of ash from the ESP Hoppers. Also, the engagement of significant manpower and machinery to carry out poking & ash cleaning work below ESP fields. Original installed Fly Ash evacuation system was unable to support full load operation of the units U#3 & 4 due to inadequate design & lack of redundant systems. Hence, original installed system did not met the requirements of long-term operation and left OPGC exposed to unplanned outages, environmental exceedance, and increased manpower and machinery costs. To mitigate the issue, Expert agency in field of AHP was deputed by OPGC (Technical proposal is also attached as Annex-1). Agency had suggested to install Dense phase pressure conveying system below ESP 1st & 2nd fields (additional system) to enhance ash evacuation rate from ESP hoppers. Said engineering proposal was also vetted by NTPC. Accordingly OPGC taken up suggested modification through a reputed agency in field of Ash handling systems. Said modifications are already completed in Unit#3 & 4 and system is performing satisfactory.	22 (1) (e)
2	APH & Duct hopper Augmentation in Unit#3 & 4	11.40	11.39	Plant & Equipment	APH & Duct Hopper ash was supposed to be extracted up to buffer hopper through vacuum extraction system as per design. Due to coarse nature of ash in APH & Duct Hopper, there was problem in evacuating ash from buffer hopper when it is getting mixed with ESP Hopper ash. Due to said issue ash was being evacuated through manual dumping in tractors involving manpower & machineries cost. To resolve the above issue, the matter was taken up with expert agency in the field of Ash handling. Agency had visited the site and submitted a technical proposal for modification of original design of dry ash evacuation system into wet ash disposal system (Technical proposal attached as here as Annx-2). Accordingly OPGC taken up suggested modification through a reputed agency in field of Ash handling systems. Said modifications are already completed in Unit#3 & 4 and system is performing satisfactory.	22 (1) (e)
3	Upgradation of Slurry & Conveying lines, Erection of New Slurry lines in Phased manner	42.15	2.38	Plant & Equipment	To improve redundancy of Ash slurry lines, additional slurry lines being erected. Various modification works has been taken up in slurry & fly Ash conveying lines (i.e. Installation of cast basalt bends, using higher thickness pipes etc.) to improve reliability & availability of lines & minimising ash leakages.	22 (1) (e)
4	Procurement of Vacuum Truck	0.65	0.65	Plant & Equipment	1 number procurement vacuum truck procurement has been done for mechanised housekeeping of ESP areas & near-by roads cleaning. Earlier manual housekeeping practise was involving signification deployment of manpower & machineries.	22 (1) (e)

ODISHA POWER GENERATION CORPORATION LTD. * BHUBANESWAR

27

Details of revised estimated additional capitalisation for FY 2024-25 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
5	Conversion of HFO pumps into LDO Forwarding Pump-4 nos.	0.50	0.40	Plant & Equipment	It is proposed to fire LDO instead of HFO as primary (supporting) fuel to meet statutory requirements as per notification from Odisha State Forest & Environment department dated 12.04.2021 . Said modification will also help to reduce water consumption, coal consumption and subsequently improve the station heat rate.	22 (1) (i)
6	PRDS interconnection of OPGC-I & II	0.60	0.55	Plant & Equipment	PRDS interconnection of OPGC-I & II is proposed to support Unit start-up activity during black-out condition. Same will help in reducing unit start-up time during black out situation and saving of fuel oil.	22 (1) (i)
7	Additional Incoming Cable From Unit#3 to CHP & barricading between incoming cables	0.40	0.22	Plant & Equipment	One additional incoming cable laying is planned for Main plant to CHP to improve redundancy for CHP incoming power.	22 (1) (i)
8	Modification of Wet ventilation system of CHP PMCC and Track hopper MCC	0.30	0.00	Plant & Equipment	Existing ventilation system of CHP PMCC is not effective therefore Capacity of CHP PMCC wet ventilation to be enhanced. New ventilation system to be installed at track hopper MCC. Same are required to maintain temperature inside switchgear rooms for safety of electrical equipment.	22 (1) (i)
9	Procurement of 25 no's BOBRN Wagon for Coal	15.70	0.00	Plant & Equipment	Procurement of additional wagons to meet coal requirement of Units from OCPL mines.	22 (1) (i)
10	Bulk Acid & Alkali storage tank for CPU	0.65	0.41	Plant & Equipment	For enhancement of storage capacity of Acid & Alkali required for CPU regeneration.	22 (1) (i)
11	CPVC Line extension from existing RO permeate water discharge pump to existing Strong Acid Cation vessels inlet.	0.34	0.34	Plant & Equipment	To enhance DM water quality & will result in saving of chemical cost due to less regeneration requirement.	22 (1) (i)
12	Upgradation of Feed control valve (FDV-14) in Unit#4	0.35	0.35	Plant & Equipment	For reliable operation of Feed control valve in FDV-14 & to avoid leakage.	22 (1) (i)
13	Installation of High Efficiency Blades in 6 Numbers IDCT Cells	0.36	0.00	Plant & Equipment	Installation of High efficiency blades has been proposed in 6 numbers of IDCT cells. Same will result in less Aux. power consumption & improve IDCT efficiency.	22 (1) (i)
14	IDCT Doors Modifications	0.20	0.00	Plant & Equipment	Existing doors are of Mild Steel, same will be replaced with FRP doors to avoid frequent damages & corrosion.	22 (1) (i)
15	H2 dryer assembly (MOC upgradation)- 3 Dryers	0.32	0.32	Plant & Equipment	It is proposed to procure & install Hydrogen dryers with upgraded MOC for improve reliability & safety of equipment.	22 (1) (i)
16	Replacement of 1 SH Spray & 1 RH Spray CV along with actuator with reputed make	0.45	0.00	Plant & Equipment	Failure rate & maintenance of existing installed valves of SH & RH spray control valves are very high, it is proposed to replace the same with other reputed make to avoid Frequent passing / leakages issues. Same will also result saving in form of maintenance cost & heat rate improvement.	22 (1) (i)
17	Replacement of existing manually operated switch isolators with motorised isolator in Colony	0.32	0.00	Plant & Equipment	Our township currently has 12 transformers of 33/0.44kV rating and 14 manually operated 33kV AB switch isolators. Total 26 numbers isolators are operated manually which has a potential risk to operator when operated in charged conditions. Proposing for renovating the system to motorized operation.	22 (1) (i)
18	ID Fan Rotor Assembly including Blades- 1 Set	2.77	2.77	Plant & Equipment	Insurance spare	
19	Sector plate for RAPH- 1 APH complete set	0.20	0.19	Plant & Equipment	Insurance spare	
20	TDBFP turbine rotor assembly	7.28	7.28	Plant & Equipment	Insurance spare	
21	Procurement of Unit#3 Bearing assembly no. 5	0.83	0.82	Plant & Equipment	Insurance spare	
22	HT Motor - 400KW (1 number) for CHP	0.40	0.00	Plant & Equipment	Insurance spare	

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

627

Details of revised estimated additional capitalisation for FY 2024-25 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
23	LT Motor - 200KW & 90KW (1 each) for CHP	0.30	0.00	Plant & Equipment	Insurance spare	
24	Installation of Recirculation System for rain water harvesting pond for reuse of water	0.50	0.00	Plant & Equipment	Statutory requirement for CTO	22 (1) (i)
25	CHP office cabin construction & furnishing	0.25	0.00	Furniture & Fixtures	For development of CHP office infrastructure. It was not there is original scope of work during Project.	22 (1) (i)
26	CCTV at Critical Locations of CHP-2	0.55	0.00	Plant & Equipment	For better surveillance & monitoring of critical areas / equipment	22 (1) (d)
27	Construction Of road from CT-01 to CT-03	0.45	0.45	Plant & Equipment	To create access till IDCT for operation supervision & maintenance activities. It was not there is original scope of work during Project.	22 (1) (i)
28	Access Control System & Employee Tracking System	0.40	0.00	Office Equipments	For installation of Access Control System, Face reader, Upgradation of attendance recording & Employee Tracking System, Flap/Boom Barrier at various locations.	22 (1) (d)
29	Coal Settling pit at Manoharpur Mines	0.70	0.68	Plant & Equipment	Statutory requirement	22 (1) (i)
30	Fixing of Demarcation Pillars along MGR Track	0.50	0.50	Plant & Equipment	Fixing of Demarcation pillars along with MGR track to avoid encroachment.	22 (1) (i)
31	Installation of fencing at near LC gate in MGR	0.70	0.00	Plant & Equipment	Safety requirement	22 (1) (d)
32	Extension of Ware House-2 Office Building	0.30	0.00	Buildings	Ware house office extension is required for accommodating warehouse officials.	22 (1) (i)
33	Installation of High Mast Lights (3 Nos.) in Warehouse	0.42	0.06	Plant & Equipment	Installation of High Mast Lights in WH for security reasons.	22 (1) (d)
34	Truck Wheel washing system at Fly ash Silo	0.30	0.18	Plant & Equipment	Statutory compliance, As per CTO condition.	22 (1) (i)
35	Siemens DIGI Solution	0.30	0.00	Plant & Equipment	For better analysis & monitoring of plant parameters.	22 (1) (i)
36	Trailer	0.55	0.00	Vehicles	Procurement of tailer for Misc. shifting jobs in plant & ash pond.	22 (1) (e)
37	CCTV installation in OPGC-II	0.60	0.00	Plant & Equipment	CCTV Procurement & installation in OPGC-II Plant area & township for surveillance improvement in critical locations.	22 (1) (d)
38	Power Supply UPS Backup for networking switches	0.26	0.00	IT Hardware	UPS required for power backup for critical network switches in different areas of the Plant which will help to upkeep the devices with zero downtime.	22 (1) (i)
39	Site Store at Tilia & Potable water supply to site office and other areas	0.20	0.17	Buildings	Construction of Site store at Tilia ash pond to support maintenance activity & water supply provision to be made for drinking water facility. Currently such facilities are not available at Tilia Ash Pond.	22 (1) (e)
40	Ballast top up hopper trolley	0.20	0.00	Plant & Equipment	Required for MGR P-way maintenance activity.	22 (1) (i)
41	Historian server of DCS	0.40	0.00	Plant & Equipment	Redundant historian server to be procure for 1 unit.	22 (1) (i)
42	CCTV installation in OPGC-II Tiliya ash Pond	0.20	0.00	Plant & Equipment	CCTV installation in Tilia ash pond for surveillance & monitoring	22 (1) (e)
43	Provision of DG set for CMT Colony	0.30	0.00	Plant & Equipment	There is no any power back up system available for people residing in CMT colony.	22 (1) (i)
44	New Road construction in OPGC-II	0.80	0.00	Road,Bridge & Culvert	Construction of Junction road till MGR to facilitate movement of Ash transport bulkers & Internal movement of manpower & material from Plant to Warehouse.	22 (1) (i)
45	Material shed near FWPH	0.30	0.00	Buildings	For Shed arrangement & area development near FWPH for storage of various tools / equipment etc.	22 (1) (i)
46	Fire detection system upgradation of Resource centre & Guest house	0.00	0.00	Plant & Equipment	Existing fire detection system of Resource centre & Guest house is obsolete & same need to be upgraded for safety reasons.	22 (1) (e)
47	Misc. Civil development works of MGR P-way	0.25	0.00	Plant & Equipment	Development of approach road for In motion weigh bridge 1&2 at Manoharpur, Construction of Road by paving tiles at Manoharpur, Renovation of Culvert at Manoharpur ASM Building	22 (1) (i)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of revised estimated additional capitalisation for FY 2024-25 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
48	Various Tools & tackles	1.51	0.48	Plant & Equipment	Procurement of Ladder, Hydraulic Tools, Material shifting trollies, Power/ Mechanised tools, Tools for workshop, Induction heaters, Electrical testing equipment, Rigging tools & slings, Lab equipment, Search lights	22 (1) (i)
49	Various Furniture & office equipment	0.89	0.10	Furniture & Fixtures	Procurement of various office furniture i.e. almirah, chair, table etc. Air conditioner, Water cooler, Canteen equipment,	22 (1) (i)
50	EDP Machine	0.4	0.10	IT Hardware	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	22 (1) (i)
51	Procurement of 2 Electric vehicle & 1 Bus	0.80	0.00	Vehicles	Existing bus being used in DAV school is very old & frequent breakdown being observed. It is proposed to procure 1 new bus. Also 2 numbers Electric vehicle procurement need to be done for fleet management.	22 (1) (i)
52	Oil filtration machines	0.35	0.19	Plant & Equipment	Oil filtration machine to be procured & installed to maintain oil quality of paddle feeder, Control Fluid System.	22 (1) (i)
53	Fall protection device installation in Track hopper, Fly Ash Silo & other critical location	0.22	0.09	Plant & Equipment	Safety requirement	22 (1) (e)
	Total Amount in Cr.	137.27				

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
1	BA system Augmentation in Unit#3 & 4	50.22	43.18	Plant & Equipment	Original installed BA system was unable to support operation of the units at 660 MW load while firing coal with ash contain >43.7%, because of inadequacy of existing system to evacuate 4 hours of ash collection within 1 hrs. 30 mins (Actual evacuation time was around 2 hrs. 30 mins against design of 1 hr. 30 mins.). In many incidents frequent clinker build-up was observed in higher loads due to limitation in original BA evacuation system. Hence, originally installed BA system performance did not met the requirements of long-term full load operation and left OPGC exposed to unplanned outages, environmental exceedance, generation loss. To mitigate the issue, Expert agency in field of AHP was deputed by OPGC (Technical proposal is also attached as Annex-2). Agency had suggested augment existing 75 TPH Clinker grinder, Jet pumps, Feed sump with 90 TPH Clinker grinders, Jet pumps, feed sumps with higher size of BA discharge line to achieve BA evacuation with in 1 hr. 30 min. Accordingly OPGC taken up suggested modification through a reputed agency in field of Ash handling systems. Said modifications are already done in Unit#3 & 4. Modified system performance is found satisfactory. Apart from said modifications 1 additional slurry sump & slurry series is being constructed to create redundant system to avoid system downtime and loss of generation.	22 (1) (e)
2	Upgradation of Slurry & Conveying lines, Erection of New Slurry lines in Phased manner	14.50	0.00	Plant & Equipment	To improve redundancy of Ash slurry lines, additional slurry lines being erected. Various modification works has been taken up in slurry & fly Ash conveying lines (i.e. Installation of cast basalt bends, using higher thickness pipes etc.) to improve reliability & availability of lines & minimising ash leakages.	22 (1) (e)
3	Capacity increase by raising the dyke height of Phase # 2 ash pond at Tilia (RL 208 to 212) & Consultancy charges	44.36	0.00	Plant & Equipment	Raising of Tilia Ash Pond Phase-II dyke from RL 208 to RL 212 will be executed for capacity enhancement of existing dyke.	22 (1) (e)
4	Approach road along ash pipeline corridor for Tilia ash pond	14.00	0.00	Road,Bridge & Culvert	Approach road need to be developed along the Ash disposal lines (from Plant boundary till ash Pond) to create access for Ash disposal line surveillance & maintenance activity. Currently there is no access for ash slurry pipe lines for maintenance purpose, it was not a part of original scope of work during project.	22 (1) (e)
5	Extension of MGR Workshop 50 mtr, Building & washing pit	2.25	0.11	Buildings	MGR workshop was designed for maintenance of 2 LOCOs & 32 wagons. Extension is required to support maintenance activities of 9 numbers of LOCO & 197 Wagons which are currently in use.	22 (1) (i)
6	IPSV studs with upgraded MOC- (for 2 valve assemblies)	5.24	0.00	Plant & Equipment	Failures observed in existing MOC of IPSV Studs, OES has recommended to upgrade MOC of Studs for better reliability & safety of system	22 (1) (d)
	IPCV studs with upgraded MOC- (for 2 valve assemblies)	3.82	0.00	Plant & Equipment	Failures observed in existing MOC of IPCV Studs, OES has recommended to upgrade MOC of Studs for better reliability & safety of system	22 (1) (d)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

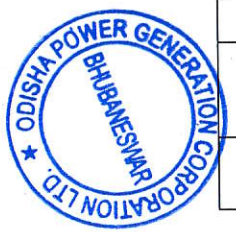
S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
8	Platform extension for APH, Burner & ESP platform strengthening	5.60	3.28	Plant & Equipment	Platform extension is required to support APH basket cleaning & replacement, Burner refurbishment / replacement. Same will result in reducing AOH time line. It was not part of original scope of work during project.	22 (1) (i)
9	Modification in ESP 4-10th hopper	0.80	0.00	Plant & Equipment	ESP hopper field 4th to 10th hopper modification on trial basis for 3/18 lines (of one unit). Same is required for effective ash evacuation without need of manual pocking and to avoid fugitive ash emission.	22 (1) (e)
10	33KV Under ground cable laying in Colony	0.70	0.00	Plant & Equipment	(i) The 33kV overhead conductor running from the Old Six Pole to the C-Type Substation passes through reserve forest area. This location presents significant challenges (ii) The 33kV overhead conductor running from the E type substation to STP Substation passes through forest area and to avoid road crossing	22 (1) (i)
11	Modification of Vacuum Contactor to Vacuum Circuit Breaker in AHP (Phase-I)	0.20	0.00	Plant & Equipment	It is proposed to upgrade existing Vacuum Contactor to Vacuum Circuit Breaker in Ash Handling plant for avoid flash over issues. Same is essential for safety of manpower & equipment, and to improve system availability.	22 (1) (i)
12	Additional Incoming Cable From Unit#4 to CHP & barricading between incoming cables	0.40	0.00	Plant & Equipment	One additional incoming cable laying is planned for Main plant to CHP to improve redundancy for CHP incoming power.	22 (1) (i)
13	Installation of beacon lights (Phase-I)	0.40	0.00	Plant & Equipment	Conveyor start/stop is a routine activity at CHP. However during conveyor starting, siren is blown at head end of the conveyor, for both A & B conveyor, making it uncertain for the workers at site about which conveyor shall run. Hence it is proposed to install flash beacons on each conveyor, at every 30m interval to provide audio-visual warning to the workers at site, before starting of conveyor belt.	22 (1) (i)
14	Upgradation of existing 2 numbers of TAC with reputed make (Phase-I)	3.00	0.00	Plant & Equipment	Spares lead time & maintenance cost of existing TAC compressors are on higher side. It is proposed to replace 2 numbers of TAC with other reputed make for reduction in maintenance cost, downtime & saving of Aux. power.	22 (1) (i)
15	Ash Level Sensor Probe upgradation in ESP 1st and 2nd fields	1.60	1.21	Plant & Equipment	Installation of NOGS sensors in ESP 1st & 2nd Fields hopper for continuous monitoring of ESP hopper level.	22 (1) (i)
16	Conveyor Guarding at CHP-2 (Phase-II)	2.50	0.38	Plant & Equipment	Safety requirement, it was not a part of original scope of work during project.	22 (1) (d)
17	Concreting in CHP Transfer Points, Yard Conveyor	0.75	0.48	Plant & Equipment	To facilitate maintenance in CHP area.	22 (1) (i)
18	LOTO Room construction at CHP-2	0.30	0.00	Buildings	LOTO room need to be constructed in CHP for issuing of permits, storage of LOTO boxes etc., it was not a part of original scope of work during project.	22 (1) (i)
19	CCTV for Plant boundary monitoring	1.10	0.00	Plant & Equipment	To improve surveillance across plant boundary for security reasons.	22 (1) (d)
20	Additional development in SAP System	0.30	0.00	Office Equipments	For various development cases in SAP	22 (1) (i)
21	Fire Fighting System Underground Line Modification to Overground in Main Plant area (Phase-II)	7.10	4.03	Plant & Equipment	To avoid frequent leakages in fire fighting lines and for ease of maintenance it is proposed to modify Fire fighting lines from underground to overground.	22 (1) (d)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

187

Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
22	Approach road for CTBD, PTP & area landscaping	1.15	0.25	Road,Bridge & Culvert	Access road development for CTBD, PTP for chemical unloading & to facilitate operational supervision & maintenance activities. It was not a part of original scope of work during project.	22 (1) (i)
23	Replacement of Main plant IAC (1 number)	1.20	0.00	Plant & Equipment	Replacement of existing 1 number IAC with other reputed make of compressor for reliability improvement, aux. power reduction & low maintenance cost.	22 (1) (i)
24	Ion Chromograph & Lab Water demineraliser for WTP lab	0.62	0.00	Plant & Equipment	Equipment is required for analysis of Sodium and Chloride in WTP lab.	22 (1) (i)
25	Master calibrator for power analyser	0.20	0.00	Plant & Equipment	Master calibrator to be used for energy meter calibration at site.	22 (1) (i)
26	SOx NOx ANALYZER	0.46	0.00	Plant & Equipment	Maintenance cost of Existing SOx NOx analysers are very high. Proposed to replace with other reputed make due to ease of maintenance & no requirement of calibration gas.	22 (1) (i)
27	New PLC installation in Ash Water Recovery System (AWRS)	0.40	0.00	Plant & Equipment	Currently AWRS operation is relay based logic, it is proposed to install PLC for better control & monitoring.	22 (1) (i)
28	IT Network Upgrade	1.00	0.00	IT Hardware	Required for upgrading the network switches that support IP Phones and cameras as some of the switches are becoming obsolete and to strengthen the IT network.	22 (1) (i)
29	2 BOBYN Wagon procurement for Ballast spreading	1.20	0.00	Plant & Equipment	Required for MGR P-way maintenance activity.	22 (1) (i)
30	Switchyard Isolator upgradation	0.64	0.38	Plant & Equipment	Frequent damages being observed in existing isolators in Switchyard, it is proposed with replace them in phased manner with other reputed make to improve reliability of system.	22 (1) (i)
31	On Line dissolved gas analyser for Transformers (for 1 unit)	1.50	0.00	Plant & Equipment	Required for monitoring healthiness of transformers & to take-up predictive maintenance to reduce downtime.	22 (1) (i)
32	HT/LT Cable for 8MVA Transformer	0.60	0.00	Plant & Equipment	Presently the HT cable can take a max load of 4.5MVA. Both incoming cables to be replaced to utilise full capacity of transformer	22 (1) (i)
33	FD Fan Rotor Assembly including Blades- 1 set	3.83	0.00	Plant & Equipment	Insurance spare	
34	Furnace camera for Unit#3 & 4	0.50	0.00	Plant & Equipment	Insurance spare	
35	Generator Exciter- 1 no. (with PMG)	26.00	0.00	Plant & Equipment	Insurance spare	
36	TG Brg.-7 procurement (1 set)	0.75	0.00	Plant & Equipment	Insurance spare	
37	Planetary gearbox for paddle feeder	0.55	0.55	Plant & Equipment	Insurance spare	
38	Gearbox of Conveyor Drive	0.80	0.00	Plant & Equipment	Insurance spare	
39	Servomotors for TG valves (HPSV-1, HPCV-1, IPSV-1, IPCV-1)	4.50	0.00	Plant & Equipment	Insurance spare	
40	ID Fan 1 set of Blades	1.00		Plant & Equipment	Insurance spare	
41	Civil modification works in Maintenance Shed & bike stand construction in CHP-2	0.50	0.22	Plant & Equipment	To facilitate in house repair and fabrication work at CHP area. Bike stand for area development.	22 (1) (i)
42	Slew bearing central lubrication system upgradation	0.20	0.00	Plant & Equipment	Required for healthiness of stacker slew/long travel	22 (1) (i)
43	OPGC-II Main Gate complex modification	1.20	0.00	Buildings	Development of infrastructure at OPGC-II new plant gate to support movement of manpower & material. Currently OPGC-I gate is being used for manpower & machine movement of OPGC-II.	22 (1) (i)
44	X-Ray Machine	0.30	0.00	Office Equipments	Existing X-Ray machine is very old, spares has been obsoleted & OEM not supporting for AMC any further. It proposed to procure & install one new X-ray Machine.	22 (1) (i)



Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
45	Additional shed construction in Ware House-2	1.00	0.00	Buildings	(i) Construction of 2 numbers Open Shed for storage of Materials near WH-2 and another near COLD Lube Shed (ii) Extension of both Lubricant yards and existing hazardous waste oil yards & parking area shed construction	22 (1) (i)
46	Procurement & Installation of 2 Nos of CAAQMS with 1 No of Weather Monitoring Station	0.00	0.00	Plant & Equipment	(i) As per CTE condition of OPGC-2, OPGC needs to install 6 No of CAAQMS station. At present OPGC has 6 Nos of CAAQMS, however 2 stations (MGR & Township) are very old station installed in 2008-09 and the analysers are not functioning effectively & obsoleted. Thus it needs to be replace with new stations (ii) Electronic Display Board (4ftX6ft) as per supreme court guideline for display of Hazardous Waste Data & Online Data of CAAQMS/ CEMS/ EQMS	22 (1) (i)
47	Solar PV installation in MGR sub-stations & Ware House	0.00	0.00	Plant & Equipment	Solar PV installation in MGR Sub-stations & Warehouse for reduction in aux. power consumption & environmental benefits.	22 (1) (i)
48	Additional PI tag	0.30	0.00	Plant & Equipment	Additional PI Tags to be sourced in existing PI system for better monitoring and for inclusion of additional plant parameters.	22 (1) (i)
49	Robot development	0.20	0.00	Plant & Equipment	Robot for various object revival, in-situ thickness survey etc.	22 (1) (i)
50	Lube room facility development	0.20	0.00	Plant & Equipment	To avoid oil mixing of different grades, Monitoring of oil top-up/replacement qty.	22 (1) (i)
51	Procurement of three Numbers of 1MVA transformer. For Banaharpali, D type and E type Substation.	0.75	0.00	Plant & Equipment	In this area in Summer the Transformer is over loaded.	22 (1) (i)
52	Procurement & installation of high mast light in Rajiv Gandhi play ground	0.40	0.00	Plant & Equipment	There is no illumination provision in the field.	22 (1) (i)
53	Construction of additional Residential apartments	6.49	0.00	Buildings	Residential apartments construction to accommodate employees.	22 (1) (i)
54	Modification of Telenpali main gate	1.18	0.00	Buildings	Modification of Telenpali main gate for safety & security purpose.	22 (1) (d)
55	Peripheral development in Tilia ash Pond	1.00	0.00	Buildings	Boundary wall, Fencing, Gate, CC road approach, landscaping: At present there is no boundary for Pump house, hence no restriction in movement of trespassers and livestock. To stop these boundary wall with gate is required. The approach for stores/offices needs to be developed with CC to facilitate movement during monsoon. Landscaping and plantation in nearby areas.	22 (1) (i)
56	Servers & Storage for IT	0.40	0.00	IT Hardware	Procurement of 3 Nos. Servers and Storage for IT system upgradation	22 (1) (i)
57	Upgrade of EPABX & IPPBX	0.40	0.00	IT Hardware	Renovation of EPABX Room and to Upgrade of EPABX, IPPBX and Cabling.	22 (1) (i)
58	IT Workshop/LAB	0.40	0.00	IT Hardware	IT Workshop/LAB set up to be done for necessary repair & storage facility.	22 (1) (i)
59	Shed for AHP Maintenance	0.28	0.00	Buildings	Shed for AHP Maintenance for storing various tools / equipment & to support inhouse repair activities.	22 (1) (i)
60	Cylinder Storing Shed near U#4 ACW Pump house	0.20	0.00	Plant & Equipment	Cylinder Storing Shed need to be developed near ACW-4 area for safety purpose.	22 (1) (d)
61	Area Development between unit-2 & 3	0.50	0.00	Plant & Equipment	Area grading & Landscaping between Unit#2 & Unit#3	22 (1) (i)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

283

Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
62	LPBP Servo upgradation to Proportional valve	1.35	0.00	Plant & Equipment	To improve system reliability & reduce downtime	22 (1) (i)
63	Modification with REF relay	0.40	0.00	Plant & Equipment	Existing 7nos Micom 143 relay to be upgraded with suitable model for REF	22 (1) (i)
64	New outage hostel	4.00	0.00	Buildings	New outage hostel building for accommodating workers during overhauling.	22 (1) (i)
65	Weigh bridge in Tilia with associated facility	0.80	0.00	Plant & Equipment	Weighbridge facility needed in Tilia to support Ash utilization activities.	22 (1) (e)
66	Installation of wet ventilation system at Bunker PMCC	0.35	0.00	Plant & Equipment	There is no ventilation system at Bunker PMCC, due to which there is localised heating and dust ingress inside the PMCC. A positive pressure ventilation system shall ensure no dust ingress and cooling down the temperature inside the PMCC.	22 (1) (i)
67	Fire Fighting System Underground Line Modification to Overground in CHP area (Phase-I)	0.50	0.32	Plant & Equipment	To avoid frequent leakages in fire fighting lines and for ease of maintenance it is proposed to modify Fire fighting lines from underground to overground.	22 (1) (d)
68	IDCT module replacement by Breakers (Sec-3A)	0.50	0.00	Plant & Equipment	IDCT module replacement by Breakers on phase wise manner to avoid flash over issues. Same is essential for safety of manpower & equipment, and to improve system availability.	22 (1) (i)
69	Construction of New Class Rooms at DAV Public School	1.65	0.85	Plant & Equipment	Additional rooms construction is required to accommodate current students strength.	22 (1) (i)
70	Flexible operation implementation	0.30	0.00	Plant & Equipment	Expert services & Procurement of controllers for supporting flexible operation of units as a part of regulatory requirement.	22 (1) (i)
71	Special Tools for HP Turbine Capital Overhauling, LP Turbine Lifting Beam & Internal Platform for Unit#3 LPT	2.70	0.00	Plant & Equipment	Special tools required for Turbine overhauling	22 (1) (i)
72	TG EOT Crane Modification	1.25	0.00	Plant & Equipment	Modification of EOT Crane Carriage assembly and Rope drum along with Main Hoist adjustment and structural & Operator cabin modification is planned for safe operation of EOT.	22 (1) (i)
73	Modified Control Valves for HP Heater and Condensate line	0.48	0.00	Plant & Equipment	Procurement of New Modified Control Valves for HPH and Condensate line to avoid valve passing & leakages. Same will result in efficiency improvement & low maintenance cost.	22 (1) (i)
74	Installation of fencing at near LC gate & other track area	0.50	0.00	Plant & Equipment	Safety requirement	22 (1) (d)
75	Strengthening of embankment Formation at Jamkani and BOCM area of MGR	2.00	0.00	Plant & Equipment	Strengthening of embankment Formation at Jamkani and BOCM area for safe movement of Coal rakes.	22 (1) (i)
76	Store room for P way spares, rest room and Office to agency at Five station (2 rooms in each station)	1.00	0.00	Plant & Equipment	Construction of rest room & office in MGR sub stations for MGR officials/workers.	22 (1) (i)
77	Contract Labour management system	0.50	0.00	Office Equipments	Implementation of Contract labour maintenance system. To meet Statutory HR requirements.	22 (1) (i)
78	Various Tools & tackles	2.50	0.00	Plant & Equipment	Floor Crane, Conveyor reeling drum, Hydraulic Tools, Material shifting trollies, Power/ Mechanised tools, Tools for workshop, Induction heaters, Electrical testing equipment, Rigging tools & slings, Lab equipment	22 (1) (i)
79	Various Furniture & office equipment	0.72	0.00	Furniture & Fixtures	Procurement of various office furniture i.e. almirah, chair, table etc. Air conditioner, Water cooler, Equipment for Canteen, Guest house, Clubs, Sports complex & Auditorium	22 (1) (i)
80	EDP Machine (IT assets)	0.40	0.10	IT Hardware	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	22 (1) (i)
81	Procurement of 2 Electric vehicle	0.40	0.00	Vehicles	2 numbers Electric vehicle procurement need to be done for fleet management.	22 (1) (i)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of additional capitalisation proposed for FY 2025-26 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
82	Oil filtration machines	0.22	0.00	Plant & Equipment	ELC Machines for Turbine & TDBFP. LVDH Machine for HPBP HPSU. Same is required for ensuring healthiness of equipment.	22 (1) (i)
83	Remote Breaker Rake -in - Rake -out device	0.25	0.11	Plant & Equipment	Remote breaker rake-in, rake-out device need to be procured for safe operation of Electrical breakers and safety of operating manpower.	22 (1) (i)
84	Aluminium S-panel sealing plates & structure for Boiler	0.60	0.00	Plant & Equipment	Aluminium S-Panel sealing plate & structures procurement has been proposed for quick erection of platform inside Boiler to reduce downtime.	22 (1) (i)
85	Safety Training Module	0.20	0.11	Plant & Equipment	Development of Safety training modules for imparting safety training.	22 (1) (d)
86	Civil Work in GT yard & 8MVA Substation	0.30	0.00	Plant & Equipment	Various Civil related development activity in GT Transformer yard for safety & maintenance purpose.	22 (1) (d)
87	Balance Civil works of BGRE (Roads, Drains, Flooring, Toilets etc.)	7.00		Road,Bridge & Culvert	Balance project work execution	22 (1) (i)
	Total Amount in Cr.	252.80				

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

285

Details of additional capitalisation proposed for FY 2026-27 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
1	Tilia Ash pond (Phase-I) raising from RL212 to 216	18.00		Plant & Equipment	Raising of Tilia Ash Pond Phase-I dyke from RL 212 to RL 216 will be executed for capacity enhancement of existing dyke.	22 (1) (e)
2	Balance Civil works of BGRE (Roads, Drains, Flooring, Toilets etc.)	3.00		Road,Bridge & Culvert	Balance project work execution	22 (1) (i)
3	ETP Modification	2.00		Plant & Equipment	Existing ETP system is designed for SDI index of 3, however currently we are getting SDI index of 5. Therefore ETP system modification is required to meet current operating parameters.	22 (1) (i)
4	Solar PV in Raw water intake Channel	0.00		Plant & Equipment	Solar PV installation in intake channel for reduction in aux. power consumption & environmental benefits and to meet Green energy obligation.	22 (1) (i)
5	Upgradation of Slurry & Conveying lines, Erection of New Slurry lines	20.00		Plant & Equipment	For additional (5th) slurry line erection of 400nb for new slurry series and to improve redundancy & enhance capacity.	22 (1) (e)
6	Procurement of BTAP Wagon (25 numbers)	18.29		Plant & Equipment	Procurement for BTAP wagon 25 numbers for facilitate Ash utilization in OCPL coal mines.	22 (1) (e)
7	Installation of Ash handling system in OCPL Manoharpur coal mines	88.50		Plant & Equipment	Installation of Ash handling system in OCPL Manoharpur coal mines for Ash utilization	22 (1) (e)
8	Flexible operation implementation	5.00		Plant & Equipment	Expert services & Procurement of controllers for supporting flexible operation of units as a part of regulatory requirement.	22 (1) (i)
9	Civil works at CHP	0.80		Plant & Equipment	Area development in CHP for movement of manpower & machines. To facilitate maintenance activity in CHP	22 (1) (i)
10	Civil Construction works at Main Plant & BOP	1.00		Plant & Equipment	Area development in BTG & BOP for movement of manpower & machines. To facilitate maintenance activity in CHP	22 (1) (i)
11	Installation of High Efficiency Blades in 6 Numbers IDCT Cells	0.50		Plant & Equipment	Installation of High efficiency blades has been proposed in 6 numbers of IDCT cells. Same will result in less Aux. power consumption & improve IDCT efficiency.	22 (1) (i)
12	High mast lights installation (3 nos.)	0.50		Plant & Equipment	To improve illumination & ease of surveillance	22 (1) (d)
13	CCTV installation in Plant, Colony	1.50		Plant & Equipment	To improve surveillance for security reasons.	22 (1) (d)
14	Replacement of 2 SH Spray & 2 RH Spray CV along with actuator with reputed make	0.90		Plant & Equipment	Failure rate & maintenance of existing installed valves of SH & RH spray control valves are very high, it is proposed to replace the same with other reputed make to avoid Frequent passing / leakages issues. Same will also result saving in form of maintenance cost & heat rate improvement.	22 (1) (i)
15	Misc. Civil development works of MGR P-way	0.40		Plant & Equipment	Development of approach roads, Renovation of Culverts etc.	22 (1) (i)
16	Various Tools & tackles	1.50		Plant & Equipment	Procurement of various tools, lab equipment	22 (1) (i)
17	Various Furniture & office equipment	1.00		Furniture & Fixtures	Procurement of various office furniture i.e. almirah, chair, table etc. Air conditioner, Water cooler, Equipment for Canteen, Guest house, Clubs, Sports complex & Auditorium	22 (1) (i)
18	EDP Machine (IT assets)	0.50		IT Hardware	Procurement of new IT assets i.e. Laptop, Desktop, Printers & IP Phones etc. for new joinees & replacement of old computer systems.	22 (1) (i)
19	Procurement of 2 numbers EV	0.40		Vehicles	2 numbers Electric vehicle procurement need to be done for fleet management.	22 (1) (i)

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of additional capitalisation proposed for FY 2026-27 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Claimed Under Regulations
20	Conveyor Guarding at CHP-2 (Phase-III)	2.50		Plant & Equipment	Safety requirement, Not part of original scope of work during project.	22 (1) (d)
21	Additional development in SAP System	0.30		Office Equipments	For various development cases in SAP	22 (1) (i)
22	VFD procurement for EOT cranes	0.30		Plant & Equipment	Insurance spares	
23	LT motor procurement	0.20		Plant & Equipment	Insurance spares	
24	Upgradation of existing 2 numbers of TAC with reputed make (Phase-II)	3.00		Plant & Equipment	Spares lead time & maintenance cost of existing TAC compressors are on higher side. It is proposed to replace 2 numbers of TAC with other reputed make for reduction in maintenance cost, downtime & saving of Aux. power.	22 (1) (i)
25	Modification in ESP 4-10th hopper	5.00		Plant & Equipment	ESP hopper field 4th to 10th hopper modification on balance 29 lines (of both units). Same is required for effective ash evacuation without need of manual pocking and to avoid fugitive emission of Ash.	22 (1) (e)
26	Fire Fighting System Underground Line Modification to Overground in Main Plant area (Phase-III)	6.00		Plant & Equipment	To avoid frequent leakages in fire fighting lines and for ease of maintenance it is proposed to modify Fire fighting lines from underground to overground.	22 (1) (d)
27	Fire Fighting System Underground Line Modification to Overground in CHP area (Phase-II)	0.50		Plant & Equipment	To avoid frequent leakages in fire fighting lines and for ease of maintenance it is proposed to modify Fire fighting lines from underground to overground.	22 (1) (d)
	Total Amount in Cr.	181.59				

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

Details of additional capitalisation proposed for FY 2027-28 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Attachment	Claimed Under Regulations
1	Tilia Ash pond (Phase-II) raising from RL212 to 216	50.00		Plant & Equipment	Raising of Tilia Ash Pond Phase-II dyke from RL 212 to RL 216 will be executed for capacity enhancement of existing dyke.		22 (1) (e)
2	Aluminium scaffolding for Boiler	8.00		Plant & Equipment	Procurement of light weight Aluminium scaffolding for Boiler for quick erection of scaffolding & reduction in down time of Boiler		22 (1) (i)
3	Upgradation of Slurry & Conveying lines, Erection of New Slurry lines	15.00		Plant & Equipment	Upgradation of 6 numbers conveying lines 300nb & 350nb with higher thickness pipe.		22 (1) (e)
4	Installation of High Efficiency Blades in 6 Numbers IDCT Cells	0.5		Plant & Equipment	Installation of High efficiency blades has been proposed in 6 numbers of IDCT cells. Same will result in less Aux. power consumption & improve IDCT efficiency.		22 (1) (i)
5	High mast lights installation	0.5		Plant & Equipment	To improve illumination & ease of surveillance		22 (1) (d)
6	CCTV installation in Plant, Colony	1.5		Plant & Equipment	To improve surveillance for security reasons.		22 (1) (d)
7	Various Tools & tackles	1.5		Plant & Equipment	Procurement of various tools, lab equipment		22 (1) (i)
8	Various Furniture & office equipment	1		Furniture & Fixtures	Procurement of various office furniture i.e. almirah, chair, table etc. Air conditioner, Water cooler, Equipment for Canteen, Guest house, Clubs, Sports complex & Auditorium		22 (1) (i)
9	Oil filtration machines	0.4		Plant & Equipment	Oil filtration machine to be procured & installed to maintain oil quality		22 (1) (i)
10	Expansion of DAV Public School	2		Buildings	Extension of DAV Public school to meet additional student strength and renovation of existing infrastructure.		22 (1) (i)
11	Conveyor Guarding at CHP-2 (Phase-IV)	2.5		Plant & Equipment	Safety requirement		22 (1) (d)
12	Additional development in SAP System	0.3		Office Equipments	For various development cases in SAP		22 (1) (i)
13	IT Network Upgrade	0		IT Hardware	Existing system is very old and need to be upgraded.		22 (1) (i)
14	Dry type transformer procurement	0.5		Plant & Equipment	Insurance spares		
15	Modification of Vacuum Contactor to Vacuum Circuit Breaker in AHP (Phase-II)	0.2		Plant & Equipment	It is proposed to upgrade existing Vacuum Contactor to Vacuum Circuit Breaker in Ash Handling plant for avoid flash over issues. Same is essential for safety of manpower & equipment, and to improve system availability.		22 (1) (d)
16	Spare motor for MDBFP	7		Plant & Equipment	Insurance spares		
17	On Line dissolved gas analyser for Transformers (for 1 unit)	1.5		Plant & Equipment	Required for monitoring healthiness of transformers & to take-up predictive maintenance to reduce downtime.		22 (1) (i)
18	CHP Gearbox (insurance spares)	0.6		Plant & Equipment	Insurance spares		

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

288

Details of additional capitalisation proposed for FY 2027-28 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Attachment	Claimed Under Regulations
19	Upgradation of existing 2 numbers of TAC with reputed make (Phase-III)	3		Plant & Equipment	Spares lead time & maintenance cost of existing TAC compressors are on higher side. It is proposed to replace 2 numbers of TAC with other reputed make for reduction in maintenance cost, downtime & saving of Aux. power.		22 (1) (i)
20	Hospital Lab instruments procurement	0.4		Office Equipments	Procurement of instruments for Hospital		22 (1) (i)
21	Rennovation of DO Qtr. (for 75 Qtr.)	0		Buildings	Existing Qtrs. Are very old & need renovation.		22 (1) (i)
22	Service building 1st floor Rennovation work	0		Buildings	1st floor renovation to be done in Service building		22 (1) (i)
23	Solar PV installation	0		Plant & Equipment	Solar PV installation for reduction in aux. power consumption & environmental benefits and to meet Green energy obligation.		22 (1) (i)
24	Installation of beacon lights (Phase-II)	0.4		Plant & Equipment	Conveyor start/stop is a routine activity at CHP. However during conveyor starting, siren is blown at head end of the conveyor, for both A & B conveyor, making it uncertain for the workers at site about which conveyor shall run. Hence it is proposed to install flash beacons on each conveyor, at every 30m interval to provide audio-visual warning to the workers at site, before starting of conveyor belt.		22 (1) (i)
	Total Amount in Cr.	96.80					

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

289

Details of additional capitalisation proposed for FY 2028-29 for OPGC-II

S. No.	Name of the Scheme/Work	Estimated cost (Rs. Crore)	Value of works awarded, if any (Rs. Crore)	Asset Class	Cost benefit analysis of the proposed expenditure	Attachment	Claimed Under Regulations
1	Land cost for New Ash Pond (300 Acre, Kumharbandh)	0.00		Land	Land acquisition for construction of New Ash Pond		22 (1) (e)
2	Installation of High Efficiency Blades in 6 Numbers IDCT Cells	0.50		Plant & Equipment	Installation of High efficiency blades has been proposed in 6 numbers of IDCT cells. Same will result in less Aux. power consumption & improve IDCT efficiency.		22 (1) (i)
3	Replacement of 1 SH Spray & 1 RH Spray CV along with actuator with reputed make	0.5		Plant & Equipment	Failure rate & maintenance of existing installed valves of SH & RH spray control valves are very high, it is proposed to replace the same with other reputed make to avoid Frequent passing / leakages issues. Same will also result saving in form of maintenance cost & heat rate improvement.		22 (1) (i)
4	Various Tools & tackles	1.5		Plant & Equipment	Procurement of various tools, lab equipment		22 (1) (i)
5	Various Furniture & office equipment	1		Furniture & Fixtures	Procurement of various office furniture i.e. almirah, chair, table etc. Air conditioner, Water cooler, Equipment for Canteen, Guest house, Clubs, Sports complex & Auditorium		22 (1) (i)
6	Procurement of 2 numbers EV	0.4		Vehicles	2 numbers Electric vehicle procurement need to be done for fleet management.		22 (1) (i)
7	Additional development in SAP System	0.3		Office Equipments	For various development cases in SAP		22 (1) (i)
8	Upgradation of existing 3 numbers of TAC with reputed make (Phase-IV)	5		Plant & Equipment	Spares lead time & maintenance cost of existing TAC compressors are on higher side. It is proposed to replace 2 numbers of TAC with other reputed make for reduction in maintenance cost, downtime & saving of Aux. power.		22 (1) (i)
9	Solar PV installation	0		Plant & Equipment	Solar PV installation for reduction in aux. power consumption & environmental benefits to meet Green energy obligation.		22 (1) (i)
10	Rennovation of D0 Qtr. (for 75 Qtr.)	0		Buildings	Existing Qtrs. Are very old & need renovation.		22 (1) (i)
11	IDCT module replacement by Breakers (1 Sec of 1 unit)	0.5		Plant & Equipment	IDCT module replacement by Breakers on phase wise manner to avoid flash over issues. Same is essential for safety of manpower, equipment and to improve system availability.		22 (1) (d)
	Total Amount in Cr.	9.70					

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

290

Annexure - 12

Sl No	Avenue	Expected Execution Quantity FY2024-25 (MT)	Cost Implication (Rs)	Expected Execution Quantity FY2025-26 (MT)	Cost Implication (Rs)	Expected Execution Quantity FY2026-27 (MT)	Cost Implication (Rs)	Expected Execution Quantity FY2027-28	Cost Implication (Rs)	Expected Execution Quantity FY2028-29	Cost Implication (Rs)
1	Cement Company by Rake	50,000	1,99,42,000	2,00,000	7,97,68,000	2,00,000.0	7,97,68,000	2,00,000	7,97,68,000	2,00,000	7,97,68,000
		2,00,000	6,46,64,000	4,00,000	12,93,28,000	4,00,000.0	12,93,28,000	4,00,000	12,93,28,000	4,00,000	12,93,28,000
2	Cement company by road	2,00,000	14,77,12,400	350000	25,84,96,700	3,50,000.0	25,84,96,700	3,50,000	25,84,96,700	3,50,000	25,84,96,700
3	NH and SH Road Project	5,50,000	40,62,09,100	2,00,000	14,77,12,400	-	0	0	0	0	0
		25,000	1,84,64,050	75,000	5,53,92,150	-	0		0	0	0
		25,000	1,19,51,335	75,000	3,58,54,005	-	0	0	0	0	0
4	Low Lying area and Quarries	7,50,000	57,60,46,500	10,00,000	76,80,62,000	15,00,000	1,15,20,93,000	15,00,000	1,15,20,93,000	15,00,000	1,15,20,93,000
5	Bricks and Asbestos	20,000	35,40,000	40,000	1,91,22,136	40,000	1,91,22,136	40,000	1,91,22,136	40,000	1,91,22,136
6	Dyk Height Raising	6,00,000	-	3,00,000	0	6,00,000	0	0	0	0	0
7	**Total**	**24,20,000**	**1,24,85,29,385**	**26,40,000**	**1,49,37,35,391**	**30,90,000**	**1,63,88,07,836**	**24,90,000**	**1,63,88,07,836**	**24,90,000**	**1,63,88,07,836**

Notes:

1. We have taken in to consideration Dungri Lime Stone Quarry & Gomardih Dolomite Mines filling from 2026-27 onwards.
2. For 2024-25 a transportation cost of Rs.150.00/MT has been considered for Bricks & Asbestos
3. From 2025-26 onwards cost of Rs.405.13/MT has been considered for Bricks & Asbestos (All bricks & asbestos within 50 Km radius from ITPS)
4. We are having agreement with M/s. Dalmia Cements for offtaking of Ash for 10 years with Dedicated rakes at the rate of Rs. 274 /MT excluding GST for Rajgangpur location; for any other location Rs. 338 /MT excluding GST
5. We are having agreement with M/s. Ambuja Cements for offtaking of Ash for 10 years with Dedicated rakes at the rate of Rs. 338 /MT for all locations across India, excluding GST.
6. Prevailing rate for Ash Transportation by road within 100 KM is currently Rs. 625.9 /MT excluding GST
7. Above mentioned rates are arrived through Open tendering.
8. For Ash transportation by road, Open tender is being floated for finalizing the rate for different distance slab up to 150 KM. The contracts are being awarded for filling low land, abandoned queries, NHAI constructions.
9. We are also exploring mines void for back filling.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

292

Annexure - 13

278

GOVERNMENT OF ODISHA
FOREST & ENVIRONMENT DEPARTMENT

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NOTIFICATION

Bhubaneswar, Dated the 12 April,2021

Fuel Policy of the State of Odisha

No. FE-ENV3-ENV-0014-2017/ 7485 /F&E., Hon'ble Supreme Court of India in the matter of "M.C Mehta Vrs. UOI" in W.P. (Civil) 13029 of 1985 directed on 24.10.2017 to ban the use of petcoke and furnace oil in industries in the NCR state of Haryana, Uttar Pradesh and Rajasthan. Subsequently, Hon'ble Supreme Court directed in the same writ petition on 17.11.2017 observing that the pollution caused by Petcoke and furnace oil is not a problem confined only to the NCR, but appears to be a problem faced by almost all the State and Union Territories in the Country and Hon'ble Apex Court directed all the State Governments and Union Territories to consider taking similar measures as have been taken by the Govt. of India and CPCB.

Hon'ble Supreme Court of India in WP(C) No. 13029/1985 in order dtd. 26.07.2018 allowed on use of petcoke as feed stock in industries such as Cement, Lime Kiln, Calcium Carbide unit, Gasification unit and also in WP(C) No. 13029/1985 in order dtd. 09.10.2018 allowed use of raw pet coke for manufacturing of Calcined Pet Coke (CPC) having sulphur content <3.5% for making anode in the Aluminium industry and recommended to treat the emission of SO_2 of Calcined Pet Coke (CPC) unit in FGD system having sulphur removal efficiency more than 90%.

In pursuant to the above orders of Hon'ble Supreme Court of India, the Ministry of Commerce and Industry, Govt. of India, New Delhi vide Notification No. 42/ 2015-2020, dtd. 23.10.2018 amended the import policy condition of pet coke by prohibiting import of pet coke for fuel purpose and allowed import of petcoke for use in industries such as Cement, Lime Kiln, Calcium Carbide, Gasification, Graphite Electrode, Aluminium industry & Calcined Pet Coke units.

Central Pollution Control Board, New Delhi in their letter dtd. 26.06.2020 have recommended the SPCBs to include LSHS (Low Sulphur heavy stock) oil as industrial fuel in place of furnace oil while formulating fuel policy to reduce emission of SO_2. CPCB has also suggested in their direction dtd. 23.08.2019 that the oil refineries can produce low sulphur oil like slurry oil, LSHS and LDO, if demand on FO is reduced.

Hon'ble National Green Tribunal (NGT) in the matter of "Sumit Kumar Vrs. State of Himachal Pradesh and Others" in O.A. No. 67/2019 read with O.A. No. 138/2019 observed that *"Considering the various directions and orders of Hon'ble Supreme Court regarding use of petcoke and furnace oil contoining higher Sulphur, it is required that States and UTs including Himachal Pradesh, formulate fuel policies regarding use of pet coke and FO in light of Hon'ble Supreme Court order dtd. 24.10.2017 (banning use of pet coke and FO in NCR States) and 17.11.2017 (suggesting*

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

293

States / UTs to take similar measures) and further Hon'ble Supreme Court order dtd. 13.12.2017, 05.02.2018 and 26.07.2018 allowing use of pet coke in industries / processes which use pet coke and furnace oil either as feed stock (Calcined pet coke (CPC) units, Aluminium industries) or where they get absorbed along with product in manufacturing process (cement, lime kiln, calcium carbide industries). It is relevant to mention that use of Raw Petroleum Coke (RPC) in CPC units has been allowed with condition of 90% recovery of SO_2 emission. The same principle may be followed in industrial processes where use of FO as feed stock is considered by States/ UTs" and also issued direction to CPCB to ensure compliance from the States/ UTs.

The Government of Odisha vide Notification No. 22737, dtd. 07.11.2017 in F & E Dept, has allowed the use of Petcoke as an "Approved fuel" as per the provision of Air (Prevention & Control of Pollution) Act, 1981, subject to condition that the industry / processes interested to use pet coke as fuel shall obtain prior consent of SPCB, Odisha and install required air pollution control system to achieve the emission standards as prescribed from time to time and comply with the conditions stipulated by the competent authorities. Memo of this notification was forwarded to MoEF & CC and CPCB, New Delhi.

Keeping in view of the directions of Hon'ble Supreme Court of India and order of Hon'ble National Green Tribunal emphasizing on switching over to alternative and cleaner fuels, the following policy is framed for regulation and control use of Petcoke, Furnace Oil and use of other fuels in the State of Odisha.

The following fuel will be allowed for use in the State of Odisha.

a. Liquefied Petroleum Gas (LPG)
b. Liquefied Natural Gas (LNG)
c. Piped Natural Gas (PNG)
d. High Speed Diesel (HSD)
e. Bio Gas
f. Bio–Fuel (Bio-Ethanol etc.)
g. Refuse Derived Fuel (RDF): To be used in Cement Kiln and Waste to Energy Plant or any other unit allowed by the Central Government/ State Government.
h. Biomass as fuel (like Bagasse, Briquettes/ Pellets etc.)/ Agriculture refuse/ dung cake).
i. Low Sulphur Heavy Stock (LSHS)
j. Light Diesel Oil (LDO)
k. Coal/Lignite
l. Firewood/wood charcoal
m. Naptha / Propane / Gasoline / Hydrogen / Methane

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

294

n) **Pet Coke:**

- Use of Petcoke is allowed as feedstock in industries/ processes where SO_2 gets absorbed such as Cement, Lime/ Dolo Kiln, Calcined Pet Coke (CPC), Aluminium Smelter, Gasification, Calcium Carbide & Graphite Electrode subject to obtaining specific consent to establish/ operate from State Pollution Control Board, Odisha under the provision of Air (Prevention and Control of Pollution) Act, 1981.
- The above-mentioned industries will be required to install all the requisite air pollution control systems so as to achieve the emission standards for Particulate Matter (PM) & SO_2 concentration and provide minimum stack height as prescribed in Environment (Protection) Act, 1986 and the Rules framed there under as amended from time to time.
- All the above-mentioned units using pet coke shall install online continuous emission monitoring system for parameters of PM & SO_2 with connectivity to the server of the SPCB for transmission of real-time online data within a period of 6 months.
- Raw pet coke having Sulphur content less than 3.5% shall be allowed for use in CPC units with condition of more than 90% recovery of SO_2 emission through flue gas desulphurisation system.
- Use of Calcined pet coke is allowed as feed stock or in manufacturing process in the industries as mentioned above and shall not be supplied to any other industry.
- Any other unit other than the above intend to use petcoke as feedstock or in manufacturing processes, where sulphur will be absorbed in the process will have to obtain prior permission from State Pollution Control Board on case-to-case basis.
- No other industry / processes shall be allowed to use petcoke as fuel.
- Considering the requirement of grinding, sizing, and briquetting of pet coke before using in the approved industries as mentioned in this policy, the existing pet coke grinding, sizing and briquetting units are allowed to use raw pet coke and they shall not supply the processed raw pet coke to the industries not covered in this policy and maintain a record for verification of SPCB. Establishment of standalone new pet coke grinding, sizing & briquetting units shall not be allowed.

o) **Furnace Oil**

- Industries using furnace oil shall install scrubbing system for more than 90% recovery of SO_2 emission and provide stack height as per the following formula within **6 months**.
- $H = 14(Q)^{0.3}$ (Where, H is the physical stack height & Q is emission rate of SO_2 in Kg/hr).
- All the industries using furnace oil shall shift to use of cleaner fuel with low Sulphur content such as Low Sulphur Heavy Stock (LSHS)/ Light Diesel Oil (LDO) / Gas, replacing furnace oil within a period of **Two years**.

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

The new industries coming up in the State which is either under construction or in upcoming stage shall abide by the conditions of State fuel policy.

The State fuel policy shall be subject to the compliance of orders and direction of Hon'ble Supreme Court of India/ High Court/ NGT and guidelines issued by Central Govt./CPCB/ State Govt. and can be amended with the approval of State Government.

By the order of Governor

Addl. Chief Secretary to Govt.

Memo No. 7486 /dtd. 12.04.21

Copy forwarded to the Director, Printing Stationery & Publication, Odisha, Madhupatna, Cuttack for information and necessary action. He is requested to publish the Notification bearing S.R.O No. and date in the Extra Ordinary issue of the Odisha Gazette and provide 100 copies of the same to this Department.

12/04/21

Director, Env-cum-Special Secretary to Govt

Memo No. 7487 /dtd. 12.04.21

Copy to Secretary, MoEF & CC, Indira Paryavaran Bhawan, 3rd Floor, Vayu Wing, JorBagh Road, New Delhi-11003 for information.

12/4/21

Director, Env-cum-Special Secretary to Govt.

Memo No. 7488 /dtd. 12.04.21

Copy to the Principal Secretary, Department of Industries, Kharvela Bhawan, Govt. of Odisha for information.

12/4/21

Director, Env-cum-Special Secretary to Govt.

Memo No. 7489 /dtd. 12.04.21

Copy to Member Secretary, Central Pollution Control Board, Paribesh Bhawan, East Arjun Nagar, New Delhi -110032 for information.

12/4/21

Director, Env-cum-Special Secretary to Govt.

Memo No. 7490 /dtd. 12.04.21

Copy to Member Secretary, SPC Board, Odisha, Bhubaneswar A/118, Nila Kantha Nagar, Unit-8, Bhubaneswar -751012 for information.

12/4/21

Director, Env-cum-Special Secretary to Govt

ODISHA POWER GENERATION CORPORATION LTD. BHUBANESWAR

286