STATE BANK OF INDIA
PROJECT FINANCE SBU

2x600 MW Coal Based Thermal Power Plant

DB Power Limited

Badadhara, Janjgir Champa, Chhattisgarh

Report On Project Cost Vetting

Lenders' Engineer

L&T – Sargent & Lundy Ltd.

CIN No. U74210MH1995PLC088099

Project No. LTSL –HC200630000

March 19, 2020 ||

REVISION SHEET:

Rev.	Prepared By	Reviewed By	Approved By	Approved Date	Remark
R1	VDR/PG	RKR	RKR	19.03.2020	Final Report
R0	VDR/PG	RKR	RKR	9.03.2020	Draft Report

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Contents

ACRONYMS

AAI	Airport Authority of India
ABT	Availability Based Tariff
ADD	Advance against Depreciation
APH	Air Pre Heater
BMCR	Boiler Maximum Continuous Rating
BMS	Burner Management System
BOP	Balance of Plant
BPOS	Boiler Performance Optimization System
BTG	Boiler Turbine and Generator
CCPC	Cross Country Pipe Conveyor
CCR	Common Control Room
CEA	Central Electricity Authority
CECB	Chhattisgarh Environment Conservation Board
CEP	Condensate Extraction Pump
CERC	Central Electricity Regulatory Commission
CIL	Coal India Limited
COD	Commercial Operation Date
CPCB	Central Pollution Control Board
CSEB	Chhattisgarh State Electricity Board
CTCW	Cooling Tower Circulating Water
CTU	Central Transmission Utility
DOWR	Department of Water Resources
DPR	Detailed Project Report
DBPL	Dainik Bhaskar Power Ltd
ECHP	External Coal Handling Plant
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement & Construction
EPS	Electric Power Survey
ER	Eastern Region
ESP	Electro-static Precipitator
FY	Financial Year
FGD	Flue Gas De-sulphurisation

FSA	Fuel Supply Agreement
GoC	Government of Chhattisgarh
GoI	Government of India
HFO	Heavy Fuel Oil
HMI	Human Machine Interface
IDC	Interest During Construction
IPP	Independent Power Producer
LDO	Light Diesel Oil
LE	Lender's Engineer
LILO	Line In Line Out
LLC	Lender's Legal Counsel
LOA	Letter of Award
MCR	Maximum Continuous Rating
MCL	Mahanadi Coalfields Limited
MoEF	Ministry of Environment & Forest
MSL	Mean Sea Level
MTPA	Million Tons Per Annum
NDCT	Natural Draft Cooling Tower
NEERI	National Environmental Engineering Research Institute
NFPA	National Fire Protection Association
NIO	National Institute of Oceanography
NOC	No Objection Certificate
NO_X	Oxides of Nitrogen
NR	Northern Region
NTP	Notice To Proceed
OHE	Over Head Electrification
OFA	Over Fire Air
PPA	Power Purchase Agreement
PTC	Power Trading Corporation
RCC	Reinforced Cement Concrete
ROW	Right of Way
SBI	State Bank of India
SCAPH	Steam Coil Air Pre Heater

SEA	State Energy Account
SECL	South Eastern Coalfields Limited
SERC	State Electricity Regulatory Commission
SECR	South East Central Railway
SLDC	State Load Dispatch Center
SO_x	Oxides of Sulphur
SPC	State power Committee
SPM	Suspended Particulate Matter
SR	Southern Region
STU	State transmission Utility
SWAS	Steam & Water Analysis System
TAC	Tariff Advisory Committee
TMCR	Turbine Maximum Continuous Rating
TOR	Terms of Reference
TPP	Thermal Power Plant
VWO	Valves Wide Open
WRD	Water Resources Department

EXECUTIVE SUMMARY

Project Cost Review:

All Costs in Rs. Crore

Lender's Cost Head	Final Appraised Cost	Incurred Cost Till 30th June'19 *	Balance Cost yet to be Incurred	Final Estimation	CAMPA Refund	Mega Power Project Benefit	Deviation between Appraised and Final Estimated Cost (Savings)
A	B	C	D	E=C+D	F	G	H=(B-E)
Land	239	201.75		201.75			37.25
Coal Block Mining	74.23	72.70		72.7	49.62		1.53
BTG	3172	3166.98	5.02	3172		51.65	-
BOP Cost	1721.1	1710.65	5.9	1716.55		3.8	4.55
Water Arrangement	178.1	178.1		178.1			
Railway Coal Transport	474	363.71	12.06	375.77		3.31	98.23
Transmission Line	107	107		107			-
Ash Dyke	99	78.63	7.32	85.95			13.05
CHP- Other than BOP scope	76	75.73	0.02	75.75		0.34	0.25
Misc. Site Enabling	98.24	98.24		98.24			-
Labour Cess	10	9.7		9.7			0.3
Total Hard Cost	**6248.67**	6063.19	**30.32**	**6093.51**	**49.62**	**59.1**	**155.16**
Preliminary & Pre-ops.	408.03	408.03		408.03			-
Environment protection cost-CSR	17.54	17.54		17.54			-
Start-up Cost	86.4	86.4		86.4			-
IDC	1795.89	1795.89		1795.89			-
Contingencies	15			-			15
WC Margin Money	270.13	270		270			0.13
Total Soft Cost	**2592.99**	2577.86		**2577.86**			**15.13**
Total Cost	8841.66	8641.04	30.32	8671.36	49.62	59.1	170.29

*Based on CA certificate dtd. 30th June 2019

DBPL has incurred, Rs. 8641.04 Cr. on various project development activities as on June 30, 2019. Company has identified Rs. 30.32 Cr as balance Capex yet to be incurred. Estimated project completion cost would be Rs. 8671.36 Cr. against the final appraised cost of Rs. 8841.66 Cr. Further,

- DBPL has stated savings of Rs. 170.29 cr. Under the various cost head. (Excluding CAMPA and MEGA). Major savings are on account of non-construction of ROR and Ash Dyke-2.
- DBPL has received total CAMPA refund and Mega Power Project benefits of Rs. 108.72 Cr.
- Under the contract closure with BHEL (the settlement agreement) for BTG Supply and Services contract, DBPL is supposed to receive agreed amount of Rs. 75 Cr. towards liquidated damages (LD).

Note: Company has identified Rs. 30.32 Cr as balance cost yet to be incurred for the various works under cost head BTG, BOP, Railway Coal Transport Arrangement, Ash Dyke and CHP-other than BOP scope. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred.*

1.0 INTRODUCTION

DB Power Ltd (hereinafter DBPL or a company), a private sector coal based Independent Power Producer (IPP), a member of the Dainik Bhaskar group, under the Memorandum of Understanding (MOU) with the Government of Chhattisgarh (GoC) has set up 1200 MW (2x600 MW) thermal Power Project (hereinafter the project) near village Badadhara, in Janjgir-Champa District of Chhattisgarh state, India. The units are based on sub-critical technology with boilers designed for pulverized coal firing.

Both of the units have achieved COD as per followings:

- Unit-1: 1st August, 2015
- Unit-2: 26th April, 2016

SBI, the lead lender, has engaged L&T - Sargent & Lundy Limited (L&T-S&L) as the Lender's Independent Engineer (LIE/LE) for project cost vetting vide their letter dated 28th August, 2019.

1.1 Background

The Project has been funded in two phases, Phase-I (1x600 MW) and Phase-II (1x600 MW) in Debt-Equity ratio of 75:25 respectively. The debt component of the Phase-I is funded by a consortium of 9 banks/financial institutions with SBI as the Lead lender, while the debt component of Phase-II is funded by a consortium led by IDBI. Both Phase-I and Phase-II were executed in tandem.

Initially, both the lead lenders had appointed Mott MacDonald Private Limited (hereinafter MM or previous LIE) as Lender's Independent Engineer (LIE). The scope of MM under the role of LIE comprised to provide Technical Due Diligence, Construction Monitoring, Performance Guarantee Testing Review, punch list review and Annual Operational Review. MM had submitted Technical Due Diligence (TDD) Reports, Construction Monitoring Reports (CMR), and Techno-Economic Viability (TEV) to both the lead lenders during project execution. MM acted as LIE till the submission of 18th CMR in February, 2018.

Subsequently, both the phases were merged as a single project with SBI as lead lender.

SBI, the current lead lender, has engaged L&T-Sargent & Lundy Limited (L&T-S&L) as the Lender's Independent Engineer (LIE/LE) for O&M review of the FY-2017-18 & 2018-19, vide letter dated July 12th, 2018. L&T-S&L have submitted the final reports on O&M review of FY-2017-18 & 2018-19 to SBI.

Further, SBI, vide letter dated 28th August, 2019, appointed L&T-S&L as LIE to assess the "Total Project cost" i.e. to perform 'Cost Vetting' of the project.

1.2 Objective

The objective of the assignment is to "Assess the Total Project Cost i.e. to perform 'Cost Vetting' of the project which will cover 'the project cost incurred' till now and the 'Remaining Project Cost company yet to incur' with breakup of all the cost components" through Verification of Financial & Physical progress.

1.3 Approach and Methodology

This report is been prepared based upon information, details, documents and workings shared by DBPL in various forms from time to time. LE has made no search of any public records nor independently validated the information provided by Project Company with any external source.

<u>Assessment of Financial Progress:</u>

Financial Progress is assessed based on the actual expenditure incurred so far with respect to the approved appraised project cost.

Actual Expenditure incurred:
The actual expenditure incurred on the project is checked based on CA certificates and information as shared by DBPL. Actual Expenditure is considered till 30th June 2019.

Approved Appraised Project Cost:
Final Approved appraised cost is taken as provided by DBPL and SBI.

Assessment of Physical Progress:

The verification of the Physical Progress is done through the assessment of completeness of the broad scope mentioned in the non-EPC & EPC / BTG / BOP Contract by site visit, review of contract closer report / punch list / various commissioning protocols and discussions with DBPL officials.

Status of Major systems / components and equipment of BTG / BOP of the Project against the scope of major EPC / non-EPC / BTG / BOP Contracts has been discussed in the report.

LIE has reviewed the major contracts of value more than Rs.30 Crore, as the total no. of contracts for project execution are very high. Individual contracts having value less than Rs. 30 Crore are considered as miscellaneous contracts and the cumulative value under each “Cost Head” is taken as provided by DBPL.

Chronology of Appraised Cost Revision and reasons mentioned therein for cost change are taken from below mentioned reports of previous LIE.

DBPL has submitted the following approved reports of the previous LIE Mott MacDonald (MM) as an important input along the different contracts.

1. Technical Due Diligence Report (TDD) Report, Rev.01, July 2011
2. Supplementary Due Diligence Report, Rev.01, March 2011
3. Addendum to Supplementary Due Diligence Report, Dated15th April, 2014
4. Additional Due Diligence Report, Rev.0, February 2015
5. Quarterly Construction Monitoring(CMR) Report#17, Rev.00, June 2016
6. Eighteenth Construction Monitoring Report, Rev.00, February 2018

Present LIE (L&T-S&L) has assumed that these reports are accepted by the lenders time to time and appraised cost in the reports is considered as approved. L&T-S&L have considered the information mentioned in these reports as a base / reference to assess the Total Project Cost.

Site Visit:

L&T-S&L consultant Mr. Vinayak Rawtale, visited DBPL Plant site from 6th November, 2019 to 9th November 2019 and met Mr. K.K. Panda (COO), Mr. Naresh Panjabi (VP), Mr. Hari Om Gupta (Sr. GM- Civil), Mr. A P Trivedi (Sr. GM-Operation) at plant. LIE

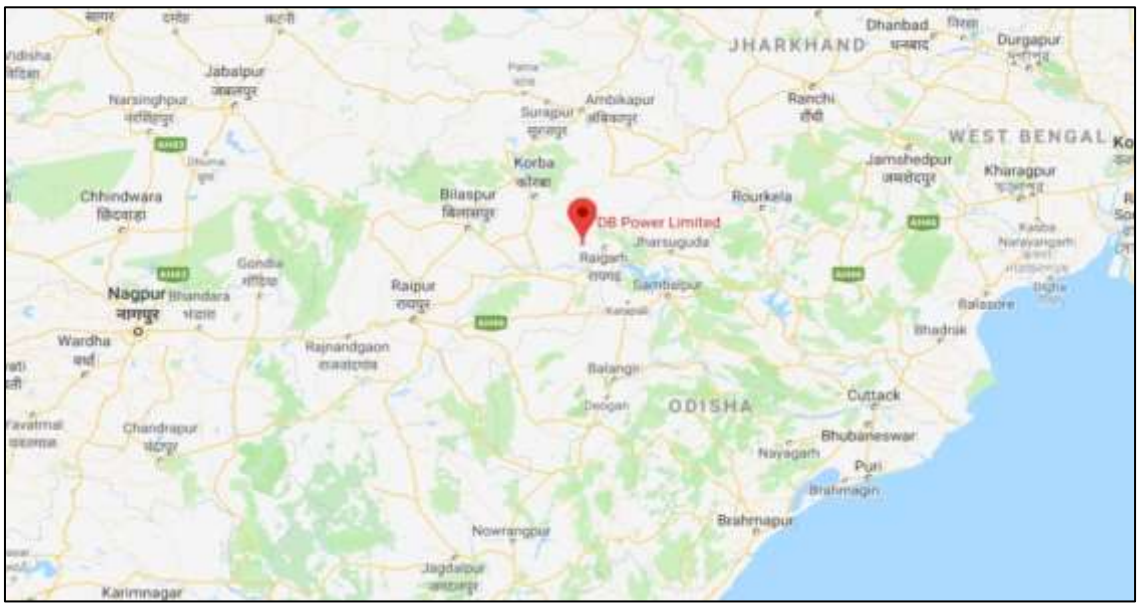
along with the DBPL officials, took round of all the project facilities within and outside the plant boundary to physically verify the installation, condition and status of the various systems, sub-systems, major equipment and associated accessories envisaged for the project.

LE observed that the both the units along required auxiliaries were operational with the following load condition:

- Unit-1 load : 350 MW
- Unit-2 Load: 360 MW

1.4 Plant Location

The Project is located at latitude $20^0$54'44'' N and longitude $83^0$11'43" E, at village Baradarha of Janjgir-Champa District in the State of Chhattisgarh. The plot is spread over villages Baradarha, Rampur and Tundri. The project site is well connected by air, rail and road. Raipur is the nearest airport. The Project site is 20 km from Kharsia town and 25 km away from Raigarh. The Project is located at a distance of approx. 7 km from Mumbai-Howrah main line of S.E. Railways which runs east-west to the north of the plot. The nearest Railway Station is Robertson Railway Station in Kharsia about 15 km from the Project site. At the distance of 15 km, the nearest highway pass NH-200 (Raipur-Orissa) is located. The river Mahanadi flows from west to east at about 24 km south.



Birds Eye View Of Project Site

(Source: Google Maps Image)

1.5 Project Execution Methodology

Project is implemented majorly through two EPC contracts; one for BTG package and other for BOP package.

Boiler, Turbine and Generator (BTG) package along with their auxiliaries is supplied by BHEL on EPC basis. BHEL has proven track records of supplying such size of units in India. The design features are standard for the power plant of this size.

L&T has supplied the balance of plant (BOP) on EPC basis. The package comprising of coal handling system, switch yard, ash handling system, fuel oil system, compressed air system, air conditioning system, illumination systems, water systems, NDCT, chimney etc. and associated civil works of BOP and BTG.

The other major works outside the scope of BTG and BOP contracts are related to river water intake system, transmission line, ash dyke & ash water recovery, railway siding, rail rake unloading system, manual unloading hopper, Coal Stock yard extension, Mill rejects, captive road along railway siding, etc. are executed through separate individual contracts.

The plant systems has been supplied, erected and commissioned through the Package route, are mentioned in below table:

Sr. No.	Package	Major Contractor	Contract Status
1	BTG (Including ESP)	BHEL (BTG Contract)	Executed and closed. Settlement agreement attached as annexure-3
2	BOP (Including Civil Work of BOP & BTG)	L&T (BOP and Civil Contract)	Executed and closed. Project closure confirmation email is attached as annexure-4
2.1	In plant Water Transportation		
2.2	In Plant Water Treatment Systems		
2.3	Waste Water Treatment System (Effluent Plant)		
2.4	CW System		
2.5	Chlorination System Of CW & Other Water System		
2.6	Coal Handling System		
2.7	Ash Handling System		
2.8	Fuel Oil Loading & Unloading System		
2.9	Fire Protection, Detection And Alarm System		
2.10	Miscellaneous EOT Cranes		
2.11	Elevators		
2.12	Hydrogen Generation Plant		
1.13	Condensate Polishing Unit		
2.14	Electrical Systems-Switchyard		
2.15	Cooling Tower-NDCT		
2.16	Chimney		
2.17	Civil (Of BTG & BOP)		
3	River Water Intake System & In plant Raw Water Storage	M/s. Welspun Corp Ltd for Piping supply and other	M/s. Welspun Contractor has demanded Rs. of

Sr. No.	Package	Major Contractor	Contract Status
		Miscellaneous Contracts	1.87 lacs pending since 2012. However there is no claim post 2016. DBPL has write –off in books of account. Closure certificate not available.
4	Transmission	M/s. KEC International Ltd other Miscellaneous Contracts	Contract Closure Certificate Enclosed as annexure-5
5	Coal Transportation Logistics		
5.1	Railway Siding	M/s. Modi Projects and other Miscellaneous Contracts	M/s. Modi Projects contract closure pending
5.2	Rail rake unloading Wagon Tippler	L&T- MMH	Contract Closure Certificate Enclosed as annexure-6
6	Ash Dyke & Water Recovery System	Miscellaneous Contracts	Individual contract value is less than Rs. 30 Cr.
7	Coal Handling System- (Other than under BOP Scope)		
7.1	Manual Unloading Hopper (MUH)		
7.2	Coal Stockyard Extension		
7.3	Mill Reject Handling (MRH) System		
7.4	Road Along Railway Siding		

2.0 PROJECT COST: FINAL APPRAISED Vs. FINAL ESTIMATE

2.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference	Lenders Appraised Cost June'11			Reallocated Cost by DBPL Sept'11			Cost Post Contingency Allocation 11th June 2013			Revised Appraised Cost as in MM Supplementary DD Report March'14			Revised Appraised Cost as in MM Additional DD Report'15			As per FM revised cost as in MM TEV Report Sept'16			Final Appraised Cost
Lender's Cost Head	Phase -1	Phase -2	**Total**	Phase-1	Phase -2	**Total**	Phase -1	Phase -2	**Total**	Phase-1	Phase-2	**Total**	Phase-1	Phase-2	**Total**	Phase-1	Phase-2	**Total**	**Total**
Land & Site Development	82	46	**128**	82	46	**128**	83	46	**129**	149	90	**239**	149	90	**239**	149	90	**239**	**239**
Coal Block	0	90	**90**	0	90	**90**	0	90	**90**	0	221	**221**	0	215	**215**	0	74	**74.23**	**74.23**
BTG Cost	1537	1530	**3067**	1602	1468	**3070**	1629	1500	**3129**	1639	1509	**3148**	1651	1521	**3172**	1651	1521	**3172**	**3172**
BOP Cost	818	691	**1509**	841	771	**1612**	880	818	**1698**	892	829	**1721**	892	829	**1721**	892	829	**1721.1**	**1721.1**
Water Arrangement	229	166	**395**	70	64	**134**	70	64	**134**	97	89	**186**	97	89	**186**	93	85	**178.1**	**178.1**
Township	20	38	**58**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	**0**
Railway Coal Transport	102	51	**153**	86	79	**165**	86	79	**165**	251	162	**413**	259	165	**424**	246	241	**486.94**	**474**
Transmission Line	30	0	**30**	42	38	**80**	42	38	**80**	56	51	**107**	56	51	**107**	56	51	**107**	**107**
Misc. Site Enabling	0	0	**0**	51	47	**98**	51	47	**98**	51	47	**98**	51	47	**98**	51	47.24	**98.24**	**98**
Ash Dyke	0	0	**0**	44	40	**84**	44	40	**84**	54	49	**103**	57	52	**109**	55	52	**107**	**99**
CHP- Other than BOP scope	0	0	**0**	0	0	**0**	0	0	**0**	51	25	**76**	51	25	**76**	51	25	**76**	**76**
Labour Cess	0	0	**0**	0	0	**0**	0	0	**0**	32	32	**64**	32	32	**64**	5	5	**10**	**10**
Total Hard Cost	**2818**	**2612**	**5430**	**2818**	**2643**	**5461**	**2885**	**2722**	**5607**	**3272**	**3104**	**6376**	**3295**	**3116**	**6411**	**3249.1**	**3021**	**6269.61**	**6248.67**

Date/ Reference	Lenders Appraised Cost June'11			Reallocated Cost by DBPL Sept'11			Cost Post Contingency Allocation 11th June 2013			Revised Appraised Cost as in MM Supplementary DD Report March'14			Revised Appraised Cost as in MM Additional DD Report'15			As per FM revised cost as in MM TEV Report Sept'16			Final Appraised Cost
Preliminary & Pre-ops.	123	50	**173**	123	50	**173**	138	69	**207**	129	159	**288**	247	159	**406**	219	189	**408.03**	**408.03**
Environment protection cost-CSR	0	31	**31**	0	0	**0**	0	0	**0**	13	13	**26**	13	13	**26**	8	10	**17.54**	**17.54**
Start-up Cost	0	0	**0**	0	0	**0**	0	0	**0**	68	68	**136**	92	68	**160**	68	18	**86.4**	**86.4**
IDC	364	356	**720**	364	356	**720**	364	356	**720**	488	717	**1205**	1,134	731	**1865**	887	909	**1795.89**	**1795.89**
Contingencies	82	100	**182**	82	100	**182**	0	0	**0**	0	0	**0**	0	13	**13**	15	0	**15**	**15**
WC Margin Money	52	51	**103**	52	51	**103**	52	51	**103**	97	92	**189**	154	99	**253**	154	116	**270.13**	**270.13**
Total Soft Cost	**621**	**588**	**1209**	**621**	**557**	**1178**	**554**	**476**	**1030**	**795**	**1049**	**1844**	**1640**	**1083**	**2723**	**1351**	**1242**	**2593**	**2593**
Total Cost	**3440**	**3200**	**6640**	**3440**	**3200**	**6640**	**3440**	**3198**	**6638**	**4067**	**4153**	**8220**	**4935**	**4199**	**9134**	**4600**	**4263**	**8862.6**	**8841.66**

2.2 Project Cost Review

All Costs in Rs. Crore

Lender's Cost Head	Final Appraised Cost	Incurred Cost Till 30th June'19 *	Balance Cost yet to be Incurred	Final Estimation	CAMPA Refund	Mega Power Project Benefit	Deviation between Appraised and Estimated Cost (Savings)
A	**B**	**C**	**D**	**E=C+D**	**F**	**G**	**H=(B-E)**
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IDC	1795.89	1795.89		1795.89			-
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WC Margin Money	270.13	270		270			0.13
Total Soft Cost	**2592.99**	2577.86		**2577.86**			**15.13**
Total Cost	8841.66	8641.04	30.32	8671.36	49.62	59.1	170.29

*Based on CA certificate dtd. 30th June 2019

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- DBPL has stated savings of Rs. 170.29 cr. Under the various cost head. (Excluding CAMPA and MEGA). Major savings are on account of non-construction of ROR and Ash Dyke-2.
- DBPL has received total CAMPA refund and Mega Power Project benefits of Rs. 108.72 Cr.
- Under the contract closure with BHEL (the settlement agreement) for BTG Supply and Services contract, DBPL is supposed to receive agreed amount of Rs. 75 Cr. towards liquidated damages (LD).

Note: Company has identified Rs. 30.32 Cr as balance cost yet to be incurred for the various works under cost head BTG, BOP, Railway Coal Transport Arrangement, Ash Dyke and CHP-other than BOP scope. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred.*

3.0 REVIEW OF SCOPE AND ASSESSMENT OF COMPLETENESS OF COST HEADS

3.1 Land AND Site Development Cost

Company had proposed land requirement for the project is 1371 acres.

The breakup of the total land required for project:

Description	Phase I & II (Acre)
Main Power Plant (Initially Appraised) (A)	1077
Additional Land to be acquired:	
Additional Ash Dyke	117
Railway Siding	140
Green Belt & Miscellaneous	37
Additional Land required (B)	294
Total Requirement (A+B)	**1371**

Source: Information shared by company

Revised Land Requirement:

Further, company has proposed not to construct of ROR and additional Ash Dyke-2 which has reduced the overall land requirement as under:

Particulars	Phase I & II (Acre)
Lenders Total Area	1371
Less: Land for Additional Ash Dyke	117
Less: Land for ROR	80
Less: Reduction of project land requirement require to make land contiguous / green belt etc.	12
Revised Land Requirement for the project	1162
Land Acquired	**1133**
Land Mortgaged in favour of lenders	1123

Source: Information shared by company

Non construction of ROR and additional Ash dyke has reduced present land requirement. Accordingly, the land requirement of 1162 acres considered by the company appears sufficient.

3.1.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/Reference		Land & Site Development Cost	Cost Change	Measure Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	82		
	Phase-2	46		
	Total	**128**		
Reallocated Cost by DBPL Sept'11	Phase-1	82		
	Phase-2	46		
	Total	**128**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	83		Rs.1 Crores from contingency budget.
	Phase-2	46		
	Total	**129**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	149	110	Increase of ~Rs. 57 Crores due to increase in land rate of acquired land (1077 acre). Increase of ~Rs. 52 Crores is on account of additional land of 278 acres Additional land for Ash Dyke-2(203 acre) and plant & amnesties (75 acre)
	Phase-2	90		
	Total	**239**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	149		
	Phase-2	90		
	Total	**239**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	149		
	Phase-2	90		
	Total	**239**		
Final Appraised Cost	**Total**	**239**		

3.1.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Power Benefit	Deviation between final appraised cost and final estimated cost
Land	239.00	201.75	-	201.75	-	-	37.25

Final Appraised cost under the cost head "Land & Site Development Cost" is Rs. 239 Cr. Company has incurred total Rs. 201.75 Crore for the acquired land and has savings of Rs. 37.25 Cr.

The land cost includes additional Land for ash dyke (117 acre) with appraised cost of Rs. 38.23 Crore; and Project land (37 acre) with appraised cost of Rs. 11.85 Crore. Due to non-construction of additional ash dyke (117 acres) and reduction in project land requirement (12 acres), overall land requirement reduced by 129 acres. Reduction in overall land requirement has reduced the total cost. However, there is also increase in land acquisition cost under LARR for the acquired land.

Land cost required for the railway siding and ROR is considered in the "Coal Transportation Arrangement Cost"

3.2 BTG (Boiler Turbine Generator)

The package comprises of Boiler, Turbine and Generator (BTG) sets along with their auxiliaries.

Broad Scope, Major contracts, Price, physical assessment of completeness of scope etc. is given in subsequent sections.

3.2.1 Major Contracts

DBPL has signed two contracts viz. supply & service contract with BHEL dated 13 December 2019 for Design, Engineering, Manufacturing, Testing at works, Supply, Transportation, Storage and Handling at site, Erection, testing and commissioning and Performance Testing of the Boiler Turbine and Generator (BTG) package along with auxiliaries.

Initial Scope:

The BTG supply scope broadly consists of 2 nos. 600MW sub critical boilers, turbine, generator including station control and instrumentation, 3 nos. single Phase Generator transformers (GT) per 600 MW unit (Total 7 nos. GT including 1 no. as a common spare), 1 no. Station Transformer (ST) per unit, 1 no. Station Auxiliary Transformer (SAT) per unit, 2 nos. Unit Transformer (UT) per unit and 2 nos. Unit Auxiliary

Transformers (UAT) per unit. The Scope includes supply of tools & Tackles as per the list enclosed in contract.

Amended Scope:

Scope of the contract was amended by Rs. 10 Crore to include for supply, erection & commissioning of

i. Additional items in ACW system viz. RE joint, Butterfly valve, Piping and Fittings, LP Valves, ACW pumps, Motor for ACW system
ii. Mill bay Bunker structure from bunker top to roof top

DBPL awarded a contract for the supply of BTG spares of Rs. 103 Crore vide PO dated 17th September, 2014.

Major Contracts Summary and Price

Description		Amount (In Rs. Cr.)
BTG Supply Contract [Contract No: SS/DBPL/BHEL/BTG/1200MW/SUPPLY/001]	Supply of Equipment including Mill Bay Structure on ex works/ subcontractors works/ port of entry basis in India for 2 x 600 MW	2295*
BTG Service Contract [Contract No: SS/DBPL/BHEL/BTG/1200MW/SERVICE/001]	Erection, Testing & Commissioning of Equipments including MCE insurance.	308
	Transportation of Equipments	62
Amendment No.1 to LOA	Scope change includes for supply, erection & commissioning of i. Additional items in ACW system ii. Mill Bay Bunker structure	10
Sub Total		**2675**
Contract for Spares supply vide PO Dated17th Oct, 2014	Spares supply	103
Total		**2778**
FOREX change*		48.06
** The Price of imported raw materials/components (CIF Component) which has been included is Rs.700 Crores taking exchange rate for:* *1 USD = Rs. 45.87 & 1 EURO = Rs. 66.86* *Note: contract prices are exclusive of taxes, duties and levies.*		

3.2.2 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		BTG Cost	Cost Change	Measure Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	1537		
	Phase-2	1530		
	Total	**3067**		
Reallocated Cost by DBPL Sept'11	Phase-1	1602		
	Phase-2	1468		
	Total	**3070**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	1629		Rs. 60 Cr. Contingency
	Phase-2	1500		
	Total	**3129**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	1639	~19 (Over Post contingency Allocation)	BTG contract Rs. 2665 Cr. (Base price) Amendment to contract for ACW system and bunker Rs.11.46 Cr. (including duties & taxes) Spares Rs.~90.39 Cr. (estimated) FOREX Impact Rs. 48.06 Cr. Duties & Taxes Rs. 332 Cr.
	Phase-2	1509		
	Total	**3148**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	1651	~43 (Over Post contingency Allocation)	Spares Rs. 115.73 Cr. (revised spare cost including Taxes), PO for spares to BHEL of Rs. 103 Cr (excluding taxes). BTG- The cost overrun of Rs.43 Cr over post contingency allocation is due to forex variation, increase in duties and taxes, addition of scope ACW System and bunker structure and spares
	Phase-2	1521		
	Total	**3172**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	1651	-	
	Phase-2	1521		
	Total	**3172**		
Final Appraised Cost	**Total**	**3172**	**-**	

3.2.3 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Power Benefit	Deviation between final appraised cost and final estimated cost
BTG	3,172.00	3166.98	5.02	3,172.00	-	51.65	-

Contracted value under the head "BTG Package" is ~Rs.2778 Crore. Contracted value is increased by ~Rs. 48.06 crore due to FOREX change. Company informed that the remaining cost incurred includes Misc. mutiple contracts below Rs. 30 crore, taxes, duties, freight, fees, direct purchase/ payment and any other misc. expensesfor taxes, duties, levies.

Final Appraised cost under the cost head "BTG Cost" is Rs. 3172 Cr. Company has incurred total Rs. 3166.98 Cr. Balance cost yet to be incurred (~5.02 Cr) will be used for the payment of spares to BHEL and other spares providers. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred.*

Further company has received Rs. 51.65 cr. as Mega Power Project (MEGA) benefit. And under the contract closure with BHEL (the settlement agreement) for BTG Supply and Services contract, DBPL is supposed to receive agreed amount of Rs. 75 Cr. towards liquidated damages (LD).

3.2.4 Physical Assessment of completeness of scope

The broad scope of supply is as under:

Sr. No.	Scope of Supply of System/ Equipment	Status of Physical Verification
1	Two (2) Steam Generators and associated auxiliaries	In service
2	Dust precipitation and collection system	In service
3	Two (2) Steam Turbines (ST) and two (2) Turbo-Generators along with associated auxiliaries	In service
4	Control and Instrumentation Equipment-TG/SG integral and Station C&I along with cable and cable trays (where both the ends are in BHEL scope)	In service
5	Condensate system comprising of Surface Condenser, Gland Steam Condenser, Vacuum Pumps for each Steam Turbine unit including COLTCS.	In service

Sr. No.	Scope of Supply of System/ Equipment	Status of Physical Verification
6	Regenerative Cycle auxiliaries comprising of 3X50% Condensate extraction pumps, three (3) LP Heaters, one (1) Deaerator, 2x50% Turbine Driven, 1x50% Motor Driven Boiler Feed Pumps, two (2) HP Heaters along with associated piping for each Steam Turbine unit.	In service
7	Power cycle piping and valves.	In service
8	HP/LP Chemical Dosing system for Boiler-Turbine unit	In service
9	Boiler fill pumps	In service
10	Hotwell make-up pump.	In service
11	Closed circuit DMCW system within terminal point. (DMCW Pumps, PHEs, piping and valves)	In service
12	Central Lube Oil Storage and transfer system (Common for two units)	In service
13	2 Nos. Portable Lube Oil Purifier for Boiler feed pump (One for each Unit)	In service
14	Thermal insulation of piping and equipment	In service
15	Transformers: GT (7 nos., 6 Nos. in service, 1 no. spare) UT (4 nos.) and UAT (4 nos.) ST (2 nos.) and SAT (2 nos.)	In service
16	Generator's, GT's, UT's relay Panels	In service
17	DDCMIS for electrical system	In service
18	Electrical Control system	In service
19	Special Tools & tackles	In service
20	Coal bunkers and Mill Bay structures till bunker top.	In service
21	Condensate Storage tank.	In service
22	Wet steam washing system	In service
23	Generator Bus Duct (IPBD) & associated equipment. Necessary Tap-off required for UT connection shall be provided.	In service
24	Empty H2 & CO2 cylinders	In service

Sr. No.	Scope of Supply of System/ Equipment	Status of Physical Verification
25	First filling & top up of H2/ CO2/ N2, Lube oil, Lubricants and consumable till commissioning.	In service
26	One set of C&I lab instruments, i.e. common for two units	In service
27	Special grouts like PAGAL VI for grouting of TG	In service
28	All Embedded parts, pipe sleeves and O & M platform required for BHEL supplied Equipments	In service
29	SWAS & Flue gas Analyser	In service
30	NGR/NGT for transformers (GT only on LV side) supplied by BHEL	In service
31	Generator Hydrogen gas purity analyzer including all accessories like piping, valves, flanges etc.	In service
32	Interconnection between all ESPs of each Unit at operating level and transformer level.	In service
33	Interconnection platform between boiler and TG floor at a) between boiler and main building at 3 levels b) between boiler and bunker bay at 3 levels	In service
34	Electrically operated furnace Maintenance platforms (1 No. common for 2 Boiler)	In service
35	Cable & Cable Trays for power cables (where both the ends are in BHEL scope)	In service
36	Additional items in ACW system viz. RE joint, Butterfly valve, Piping and Fittings, LP Valves, ACW pumps, Motor for ACW system (Amended Scope)	In service
37	Mill bay Bunker structure from bunker top to roof top ((Amended Scope)	In service
38	Spares (vide PO dtd. 17th September, 2014)	Provided

Contract Closure:

DBPL has provided a settlement agreement with BHEL dtd. 21 January, 2019 related to the Supply and Service Contracts mentioned above. The Parties agreed that DBPL shall deduct an amount of Rs 75 Crores towards liquidated damages (LD) due to delay in execution of contracts. DBPL has paid balance retention amounts towards the BTG Supply and Services Contracts as mentioned in the agreement. Further, the parties has further agreed to resolve the other outstanding of BHEL towards regular supply amounting to approx. Rs 11.08 cr. subject to reconciliation, which is still under process.

All the claims of BHEL and DBPL under the BTG Supply and Services Contracts stands satisfied after the refer payment. (Refer settlement agreement)

BTG Performance Test:

BTG Supply and Services Contractor M/s. BHEL has demonstrated the Performance Guarantee tests for both the Units as per the Performance Guarantee Schedule mentioned in the contract related to the BTG package. These PG Test results are accepted by DBPL.

3.3 Balance of Plant (BOP)

The package comprises of Coal Handling System, Switch Yard, Ash Handling System, Fuel Oil System, Compressed Air System, Air Conditioning System, Illumination Systems, Water Systems and Water treatment systems, Hydrogen Generation Systems, Fire Fighting Systems, Cranes & Elevators, Cooling Towers (NDCT), Chimney, etc. and associated civil works of BOP and BTG.

The broad Scope, Major contracts, Price, physical assessment of completeness of scope etc. is given in subsequent sections.

3.3.1 Major Contracts

DBPL has signed three contracts viz. supply, service & civil works dated 19th April 2011 with L&T.

Initial Scope:

Contract for supply:

The scope of works for supply contract includes Procurement, manufacturing, assembly, shop testing, packing and forwarding of equipment from ex-works including transportation to site. Scope also includes a supply of Spares as per the list enclosed in contract.

Contract for service:

The scope of works for service contract includes Design, Engineering, receiving and unloading at site, properly stacking, storing, issuing drawing/ erection materials to the sub-contractors, transporting / shifting of equipment from stores to erection site, pre

assembly, erection, start-up, trial operation, testing & commissioning and performance test at site including its comprehensive insurance.

Contract for Civil Works:

The scope of services for civil contract includes supply of materials such as cement, reinforcement steel, structural steel, etc. along with design, engineering and execution of civil & structural work of Equipment.

Amended Scope:

Scope of the contract was amended to include the changes and its implication w.r.t. Coal Handling Plant for value of Rs. 7 Crore.

Additional Spares supply

DBPL also awarded contract for Supply of Spares for KBL MAKE CW PUMP, Supply of Mandatory Spares for DM Plant, CPU & CW Dosing System and Supply of Mandatory Spares for Ash Handling Plant from Kirloskar Brothers Limited, Ion Exchange India Limited and The Indure Private Limited.

Major Contracts Summary and Price:

Description		Amount (In Rs. Cr.)
BOP Supply Contract [Contract No: SS/DBPL/L&T/BOP/1200MW/SUPPLY/001]	Supply of BOP equipment (on Ex works/ sub-contractors works/ port of entry basis in India	596
	Supply of BOP spares (on ex-works/ sub-contractors works/port of entry basis in India)	25
	Transportation charges for items listed above	13
BTG Service Contract [Contract No: SS/DBPL/L&T/BOP/1200MW/SERVICE/001]	Design, Engineering, storing, Erection, Testing, Commissioning, PG test of Equipments including comprehensive insurance.	100
Civil Works Contract [Contract No: SS/DBPL/L&T/BOP/1200MW/CIVIL/001]	Supply of cement, reinforcement steel and structural steel on F.O.R. Site basis	200
	Civil & Structural Works.	515
Sub Total		**1449***
Escalation* Paid on above Sub Total		72.45

Amendment dated 10.08.2011 to BOP supply contract	changes in scope and its implication w.r.t. Coal Handling Plant	7
Additional Spares supply	Supply of Spares for KBL MAKE CW PUMP Supply of Mandatory Spares for DM Plant, CPU & CW Dosing System Supply of Mandatory Spares for AHP	3
Total		**1531.45**

* Price variation Clause of the BOP Supply, Service and Civil contract was amended to read as:
The contract price(s) indicated in indicated above shall remain firm throughout the execution of the Contract(s) except for variation in star rates of the cement, structural steel, reinforcement steel and labour which shall be limited to ±5% of the aggregate of three Contract Prices, i.e. Rs. 1449 Crore.

Contract Closure:

DBPL has provided an e-mail dtd 18th October, 2019 from M/s. L&T Limited confirming the contract closure in all respects of all three above mentioned BOP contracts viz. BOP supply, BOP services and Civil Works Contracts.

3.3.2 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		BOP Cost	Cost Change	Measure Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	818		
	Phase-2	691		
	Total	**1509**		
Reallocated Cost by DBPL Sept'11	Phase-1	841		
	Phase-2	771		
	Total	**1612**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	880		Rs. 86 Cr. from Contingency
	Phase-2	818		
	Total	**1698**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	892	~23 (Over Post contingency Allocation)	: BOP Contract Rs.1449 Cr, Scope change in CHP Rs. 7 Cr., Additional spares Rs. 3 cr. : Duties & taxes Rs. 183.33 Cr (19 Cr. overrun due to increase in rate of tax & duty) : Price Variation Escalation Rs.78.86 Cr
	Phase-2	829		
	Total	**1721**		
Revised Appraised Cost as in MM	Phase-1	892	-	
	Phase-2	829		

Additional DD Report Feb'15	**Total**	**1721**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	892	-	
	Phase-2	829		
	Total	**1721**		
Final Appraised Cost	**Total**	**1721**	**-**	

3.3.3 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Power Benefit	Deviation between final appraised cost and final estimated cost
BOP Cost	1,721.10	1710.65	5.90	1,716.55	-	3.80	4.55

Total Contract value under the head "BOP Package" is Rs. 1459 crore, contract value was increased by Rs. 72.45 Cr due to cost variation clause. DBPL informed that remaining cost incurred includes Misc. mutiple contracts below Rs. 30 crore, taxes, duties, freight, fees, direct purchase/ payment and any other misc. expensesfor taxes, duties, levies..

Final Appraised cost under the cost head "BOP Cost" is Rs. 1721.10 Cr. Company has incurred total Rs. 1710.65 Cr. Balance cost yet to be incurred (Rs. 5.90 Cr) will be used for BOP spares, construction of workshop building, fire fighting building, internal road modification, chain-link fencing etc. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred*

Company has received Rs. 3.80 cr. as Mega Power Project benefit and other saving of Rs. 4.55 crore under this cost head.

3.3.4 Physical Assessment of completeness of scope

BOP- Mechanical System

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
1	**CLARIFIED WATER (CLW) TRANSPORTATION SYSTEM**	**In service**
1.1	Clarified water reservoir storage capacity of 1000 cum with two (2) compartments	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
1.2	Clarified water pump house	
1.3	Three (3) Nos. (Two working & one stand by) DM plant feed pumps	
1.4	Two (2) (one working & one stand-by) potable water pumps	
1.5	Two (2) (one working & one stand-by) service water Pumps	
2	**DEMINERALIZED WATER TRANSPORTATION SYSTEM**	**In service**
2.1	Two (2) nos. OM water storage tanks	
2.2	Two (2) nos. Demineralized Water (DMW) Transfer Pumps. DBPL shall preferred to have 3X50% demineralized water transfer pumps (2 running +1 Standby)	
3	**TREATED WASTE WATER TRANSPORTATION SYSTEM**	**In service**
3.1	Clean water reservoir comprising of two (2) compartments	
3.2	Clean water pump house	
4	**IN PLANT WATER SYSTEM (PRETREATMENT PLANT, WATER TREATMENT PLANT)**	**In service**
4.1	**Pretreatment Plant**	**In service**
4.1.1	Raw water inlet header pipe of suitable length	
4.1.2	One (1) no. Flow Control Station other accessories	
4.1.3	One (1) no. Aerator cum Stilling Chamber with all accessories.	
4.1.4	Three number inlet channels with parshall flume	
4.1.5	Three (3) nos. Distribution Chambers	
4.1.6	Three (3) nos. Solids Contact type Clarifiers	
4.1.7	One (1) no Sludge Sump (with two compartments) cum Pump House complete with all accessories	
4.1.8	Three (3) nos. Sludge Transfer Pumps and all other accessories	
4.1.9	Lime dosing system, Coagulant dosing system, Poly-electrolyte system each complete with agitator, electric drive motor and all other accessories	
4.1.10	Hypo-chloride Dosing system with all interconnected piping and valves	
4.2	**DM Plant and Potable Water Treatment plant**	**In service**
4.2.1	Three (3) nos. OM Plant Feed Pumps (2 Working+ 1 Standby) and all other accessories	
4.2.2	Void/ not used	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
4.2.3	Three (3) nos. (2W+1S) DM water streams	
4.2.4	Three (3) nos. Dual Media Filter Units Three (3) nos. Activated Carbon Filter Units Three (3) nos. Strongly Acidic Cation Exchanger Units Three (3) nos. forced draft Degasser, One (1) no. DG water storage tank with three compartments [for three DG tower Three (3) nos. DG blower Three (3) nos. Degassed Water Transfer Pump Three (3) nos. Strongly Basic Anion Exchanger Unit Three (3) nos. Mixed Bed Exchanger Units, each complete with internals, integral pipe works, valves and all other accessories	
4.2.5	Three (3) nos. Air Blowers for Mixed Bed Exchanger Units (common) for Neutralization Pit) and all other accessories	
4.2.6	Three (3) nos. Feed Tanks for Ultra Filtration Units and all other accessories	
4.2.7	Three (3) nos. Feed Pumps for Ultra Filtration Units and all other accessories	
4.2.8	Three (3) nos. Ultra Filtration Units and all other accessories	
4.2.9	Two (2) nos. hose stations for unloading Hydrochloric Acid	
4.2.10	Two (2) nos. (1W+1S) acid unloading and transfer pumps and all other accessories	
4.2.11	Two (2) nos. Bulk acid storage tanks and all other accessories	
4.2.12	Two (2) nos. acid measuring tanks (One (1) no. for Cation units & One (1) no. for mixed bed) and all other accessories	
4.2.13	Two (2) nos. hose stations for unloading Caustic	
4.2.14	Two (2) nos. alkali unloading and transfer pumps each complete with electrical drive motor and all other accessories as required along with two number ejectors for alkali dosing	
4.2.15	One (1) no. Activated Carbon Filter Unit for alkali, complete with internals, integral pipe works, valves and all other accessories	
4.2.16	Two (2) nos. Bulk alkali storage tanks	
4.2.17	Two (2) nos. alkali measuring tanks (One (1) no. for Anion units & One (1) no for mixed bed)	
4.2.18	One (1) no Regeneration Water Heater for regeneration of anion resins	
4.2.19	Two (2) nos. Regeneration Water Pumps	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
4.2.20	Adequate no. of. Back Flush Pumps for Ultra Filtration Units	
4.2.21	One (1) no. Cleaning Solution Tank for Ultra Filtration Units	
4.2.22	Two (2) nos. Cleaning Solution Pumps for Ultra Filtration Units	
4.2.23	One (1) no. Cartridge Filter for cleaning of Ultra Filtration Units	
4.2.24	One (1) no Acid Measuring Tank for neutralization	
4.2.25	One (1) no. Alkali Measuring Tank for neutralization	
4.2.26	One (1) no. Neutralization Pit (with two compartments)	
4.2.27	Three (3) nos. Neutralized Effluent Disposal Pumps of vertical type	
4.2.28	Any other items which have not been covered above but indicated in enclosed DCPL Technical specification	
4.3	**Potable Water Plant (capacity- 60 cum per hour)**	**In service**
4.3.1	Two (2) nos. (2x1 00%) Dual Media Pressure Filters each complete with internals, integral pipe works, valves and all other accessories	
4.3.2	Two (2) nos. (2x100%) Air Blowers each complete with electrical drive motor and all other accessories.	
4.3.3	All integral and interconnected pipes works and valves hypochlorite dosing pump discharge to points of hypochlorite injection, pipe supports, specialties, etc.	
4.3.4	Two (2) nos. (2x100%) vertical Potable Water transfer Pumps	
4.3.5	Underground potable water storage tank of suitable capacity	
4.3.6	Any other items/ equipment which has not been covered above but indicated in enclosed DCPL Technical	
5	**WASTE WATER TREATMENT SYSTEM (Effluent Plant)**	**In service**
5.1	Sludge from pretreatment plant	
5.2	Backwash Waste Water from Side Stream Filtration	
5.3	Boiler blowdown	
5.4	Backwash Waste Water from filtration plant	
5.5	Oil Handling Area Effluent/service oily waste effluent	
5.6	Central Monitoring Basin (CMB) complete with all accessories	
5.7	CMB Waste Treatment & Recycling System	
6	**COAL HANDLING SYSTEM**	**In service**

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
	The capacity of Goal Handling system with two stream each of rated/design capacity 2000 TPH and suitable for continuous operation simultaneously as per specification.	
6.1	Lot of Conveyors with drives, brakes (as required) pulleys with frames, hood, chutes, skirt boards with covers, technological structures, take-up, belting, etc.	
6.2	Hoppers & chutes, hoods & flap gates, Skirt board with supporting structures, dribble chutes etc. in transfer towers and crusher house as per system requirement	
6.3	One (1) No. Reversible Stacker cum Reclaimer of rated/design capacity 2000 TPH	
6.4	Void/ not used	
6.5	Yard conveyor drive suitable for 635 meter length stockyard	
6.6	supply of belt and all other mechanical to suit 165 meter stock pile	
6.7	Civil works for 165 meter stockpile.	
6.8	Rail to suit 165 meter stockpile.	
6.9	Two crushed coal stockpile each of 165mx48mx10m	
6.10	Four (4) numbers of each having rated/ design capacity of 1200 TPH secondary crushers	
6.11	Four (4)of Vibrating Grizzly Feeders of matching capacity as per item number 6.10 above with drives, electrical items, and accessories	
6.12	Two (2) nos. ultrasonic non-contact type level indicators for each bunker	
6.13	Dry type dust extraction system in crusher house, and boiler bunkers with dust extraction hoods, ducts, bag filters, rotary feeders/screw conveyors, fans with drives and compressors for pulsation	
6.14	Plain water dust suppression system for coal stockyard transfer houses, complete with tanks, pumps, piping, nozzles, instrumentation & control system	
6.15	Unitary air filtration system for pressurizing MCC rooms	
6.16	Ventilation system for bunker building tripper floor	
6.17	Suitable monorail and electrically operated hoist blocks different pulleys for conveyors and other equipment will be provided from the ground level of the buildings and in between various floors of the buildings	
6.18	PLC based control system for coal handling system	
6.19	Provision at TP#4 for feeding future unit 3 & 4 shall be provided	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
6.20	For bunker feeding provision for future addition of one additional conveyor at TP# 5,6, 7& 8 has to be made and designed accordingly	
6.21	Two (2) nos. of spare feeder at 11/6.6 KV from CHP switchgear for external CHP requirement	
7	**ASH HANDLING SYSTEM**	**In service**
7.1	Bottom ash handling system	In service
7.1.1	Each unit shall be provided with one (1) number refractory lined water impounded maintained level, triple V-section type and steel fabricated bottom ash hopper. Under each V-section there shall be two outlets. Each outlet shall be fitted with a hydraulically operated feed gate, clinker grinder, feed sump, jet pumps and a set of piping and valves	
7.1.2	Six (6) nos. (3W+ 3S) Jet pumps complete with accessories for each unit	
7.1.3	Six (6) nos. (3W+ 3S) Clinker grinders complete with drive motors for each unit	
7.1.4	Three (3) nos. Bottom Ash slurry transportation pipelines complete with accessories up to ash slurry sump for each unit	
7.2	Void/ not used	
7.3	Bottom Ash overflow water system	In service
7.4	Economizer Ash Removal System	In service
7.5	Fly ash handling system	In service
7.6	Ash Water System	In service
7.7	Ash Slurry Disposal system-ash slurry disposal pipe will be 2W+2S	In service
7.8	Ash Water recovery system not considered in the L&T offer	
8	**CW SYSTEM**	**In Service**
8.1	Seven (7) Nos. (3x33% for each unit and one common standby) CW Pumps	
9	**CW TREATMENT AND CHLORINATION FOR CW SYSTEM & WATER SYSTEM**	**In Service**
9.1	Centralized electro-chlorination system	
9.2	16 numbers of side stream filters with filtering capacity of 2.5% of CW flow along with pumps, integral piping and valves, instrumentations, pipe supports, specialties, etc.	
10	**FUEL OIL LOADING & UNLOADING SYSTEM**	**In Service**
10.1	3 nos. (2W+1S) LDO/HSD unloading pumps with drives	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
10.2	storage tanks shall be 4 nos. each having net capacity of 500 m3	
11	**FIRE PROTECTION, DETECTION AND ALARM SYSTEM**	**In Service**
	The hydrant header and spray water header shall be independent.	
11.1	The pumps for hydrant system shall be installed in raw water pump house. The hydrant pumps shall be three numbers vertical type of suitable capacity with electric motor drive for two pumps and diesel engine driven for one pump along with two number of Jockey pump	
11.2	High velocity water spray system (HVWS)/ Medium Velocity Water Spray (MVWS) system of two number vertical type spray water pumps, one number electrical driven and one number diesel engine driven	
11.3	Pressurization system shall consist of 2 nos. (2x1 00%) Jockey pumps, 2 nos. (2x100%) Air compressors and 1 no. Hydro pneumatic Tank	
11.4	Portable /mobile extinguishers of DCP, CO2, foam in all plant.	
11.5	Automatic Foam protection system for LDO/HSD area	
11.6	One (1) no. Fire Tender	DBPL has 2
11.7	Microprocessor based addressable, intelligent Fire detection and Alarm system	
11.8	Inert gas flooding system for above false ceiling in main CCR, and other control rooms, inside panels, control equipment room, cabinet	
12	**COMPRESSED AIR SYSTEM**	**In Service**
12.1	Six (6) Nos. 100% oil free, rotary screw type air compressor	
12.2	Three (3) nos. Air Receiver (capacity 15 cum each) (at compressor discharge) & Three (3) nos. Air Receiver (capacity 15 cum each) (at air dryer discharge) with all accessories / instruments arrangement	
12.3	Three (3) nos. Refrigerant type/ HOC type air-drying plants	
12.4	All inter-connecting/integral piping, valves trap stations with by-pass valves at drains, fittings, flanges, gaskets, etc.	
12.5	Instrument and controls.	
12.6	Interconnecting wiring.	
12.7	One (1) dew point indicator.	

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
13	**AIR CONDITIONING & VENTILATION SYSTEM**	**In Service**
13.1	AIR CONDITIONING SYSTEM: Direct Expansion (OX) system/Chiller Type or Air Cooled packaged AC	
13.2	VENTILLATION SYSTEM: Mechanical Ventilation process (using roof extractors/Supply or Exhaust fans)	
13.3	Air Washer I Evaporative cooling system	
14	**MISCELLANEOUS EOT CRANES**	**In Service**
14.1	2 no. 125/25 T EOT for TG Crane.	
14.2	1 no. 30 T EOT crane for C.W Pump house.	
14.3	1 no. 10 T EOT crane for 0 & M store house.	
14.4	1 no. 5 T EOT crane for Compressor house	
14.5	1 no. 5 T EOT crane for DG house.	
14.6	1 no. 10 T EOT crane for Work Shop building.	
15	**ELEVATORS**	**In Service**
15.1	Two (2) no. of goods-cum-passenger type of elevators of capacity 2000 kg with elevator structure for boilers	
15.2	One (1) no goods cum Passenger elevator of 1000 kg for Power house building up to Deaerator floor.	
15.3	One (1) no. Passenger elevator of 1000 kg in Crusher house complete with other required accessories.	
15.4	One (1) no. rack and pinion type vertical stack elevator of 400 kg for multi-flue chimney	
15.5	One number passenger elevator of 884 Kg for administrative building	
15.6	1 no. 844 Kg Service/ Technical Building	
15.7	1 passenger elevator 1000 kg for TP4.	
16	**HYDROGEN GENERATION PLANT**	**In Service**
	Two streams each of 10Nm3/hr capacity of hydrogen gas generation	
17	**H2, C02 AND N2 CYLINDERS**	**In Service**
17.1	300 nos. hydrogen gas cylinders	
17.2	70 nos. carbon dioxide gas cylinders	
17.3	60 nos. Nitrogen gas cylinders	
18	**Condensate Polishing Unit**	**In Service**
19	**Large Diameter CW piping including butter fly valve**	**In Service**
20	**Low Pressure Misc. Piping including supply of butter fly valve, stop log gate, screen, etc.**	**In Service**

S. No.	SYSTEM AND ITS BROAD SCOPE	SYSTEM AND ITS BROAD SCOPE
21	Electro-chlorination plant as per good engineering practices	In Service
22	Sewage treatment plant as per good engineering practices for 1200 users.	In Service

BOP- ELECTRICAL SYSTEMS

Sr. No.	SYSTEM AND ITS BROAD SCOPE	Status of Physical Verification
1	400kV Outdoor Air Insulated Switchyard with one and half breaker scheme with 'D' type configuration having title 400 KV Switchyard and Transformer Yard.	In Service
1.1	Generator Transformer bay: 2 Nos.	
1.2	Station Transformer bay: 2 Nos.	
1.3	Outgoing Transmission line bay: 4 Nos.	
1.4	Tie Bays: 4 Nos.	
2	11/0.433 kV & 6. 6 /0.433 kV rated Dry Type/ Oil filled L T Auxiliary Transformers for complete plant	In Service
3	NGR for Transformers supplied by BOP bidder as well as for HT Transformers	In Service
4	Control and Relay panel for Station Transformers.	In Service
5	11 kV & 6.6kV Switchgear for complete plant including LPB for all HT drives	In Service
6	415 V switchboards, PCCs, MCCs, LPBS,DB's for BOP supplied systems and for BTG system supplied by BHEL excluding 415 volt switch board for ESPs and soot blowers	In Service
7	LPBS for selective LT drives of BTG system (excluding LPBS of MOVs)	In Service
8	11 kV & 6.6 kV Segregated phase bus duct (SPBD)	In Service
9	415V Non-segregated phase bus ducts (NSPBD) for connection between LT Auxiliary/ Service Transformer and LT switchgear.	In Service
10	Cables and accessories between both ends of BOP supplied equipment and interfacing between BTG & BOP equipment	In Service
11	Cable gland, lugs, cable trays, tray support structures, conduits & accessories for BOP supplied cables.	In Service

Sr. No.	SYSTEM AND ITS BROAD SCOPE	Status of Physical Verification
12	Three (3) Nos. 1200 kVA Diesel Generators sets complete 'with Diesel Engine, Governor, Fuel oil system, Starting system, AMF Panel, Acoustic enclosure and Exhaust stack	In Service
13	220 V DC System with DCDBs	In
13.1	2x100% 220V Lead Acid (Plante) battery, 2x100% Float and Float cum boost charger for Each Unit	In Service
13.2	2x100% 220V Lead Acid (Plante) battery, 2x100% Float and Float cum boost charger common for both station loads	In Service
13.3	2x100% 220VLead acid (Plante), 2x100% Float and Float & Float cum boost charger for 400kV Switchyard	In Service
13.4	2x100% 220V Lead acid(Plante), 2x100% Float & Float cum boost charger for CHP	In Service
13.5	1x100% 220V Lead Acid (Plante), 2x100% Float & Float cum boost charger for WTP, OM Plant and AHP	In Service
13.6	2x100% 48VLead acid (Plante), 2x100% Float & Float cum boost charger for PLCC at both ends.	In Service
14	230V UPS and ACDBs for BOP area for BOP area PLC requirement and other protection requirement	In Service
15	11kV 6.6 kV, 415V AC Motors, 230V AC Motors, 220V DC Motors, Motor actuators, VFDs for BOP system.	In Service
16	Local Control Panels, Local Push Button Station and DBs for BOP area	In Service
17	Lightning Protection System for building & structures in BOP scope (which includes BTG area and non-plant buildings).	In Service
18	Earthing system: Underground earth mat for the entire plant Equipment earthing (Electrical & Electronic) for equipment by BOP Bidder	In Service
19	Illumination system for complete plant	In Service
20	All other electrical systems /items which has not been included in above list and are required for successful commissioning of power plant shall also be in the scope of L& T being BOP contractor and the work shall be executed as per detail technical specification of DCPL	In Service

BOP-CONTROL AND INSTRUMENTATION

Sr.	SYSTEM AND ITS BROAD SCOPE	Status of Physical Verification
1	**PLC based SCAD A Systems**	**In Service**
	PLC based SCADA systems have been envisaged for the following systems with Operator/ Engineering Stations. Monitoring of critical parameters of these control systems will be hooked up in Plant DCS (BTG vendor scope) through serial link and by hardwire for critical parameter.	
1.1	Coal Handling System	
1.2	Ash Handling System	
1.3	Switchyard SCADA	
1.4	Water Treatment Plant (Pre- treatment, Portable Water and DM plant)	
1.5	Compressed Air System	
1.6	H2 Generation Plant	
1.7	Condensate Polishing System	
2	**PLC Based LCP systems**	**In Service**
	PLC based LCP systems will be envisaged for the following systems Monitoring of critical parameters of these control system will be envisaged in station DCS	
2.1	Fuel oil system	
2.2	Air Conditioning & Ventilation system	
2.3	Electro-chlorination system.	
3	The following Systems shall be Controlled and Monitored from Plant DCS through Remote I/0 cabinets in field (all cabling up to I/0 cabinets shall be in the scope of L&T from field equipments)	
3.1	CW System	
3.2	Cooling towers	
4	**Microprocessor/Relay based control systems**	**In Service**
	The following offsite systems will be controlled and monitored by standalone LCP or Local Relay based control systems. Critical signals shall be hardwired with Plant DCS for monitoring purpose.	
4.1	Misc. pumps	
4.2	Fire Detection & Protection System	
4.3	DG sets	

Sr.	SYSTEM AND ITS BROAD SCOPE	Status of Physical Verification
4.4	Waste Water / effluent Treatment System	
4.5	Chemical dosing system	
5	**Vibration Monitoring System for HT Drives in BOP scope**	**In Service**
	Vibration monitoring systems for the HT drives in BOP & Offsite packages, vibration monitoring probes and transducers at drive End and Non drive End bearings will be provided for condition monitoring	
6	**Plant Communication System for complete plant**	**In Service**
6.1	EPABX & Telephone system	
6.2	Public Address System	
7	**Ambient air and Weather monitoring system**	**In Service**
7.1	2 sets of fixed Ambient Air Quality Monitoring stations at the plant premises to measure So2, NOx, CO, and SPM-PM 10	
7.2	1 Set of Weather monitoring system for monitoring of wind speed, wind direction, air temperature, relative humidity, rain gauge and solar radiation	
8	**Instrumentation cables and control cables with accessories for BOP systems and interfacing between BTG & BOP equipment**	**In Service**
8.1	Instrumentation Cables	
8.2	Control Cables	
8.3	Compensating Cables	
8.4	Fiber Optic cables	
8.5	Prefabricated Cables	
9	**Erection Hardware: Impulse pipes/ tubes & fittings for BOP equipment.**	**In Service**
10	**Cable Trays & Conduits along with required accessories for BOP vendor scope.**	**In Service**
11	**Optical Time Domain Reflectometer and splicing kit for optical fiber cable testing & maintenance**	**In Service**
12	**Two numbers of each type of hand held configurators for smart transmitters.**	**In Service**
13	**Field Instruments/ equipment (For BOP and Offsite Packages)**	**In Service**

CIVIL- Supply and Services

The scope of services for civil contract includes supply of materials such as cement, reinforcement steel, structural steel, etc. along with design, engineering and execution of civil & structural work of Equipment.

Sr. No.	System	Status of Physical Verification
1	**Infrastructure and Investigation**	
1.1	In Plant bituminous road in plant site boundary to all facilities	Provided
1.2	Storm water drains, culverts and other drains in plant area	Provided
1.3	Area Grading & Leveling within plant boundary excluding RW reservoir, ash pond	Provided
2	**Building & facilities in Main Plant area**	
2.1	TG building	Provided
2.2	TG foundation, BFP foundation	Provided
2.3	Fan Foundations	Provided
2.4	Mill bay and bunker bay building foundation substructure, side cladding, RCC flooring & mill foundation (excluding mill bay and bunker bay substructure including structural steel).	Provided
2.5	Boiler and ESP area civil works	Provided
2.6	Transformer yard, including rail cum road	Provided
2.7	All other foundation required for various equipments/ structure supplied by BTG/ BOP vendor	Provided
2.8	Paving	Provided
3	**Auxiliary buildings**	
3.1	Service Building	Provided
3.2	Compressor house, air washer room	Provided
3.3	DG Set building	Provided
3.4	ESP control room building	Provided
3.5	CPU regeneration building	Provided
3.6	Hydrogen generation plant	Provided
3.7	Electro- chlorination plant building	Provided
4	**Chimney:** 275 m high twin steel flue RCC Chimney including rack and pinion type elevator, aviation lighting.	Provided
5	**Coal handling system**	
5.1	Overhead / Ground Conveyor Galleries and Trestles	Provided

Sr. No.	System	Status of Physical Verification
5.2	Transfer Houses and crusher house	Provided
5.3	Stacker- Reclaimer rails supported on Sleepers	Provided
5.4	Control Building and MCC Buildings	Provided
5.5	Drains in coal stock area	Provided
5.6	Area grading and flooring/ Paving in CHP area	Provided
5.7	Emergency crushed coal ground hopper etc.	Provided
6	**Ash handling system**	
6.1	Ash slurry sump & Ash sludge sumps	Provided
6.2	Ash sludge Pump House	Provided
6.3	Compressor room for AHP system	Provided
6.4	Vacuum pump house	Provided
6.5	Fly ash storage silo area along with pipe racks.	Provided
6.6	Bottom ash hopper	Provided
6.7	Ash slurry and ash water pump house.	Provided
6.8	Electrical switch gear and control room for AHP	Provided
6.9	Recovery water Pump House	Provided
7	**Fuel oil handling system**	
7.1	LDO tank foundation	Provided
7.2	Tank farm area, dyke and paving/ gravel	Provided
7.3	Unloading pump foundation	Provided
7.4	Fuel oil pump house building including all other facilities e.g. Control room, various sumps, pump foundations, toilet etc. and chain link fencing all around fuel oil handling area	Provided
8	**Cooling water system**	
8.1	CW pumps house and fore bay including stop log gate and screen	Provided
8.2	CW piping and allied civil works	Provided
8.3	Electro- Chlorination building	Provided
8.4	Natural draft cooling towers (NDCT-2 Nos.)	Provided
8.5	CW chemical Dosing building and associated equipment foundation	Provided
8.6	Any other building required for CW system as per tender specification	Provided
9	**Water treatment plant**	

Sr. No.	System	Status of Physical Verification
9.1	Clariflocculators	Provided
9.2	Stilling chamber & Parshall flume, Aerator	Provided
9.3	Flash mixer, Centrifuge Building	Provided
9.4	Chemical house including chlorine storage	Provided
9.5	Sludge disposal arrangements	Provided
9.6	Clarified Water reservoir and pump house	Provided
10	**DM Plant**	
10.1	Neutralizing pit	Provided
10.2	DM plant building including control room, MCC room and chemical testing lab	Provided
10.3	Degasser and acid storage tanks	Provided
10.4	DM water storage tanks and foundation	Provided
10.5	Any other building required for DM plant as per lender specification	Provided
11	**Effluent treatment plant complete**	Provided
12	**Sewage treatment plant for1200 users within plant boundary**	Provided
13	**Air Insulated Switch Yard and Control room Building**	Provided
14	**Fire protection system**	
14.1	Fire station building	Provided
14.2	Fire tender area for 2 fire tenders	Provided
14.3	Fire water pump house	Provided
15	**Logistic buildings**	
15.1	Administrative building	Provided
15.2	Service Building	Provided
15.3	Canteen building	Provided
15.4	Watch towers	Provided
15.5	Permanent Store & first aid room	Provided
15.6	Work shop building	Provided
15.7	Parking shed	Provided
15.8	Construction/fabrication yard	Provided
15.9	Switch gear buildings	Provided
15.10	Street light foundations and civil works for cabling.	Provided
15.11	Security house and Gate Complex including time office	Provided

Sr. No.	System	Status of Physical Verification
15.12	Bull dozer shed	Provided
16	Rain water harvesting according to DBPL approved scheme	Provided
17	Pipe rack, Trestle, Trenches, etc. for Routing of Pipes and Cables within plant boundary shall be provided for complete plant	Provided

Contract Closure:

By e-mail dated 23.10.2019, "Contract closure - Balance of plant 2x600MW for DB Power at Baradarha, Chhattisgarh" BOP contractor (L&T) has confirmed the contract closure in all respects under the 3 separate contracts to cover Civil works, Supply and Services of BOP each of such dated 19th April 2011 for D B Power Ltd 2x600 MW Thermal Power Project. All 3 contracts are executed and accepted by DB Power Ltd as fully completed and all outstanding payments as due under respective agreements have been paid.

During the site visit, LE has taken walk down of all the systems of BOP and found them in service.

3.4 Water Intake System

This System is developed for transporting water from river water pump house to the plant raw water storage reservoir.

Major scope covered under this cost head includes Pump House at water intake point near Chandrapur on Mahanadi River, 33 KV transmission line feeder from 33/11 KV sub-station of intake pump House, ~27 km long Piping System complete with all associated fittings, valves, accessories, etc. and in-plant storage reservoir sufficient to store water for 15 days requirement.

3.4.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Water Arrangement	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	229		
	Phase-2	166		
	Total	**395**		

Date/ Reference		Water Arrangement	Cost Change	Major Reasons of Cost Change
Reallocated Cost by DBPL Sept'11	Phase-1	70		
	Phase-2	64		
	Total	**134**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	70		
	Phase-2	64		
	Total	**134**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	97	51 (Over Post contingency Allocation)	Rs. 51 Crores (due to hard rock cutting and additional deposit to WRD towards Anicut water charges) Rs. 172.5 Cr. Order Placed
	Phase-2	89		
	Total	**186**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	97	51 (Over Post contingency Allocation)	Rs. 172.5 Cr. Order Placed (51 cr. estimated for Anicut to GoCG WRD, of which 38 cr. submitted)
	Phase-2	89		
	Total	**186**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	93	43 (Over Post contingency Allocation)	
	Phase-2	85		
	Total	**178.1**		
Final Appraised Cost	**Total**	**178.1**	**-**	

3.4.2 Major Contracts

DBPL has raised Contract PO dtd. 13th May, 2010 (Amended dtd.24.04.2011) to M/s. Welspun Corp Ltd for Supply of Spiral Welded Pipe (with epoxy painting and externally coal tar enamel coated) of ~27800 m length pipe at plant site. Scope included design, engineering, manufacturing, packing, forwarding and transport with transit insurance.

DBPL has awarded contract dtd. 31st May 2010 to M/s. Sangha Erectors Pvt. Ltd (SEPL) for river water intake piping system complete with all associated fittings, valves, accessories etc. from Pump House at Chandrapur to Power Plant site. (Ref: MM Report) The scope of services includes receiving, unloading, proper stacking, storing, transporting/shifting from stores to erection site, fabrication, pre-assembly and erection, testing & commissioning along with storage, erection, insurance of all materials & equipments, civil works related to pipe laying and execution of RCC works related with thrust blocks, saddle supports, trenches, road crossing, pedestal, valve pits, sludge pits,

concrete pedestals for river crossing, concrete encased pipes for road crossings, construction of temporary approach roads & storage yard all along the pipe route for laying & transportation of pipe line, Liaisoning with land holder (right of way)for permitting laying of pipeline & storage of the material all along the pipe line route, related electrical works and related control & instrumentation works etc. including compliance of all government statutory requirements at site.

Contracts Summary and Price

Description		Amount (in Rs. Cr.)
M/s. Welspun Corp Ltd PO dtd. 13.05.2010 Amended dtd. 23.4.2011	Supply of Spiral Welded Pipe (with epoxy painting and externally coal tar enamel coated) of 27000 m length pipe at plant site	38.89
To WRD GoCG for Anicut Construction		38.89
Other Misc. Contractors. All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	Erection, testing & Commissioning of Raw Water Intake Piping System, Construction of Intake Pump House & other associated works, Construction of Raw Water Pump House, Fabrication & Erection of Structural Steel in Raw Water Reservoir, RCC Lining of BED & SIDE Slops in Raw Water Reservoir Excavation & Embankment work for Raw Water Reservoir, Supply & ETC of 33 KV transmission line feeder from 33/11 KV substation of intake pump House	100.32
Sub Total		178.1

3.4.3 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Water Arrangement	178.10	178.10	-	178.10	-	-	-

Final Appraised cost under the cost head "Water Intake Arrangement Cost" is Rs. 178.10 Cr. Company has incurred all of the appraised cost under this head. The major contracts order value and amount paid to WRD for Anicut construction is Rs. 77.78 (38.89 + 38.89) Cr. Final Estimation of cost head is Rs. 178.10 Cr.

Company informed that the remaining cost incurred includes for taxes, duties, levies and other miscellaneous multiple small value contracts and orders.

3.4.4 Physical Assessment of completeness of scope

River water Intake pump house is commissioned and water has been filled in the reservoir. River water intake system is in-service and sufficiently transfers river water to meet the plant water needs.

During Visit, LE observed that river water intake pump house has 3 nos. of pumps installed and operational. A dedicated transformer for power supply is also installed near intake pump house. Reservoir of about 15 day capacity is built inside the plant. 3 nos. of raw water pumps are installed in raw water pump house.

3.5 Transmission

Dedicated Transmission Line is developed for transfer of power from plant switchyard to the PGCILs Pooling station. Scope envisaged under this Cost head relates to the complete construction works of dedicated transmission line of 400KV for approx. 20 km project switchyard to the PGCIL Kotra sub-pooling station and Construction of LILO line of 2 km comprising 6 additional towers. Scope also includes activities put the line into commercial operation and excludes Switchyard which is part of the BOP package.

3.5.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Transmission Line	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	30		
	Phase-2	0		
	Total	**30**		
Reallocated Cost by DBPL Sept'11	Phase-1	42		
	Phase-2	38		
	Total	**80**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	42		
	Phase-2	38		
	Total	**80**		
Revised	Phase-1	56	27	Due to temporary loop-in- loop-out (LILO),

Date/ Reference		Transmission Line	Cost Change	Major Reasons of Cost Change
Appraised Cost as in MM Supplementary DD Report March'14	Phase-2	51	(Over Post contingency Allocation)	additional 6 towers, 765 kV line crossing arising due to site requirement)
	Total	**107**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	56	-	Rs 95.53 C r Order Placed, remaining Rs. 13.58 Cr
	Phase-2	51		
	Total	**107**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	56	-	
	Phase-2	51		
	Total	**107**		
Final Appraised Cost	**Total**	**107**	**-**	

3.5.2 Major Contracts

DBPL has placed orders dtd. 26th July, 2011 to M/s. KEC International Limited for Design, Engineering, Procurement, Supply, Erection, Testing, Commissioning and putting into successful commercial operation and Right of way (ROW) of 400 KV DCDS QUAD MOOSE (ACSR) line along with accessories and auxiliaries for transfer of power from 2x600 MW Power Plant switchyard to 765/400 KV pooling Station of PGCIL near Kotra (Dist. Raigarh). Scope also includes transportation, route survey & alignment, geotechnical investigation, foundations for tower footing, erection of towers etc.

Contracts Summary and Price

Description		Amount (in Rs. Cr.)
M/s. KEC International Limited Order dtd. 26.07.2011 SS/DBPL/400 KV /11-12/PO/01	Supply of 400 KV DCDS QUAD MOOSE (ACSR) dedicated line along with accessories and auxiliaries	35.44
M/s. KEC International Limited Order dtd. 26.07.2011 SS/DBPL/400 KV /11-12/E&C/01	Erection, Testing and Commissioning and Right of way (ROW) of 400 KV DCDS QUAD MOOSE (ACSR) dedicated line	7.81
Other Misc. Contractors	Supply & Installation of 400 KV Switchyard Bay Extension, Erection, Testing and commissioning	63.75

Description		Amount (in Rs. Cr.)
All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	including Civil Works and Charging of 2 nos. of 400 KV switchyard bay extension at 765/400 kV Pooling station at Bensia, New Kotra, Civil & Erection Work including Testing & Commissioning for Construction of 400kV Multi Circuit (QUAD MOOSE) Transmission Line with Two (2) MQD Towers for 2×600MW Singhitarai Thermal Power Project of M/s Athena Chhattisgarh Power Limited and 2×600MW DB Power Super Thermal Power Plant of M/s DB Power Ltd., Consultancy Services for execution of 02 nos. 400 KV bays at POWERGRID's new Kotra pooling station	
Total		107

3.5.3 Physical Assessment of completeness of scope

DBPL has received a contract closure certificate from M/s. KEC International Limited for the two contracts mentioned above. Accordingly, there are no outstanding claims/ counter claims from either party and contract stands duly satisfied and closed.

400KV DC Dedicated Transmission Line has been completed from 400KV DBPL Switch Yard upto 765 KV Pooling Station, New Kotra of PGCIL & was charged on 20/06/14.

At the time of site visit about LE observed that station generation was about 708 MW which was being exported to PGCIL pooling station through 400KV DC Dedicated Transmission Line.

3.5.4 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Final Estimation	Balance Cost yet to be incurred	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Transmission Line	107.00	107.00	107.00	-	-	-	-

Final Appraised cost under the cost head "Transmission Cost" is Rs. 107 Cr. The major contract value under this cost head is Rs. 43.25. Company has incurred all of the appraised cost. Final Estimation of cost head is Rs. 107.00 Cr.

Company informed that the remaining cost incurred includes for taxes, duties, levies and other miscellaneous multiple small value contracts & orders.

3.6 Ash Dyke

Initially DBPL has designated approx.110 acres of land for ash disposal (Ash Dyke-1) Further during cost revision considered to develop an additional ash dyke (Ash Dyke-2 or new ash dyke) over 117 acres land and also made fund allocation for it.

Ash Dyke works consists of excavation & development of ash pond, ash pond lining and extraction Work, ash pond civil & other work, ash water recovery system, etc.

Ash pond garlanding piping was in the scope of BOP contract and land cost is considered under the cost head "Land and Site Development Cost"

3.6.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Ash Dyke	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Reallocated Cost by DBPL Sept'11	Phase-1	44		
	Phase-2	40		
	Total	**84**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	44		
	Phase-2	40		
	Total	**84**		
Revised Appraised Cost as in MM supplementary DD Report March'14	Phase-1	54	~19 (Over Post contingency Allocation)	Existing Ash Dyke-1 estimated Total Rs. 56.78 Cr (52.30 cr. order placed, 5.06 Cr balance to be ordered) Rs. 19 Cr. increase due to new ash dyke construction cost (Estimated total for new ash dyke construction 46.22 Cr) Land cost for new ash dyke (203 acre) considered under land & site development head
	Phase-2	49		
	Total	**103**		
Revised Appraised Cost as in MM Additional DD	Phase-1	57	~25 (Over Post contingency Allocation)	Existing Ash dyke- order placed Rs. 56.74 Cr + Rs. 0.04 Cr balance to be place. New ash Dyke- Rs. 25 Cr due to new ash dyke construction cost (Estimated total for
	Phase-2	52		
	Total	**109**		

Date/ Reference		Ash Dyke	Cost Change	Major Reasons of Cost Change
Report Feb'15				new ash dyke 52 Cr)
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	55	~23 (Over Post contingency Allocation)	44 Cr reasonable by MM (35 for new ash dyke construction and 6 for existing ash dyke modification, 3 for contingency) + 57 for existing ash dyke expenses
	Phase-2	52		
	Total	**107**		
Final Appraised Cost	Total	99	~15 (Over Post contingency Allocation)	

3.6.2 Major Contracts

Contracts Summary and Price

Description		Amount (in Rs. Cr.)
Other Misc. Contractors All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	Construction of Ash Dyke & Pond, Civil Works for 1st Ash Dyke Height Raising, Civil Works for 2nd Ash Dyke Height Raising, Laying LDPE lining to Ash Dyke, RCC Lining of BED & SIDE Slops, Fabrication & Erection of Garlanding Pipes for Ash Dyke Including Support Structure , Supply of Equipments / Material for Ash Water Clarifier System , Construction of Ash Water Recycle Pump House including Storage Tank, Civil Work for Ash Water Clarifier System, Excavation & Embankment work of Ash Dyke	85.95
Total		85.95

3.6.3 Physical Assessment of completeness of scope

The Ash Dyke-1 works are complete and ash is being disposed in the same.

DBPL has informed that the proposal of new Ash Dyke-2 is currently shelved and has alternatively increased the Ash Dyke-1's height in two steps.

During Visit, LIE observed that Ash dyke-1 has been developed on the designated land which is further divided into two lagoons, Lagoon-1 & Lagoon-2 during height increase works. The work of 2nd height raise for Lagoon-2 is completed in December'18 and of Lagoon-1 is completed in October'19.

Ash water clarifier and chemical dosing system:

One clariflocculator is constructed to clarify ash water beside the ash water recovery pond. The construction work completed. Chemical dosing system consisting of dosing pumps and tanks is installed inside a chemical dosing building.

Justification for non-construction of additional Ash Dyke-2:

Justification for non-construction of additional Ash Dyke-2 is attached as Annexure- 1

As per latest guidelines of MOEF & CC, Coal based TPP's have to ensure 100% ash utilization. Accordingly DBPL have planned for 100% utilization of fly ash as well as pond ash. Therefore DBPL envisage no need for construction of number of ash dykes and considers that only existing Ash Dyke-1 two (2) lagoons is sufficient to manage storage of bottom ash in accordance to operational requirements as well as to store fly ash in case of short lifting of fly ash by cement plants during rainy season.

Remaining capacity of existing Ash Dyke-1 is about 361 days considering ash dumping @ 2000 TPD (Tonne per Day) & 481 days @ 1500 TPD. DBPL can generate about 1766 TPD of Bottom ash at 75% PLF and at 100 % Fly ash utilization. DBPL informed that they are also evacuating the stored pond ash to maintain balance capacity of ash dyke all the time.

DBPL have discussed the Fly Ash utilization plan in there justification for non-construction of New Ash Dyke-2. As per plan, DBPL envisage 100% Fly ash utilization and also has a scope to utilize the stored pond and bottom ash. For Fly Ash Utilization DBPL has signed agreements with Emami Cement, Ambuja Cement, Shree Cement, Nuvuco Cement for off take of Fly ash. DBPL has plans to dump the Fly ash and Pond ash in nearby abandoned mines of SECL for which they are perusing with SECL. DBPL has got many numbers of NOCs for land filling in nearby areas.

By managing ash utilization as per plan discussed in annexure-1, DBPL we will maintain sufficient balance capacity available all the time in existing ash dyke

Upon implementation of the submitted plan for ash utilization (annexure-1), the existing ash dyke will be sufficient. However, LIE opines that DBPL shall maintain sufficient empty capacity in existing Ash Dyke-1 all the time to accommodate the ash generated during daily operations in case of short lifting by Cement plants and non-availability of

ash dumping avenues. DBPL shall continue to explore more avenues for 100 % ash utilization.

3.6.4 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Ash Dyke	99.00	78.63	7.32	85.95	-	-	13.05

Appraised Ash Dyke cost is Rs. 99 crore + Rs. 2 crore as a contingency provision. Company has incurred Rs. 78.63 Cr. Balance cost yet to be incurred (7.32 Cr) is for the balance amounts of the work orders related to the Ash Dyke-1 height increase works and Ash Water Recovery System. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred.*

There is a cost saving of Rs. 13.05 Cr. from the final appraised cost. Earlier during cost revision, lenders have considered project cost of Rs. 44 crore (including Rs. 3 crore contingency) towards construction of additional Ash Dyke-2 over 117 acres land. However, instead of constructing additional Ash Dyke-2, company has decided to increase the height of existing Ash Dyke-1 and divide it to form Lagoon-1 & Lagoon-2 and used the part of fund allocated for Ash Dyke-2 for increasing the Ash Dyke-1's height with lenders consent. It has resulted in the cost savings.

Company informed that the works under the cost head were carried by miscellaneous multiple small values orders and contracts. The cost incurred includes for taxes, duties, levies and other miscellaneous small value orders.

3.7 Coal Transportation Arrangement - Railway Siding & Wagon Tippler

Scope considered under the heading "Coal Transportation Logistics" consists of two main systems viz.

1. Railway Siding
2. Coal unloading system-wagon tippler

Broad Scope, Major contracts & orders, Price, physical assessment of completeness of scope etc. is given in subsequent sections.

3.7.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Coal Transportation arrangement	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	102		Rail over rail (ROR) was not considered
	Phase-2	51		
	Total	**153**		
Reallocated Cost by DBPL Sept'11	Phase-1	86		
	Phase-2	79		
	Total	**165**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	86		
	Phase-2	79		
	Total	**165**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	251	~248 (Over Post contingency Allocation)	
	Phase-2	162		
	Total	**413**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	259	~259 (Over Post contingency Allocation)	Rs. 259 Cr. increase due to due to Addition of ROR, bridges, station modification, HT/LT Line crossing railway track. Total Estimate of Rs. 424 Cr include: Rs. 155.5 Cr (144+6.5+5) for Railway siding associated work + HT/LT line + drains & lighting, Rs. 73 Cr. for ROR, Rs. 64 Cr. for Land, Rs. 80 Cr. for coal rake unloading, Rs. 20 Cr. for Contingency, Rs.31 Cr. for station extension & modification / Codal charges
	Phase-2	165		
	Total	**424**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	246	~322 (Over Post contingency Allocation)	
	Phase-2	241		
	Total	**486.94**		
Final Appraised Cost	**Total**	474	~309 (Over Post contingency Allocation)	

3.7.2 Railway Siding

Linkage coal from SECL/MCL coal mines is to be transported up to the site through railway. DBPL has built a dedicated railway siding from nearby Robertson station situated about 14 km from project site for coal transportation by rail rakes to the site. The total track length from Robertson station to the plant is 19.5 km including the loop length but excluding ROR.

The major scope of work for Railway Siding is divided into:

a) Railway Siding and other associated works- bridges/ earthwork / signaling etc.
b) HT/LT line crossing railway track
c) Drain & lighting arrangement in marshaling yard
d) Other railway siding works for connectivity of Private Siding of DBPL, station extension & modification (Works shall be done by railway Authority and DBPL shall pay lump sum amount)
e) Rail over Rail (ROR) bridge

Land cost required for the Railway Siding and ROR is considered in the "Coal Transportation Arrangement Cost"

3.7.2.1 Major Contracts and There Scope

DBPL has awarded M/s. Modi Projects, Ranchi a contract dtd. 31st March, 2015 for the construction of railway Siding & associated works from Robertson station to DBPL site. Scope of work under this contract majorly included of Rail Work, Sleeper Work, Small way fittings, Track laying & Linking, Earth Work, Civil Works, LC Gates, Service Building, Motion Way Bridge, Loco Shed Work, and Drains & Footpath along the line, etc.

Other railway siding works for connectivity of Private Siding of DBPL at Robertson station, station extension & modification, etc. shall be done by Railway Authority for which DBPL has paid demanded amount of Rs. 23.22 Cr. ROB Station modification works pertaining to DBPL siding are approved by SECR.

Contracts Summary and Price

Description	Amount (In Rs. Cr.)

Description		Amount (In Rs. Cr.)
M/s. Modi Projects, Ranchi WO 5200000814 Dtd. 31.05.2015	construction of railway siding & associated works from take-off point at Robertson railway station to DBPL site to facilitate coal transportation	72.93
SECR (Railway Authority) Demand Letter dtd. 25.01.2018	Other railway siding works at Robertson station- for connectivity of DBPL Siding of at Robertson station, station extension & modification, etc. (Works shall be done by railway Authority- DBPL paid demanded amount)	23.22
Railway Siding Land and Other Misc. Contractors. All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	Land Acquisition and development. Consultancy for Project Management Service for proposed Railway Siding, Supply of Material Equipments and all required Standard Accessories for Diversion of 132 KV, DC LINE, Diversion of 400 KV DC, Twin Moose, Tamnar -Raipur, Supply of Material for overhead Electrification & General Electrification at Railway Siding, Design, Supply, Erection, Testing & Commissioning of 25KV A.C. OHE, Supply of 52 KG Rails Required for installation of Railway Siding System, Purchase Order for Supply of Sleepers Required for construction of Railway Siding System, Supply of Points & Crossing Required for installation of Railway Siding System, Supply of 60 KG Rails Required for installation of Railway Siding System, Supply of Material Equipments and Accessories along with Spares for CHP at Railway Siding, Fabrication, Erection, Testing & Commissioning & PG Test of CHP at Railway Siding, Civil & Architectural Works for Coal Handling Plant at Railway Siding, Service Order for Fabrication, Erection, Testing and Commissioning and PG Test of Coal Handling Plant at Railway siding package, Civil & Architectural works for Coal Handling Plant at Railway siding package	194.70
Total		360.40

3.7.2.2 Physical Assessment of completeness of scope

The railway siding work is being done in two phases. The Phase-1 includes the railway line from tap off point near Robertson station to the plant and the Phase-2 includes construction of rail over rail (ROR) bridge.

Phase-1 i.e. the railway line between Robertson station and plant has been completed and DBPL has got the Track fitness certificate to this effect from railways authority.

DBPL has received 1st coal rail rake on 27.03.2019. DBPL informed that all the work pertaining to rail line has been completed and is been operational since commissioning.

During site visit, LE observed that Railway Siding line between Robertson station and project site is in service and operational.

Company informed that there are some works still pending at Robertson station which Indian Railway has to complete which covers three crossovers, one loop line with connecting crossover along with S&T, OHE & FOB works etc. However, these are not limiting the required operation and DBPL is receiving rail rakes to the plant as per requirement.

DBPL informed that all the activities related to the construction of ROR are not started and are put on hold. DBPL is considering not going ahead with ROR construction.

Justification for Non-Construction of ROR:

Company informed that Indian Railways is constructing two additional rail lines on this rail route to develop dedicated freight corridor to handle increased load of goods & passenger traffic. SECR has commissioned 3rd rail lane while the work on 4th rail lane is under progress. Also out of Six (6) private railway sidings envisaged at Robertson station only three (3) have become operational. Other three (3) railway sidings haven't been set up and expected load of Rakes anticipated initially in the master plan has been reduced. With this development, DBPL envisages that rail traffic on this route will not affect the movement of coal rail rake to DBPL. Further, DBPL have considered that after the completion of the works being carried out by SECR at Robertson station for which DBPL has paid a lump sum of Rs. 23.22 Crore, one additional loop line shall be ready for engine reversal as & when required to handle DBPL Rakes at Roberson station without interfering main line traffic. The detailed justification is attached as Annexure-2.

In present scenario, the existing transportation arrangement for coal transportation appears adequate. However, DBPL shall ensure such assurance from Railway Authorities for the seamless movement of the coal rail rakes to the plant without ROR for remaining lifetime of the plant.

3.7.3 Coal Rake Unloading system- Wagon Tippler

DBPL has developed coal rake unloading system with 2 nos. of wagon tippler.

System consists of following Major Items /equipments:

2 nos. of wagon tippler with sidearm charger, 2 nos. of Dribble feeder, 2 nos. of Conveyors (A1 & A2), Apron Feeder, Service water line, Electric Hoist, Manual Hoist, Ventilation system, 2 No. Pump houses, PLC system for control and operation.

3.7.3.1 Major Contracts and there Scope

L&T-MMH was awarded the Supply, Service and Civil works contract for the works associated with Coal Unloading System-Wagon Tippler for CHP at Railway Siding package.

L&T-MMH's Scope under the contract broadly consists of Supply of materials equipments and all required associated accessories along with spares, Fabrication, Erection, Testing, Commissioning and PG Test for Coal handling plant at railway siding package for 2x600 MW TPP of DBPL.

Contracts Summary and Price

Description		Amount (In Rs. Cr.)
L&T-MMH Supply Contract No. 7200000534 Dtd.-28.10.2017 (WO 420000725 Dtd.-22.05.2015)	Supply of materials, equipments and all required associated accessories along with spares for CHP at Railway siding package	47.0
L&T-MMH Service Contract No. 8200000236 Dtd.-28.10.2017 (WO 520000864 Dtd.-22.05.2015)	Fabrication, Erection, Testing and Commissioning and PG Test for CHP at railway siding package	3.5
L&T-MMH Civil Contract No. 8200000237 Dtd.-28.10.2017 (WO 520000865 Dtd.-22.05.2015)	Civil & Architectural works for CHP at Railway siding package	19.5
Sub Total		70.0

3.7.3.2 Physical Assessment of completeness of scope

Two wagon tipplers with side arm chargers have been installed and commissioned. Commissioning of Coal Rake Unloading system was done on 27/03/2019 and PG Test was carried on 22.07.2019.

DBPL has awarded a work completion certificate to the contractor (L&T-MMH) for above mentioned scope of work. Contractor (L&T-MMH) also has issued contract closure certificate which confirm that no claim (except for Rs.1.25 Cr) is pending on DBPL under this contract.

During site visit, LE observed that Coal Rake Unloading system with wagon tippler is in service and operational.

3.7.4 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Coal Transport Arrangement	474.00	363.71	12.06	375.77	-	3.31	98.23

Railway siding total appraised cost is Rs. 474 crore + Rs. 13 crore contingency provisions.

Company has incurred Rs. 363.71 Cr. The major contracts order value and amount paid to SECR for works at Robertson station is Rs. 166.15 (72.93+23.22+70) Cr. Company informed that the remaining cost incurred includes for taxes, duties, levies and other miscellaneous multiple small value contracts & orders and cost of land for the railway siding.

Balance cost yet to be incurred (Rs. 12.06 Cr) is for the balance amounts of the work orders related to the railway siding work. *LIE has issued the drawdown certificate dtd.16.12.2019 against the drawl notice from DBPL dtd.27.09.2019 for this balance cost yet to be incurred.*

Company has received back Rs. 3.31 cr. as Mega Power Project benefit and other saving are Rs. 98.23 crore under this cost head. This includes savings due to non-construction of ROR.

The company has decided non-construction of Rail over Rail and same has been informed to the lenders. ROR construction appraised cost is Rs. 76.57 crore.

Total land cost considered for Railway siding is Rs. 79.38 crore. During appraisal of increased land cost from Rs.64.36 crore to Rs. 79.38 crore LIE has considered demand notice of Rs. 43.12 crore and R&R of Rs. 6.56 crore for land of 133.33 acre (i.e. total cost of Rs. 49.68 crore for balance land of 133.33 acre (avg. land cost Rs. 37.26 Lacs per acre). The land requirement has reduced by 80 acres due to non-construction of ROR. Therefore, the proportionate land cost for 80 acres land is Rs. 29.81 crore. However, actual reduction of land cost is less than Rs. 29.81 crore due to higher R&R and the company needs to make R&R payment of already acquired land.

This has resulted in the savings of Rs. 98.23. Cr (76.57 Cr. of ROR construction + part of Rs. 29.81 Cr of land cost for railway siding)

3.8 Coal Handling System- (Other than under BOP Scope)

DBPL had awarded majority of the in plant CHP related works to L&T under BOP contract and works related to CHP which were outside the BOP scope boundary i.e. before crusher house, were identified to be carried out separately through different contracts. These identified works are related to the systems / items viz.

1. Manual Unloading Hopper
2. Mill Reject
3. Stock Yard extension
4. Road along Railway Siding.

These are considered under the cost head 'Coal Handling System- Other than under BOP scope' having appraised cost of Rs. 76 Cr.

The details of the above items are covered in the subsequent paragraphs.

3.8.1 Manual Unloading Hopper (MUH)

Manual unloading hoppers are required for unloading the coal from dumper trucks during road transportation of coal.

Scope of work mainly consists of:

a) Civil works
b) Mechanical works
c) Associated other works

3.8.2 Coal Stockyard Extension

In a BOP contract, length of stock pile is approximately 2 X 165 m X 50 m, the effective coal stock being 4-7 days. Later on DBPL planned to increase the coal stock pile length from present 2 X 165 m to 2 X 635 m by extending the stock pile towards north which would be able to stock approximately 20-25 days of coal for the plant operation. This extension work was subsequently included in project.

Work Scope mainly consists of:

a) Civil works of extension of Stacker-Reclaimer, paving with RCC, drains and culverts
b) Electrical and Mechanical works

3.8.3 Mill Reject Handling (MRH) System

DBPL has put up a Mill reject handling system for the project in order to ensure proper handling and collection of mill reject from the mills. The same system was not identified to be a part of initial project appraisal.

Broad scope for this system includes

a) Supply of Equipment incl. Spares
b) Erection, Testing & Commissioning
c) Civil Works
d) C&I Supply for Connectivity with DCS

DBPL placed order for supply of materials, equipment, associated accessories including spares, tools and tackles and erection, testing, commissioning including PG test and it was awarded to H.V. Equipment Pvt. Ltd. on 13th November, 2013 (ref: MM additional DD Feb 2015)

3.8.4 Road along Railway Siding

DBPL has considered building a dedicated captive road (10 km) to transport coal from Robertson station to the plant. The same was not identified during initial project appraisal. Later on, considering the delayed progress of Railway Siding proposal activities it was included in project.

3.8.5 Major Contracts and there Scope

DBPL has awarded contract to M/s. Modi Projects Ltd. Ranchi dtd. 17th October, 2014 for the construction of road from plant yard to village Bendojhariya Level crossing for transportation of coal including construction of embankment, construction of sub-grade, granular sub-base, etc.

Contracts Summary and Price

Description		Amount (In Rs. Cr.)
M/s. Modi Projects, Ranchi WO 5400000128 dtd.17.10.2014	Miscellaneous civil construction works & construction works of concrete roads railway siding and various plant areas	75.41 (including Rs. 26.7 Cr. for M/s. Modi Projects, Ranchi WO 5400000128 mentioned above)
Railway Siding Land and Other Misc. Contractors All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	Civil works for coal handling system, Civil Works for Extension of Stacker Reclaimer Package, Mechanical System & Accessories for ROM feeding arrangement to existing Coal Handling Plant, Mobile Coal Sampling Equipment, Spare for CHP Conveyor 1A/1B, Erection, Testing & Commissioning of Mechanical system & Accessories for ROM feeding arrangement to existing coal handling plant, Supply of Equipments for MVW Spray System and Fire Detection & Alarm System for CHP Conveyor 1A/1B, Mill Reject Handling System	

3.8.6 Physical Assessment of completeness of scope

DBPL has constructed ten (10) number manual hoppers with a conveying capacity of 2x2000 TPH. During Visit LIE found MUH System in service and operational.

During Visit LIE observed the coal stock stored on the extended coal stock yard and Stacker and Reclaimer can be operated in the extended stock yard area.

During a visit, LE observed that Mill Reject Handling System with mill reject silos have been installed and fully in service. MRH system consists of one silo for each mill bay (4 mills in one bay and 2 mill bays per Boiler.

DBPL informed that the works of the road along railway siding was short closed due to the development of permanent railway siding. About 2 km concrete approach road from in plant unloading point to the boundary has been constructed out of proposed 10 km.

3.8.7 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		CHP- Other Than BOP Scope	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Reallocated Cost by DBPL Sept'11	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Revised Appraised Cost as in MM supplementary DD Report March'14	Phase-1	51	76 (Over Post contingency Allocation)	MUH Rs. 23 Cr. MRH Rs. 8 Cr. Coal Stock yard extension Rs.18 Cr Road along railway siding Rs. 25 Cr Existing Coal stock yard concreting Rs. 2 Cr
	Phase-2	25		
	Total	**76**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	51	-	
	Phase-2	25		
	Total	**76**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	51		
	Phase-2	25		
	Total	**76**		
Final Appraised Cost	Total	76		

3.8.8 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
CHP- (Other than BOP scope)	76.00	75.73	0.02	75.75	-	0.34	0.25

Final appraised cost under this cost head is Rs. 76 Cr. DBPL has incurred Rs. 75.73 Cr on the works under the cost head. Balance cost yet to be incurred of Rs. 0.02 is for the stock yard extension works payment. DBPL has received Rs. 0.34 Cr. Mega Power

Project benefit under the cost head. There is saving of Rs. 0.25 Cr apart from Mega power project benefit.

Company informed that the works/ activities under the cost head were carried by miscellaneous small value orders/ contracts. The cost incurred includes for taxes, duties, levies and other miscellaneous small value orders.

3.9 Coal Block Mining

Company was allocated a coal block at Durgapur-II Coal Mine for captive use for the project. Company was to develop this coal block including the land acquisition. Company had allocated the funds and started some works for the development of mine.

In year 2014, this coal block was de-allocated following the cancellation of 204 coal blocks by the Hon'ble Supreme Court of India.

3.9.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Coal Block	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	0		Rs. 90 Crores for land acquisition and site development (23 Crores) and R&R (67 Crores)
	Phase-2	90		
	Total	**90**		
Reallocated Cost by DBPL Sept'11	Phase-1	0		
	Phase-2	90		
	Total	**90**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	0		
	Phase-2	90		
	Total	**90**		
Revised Appraised Cost as in MM supplementary DD Report March'14	Phase-1	0	131	Increase of Rs. 103 Cr. is due to increase in land rate. Other ~ Rs. 28 Cr. due to scope change (CHP at mine, mining office, staff accommodation, consultancy fees, substation at mine, diversion of PGCIL transmission line, Coal Mining deed rent, MDO mobilization, and cost of explosives, liaison & court cases etc. including contingency of Rs.6 Cr.)
	Phase-2	221		
	Total	**221**		

Date/ Reference		Coal Block	Cost Change	Major Reasons of Cost Change
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	0		(-6) Cr Contingency
	Phase-2	215		
	Total	**215**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	0		
	Phase-2	74.23		
	Total	**74.23**		
Final Appraised Cost	Total	74.23		

3.9.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Coal Block Mining	74.23	72.70	-	72.70	49.62	-	1.53

Final Appraised Cost for Coal Block Development was 74.23 Cr. DBPL has incurred Rs. 72.7 Cr on the development activities and compensatory levies for Compensatory Afforestation Fund Management Planning (CAMPA) prior to the cancellation of the block.

CAMPA Refund

DBPL had deposited compensatory levies of Rs. 54.84 Cr. in the Compensatory Afforestation Fund managed by Ad-hoc CAMPA towards diversion of 290.399 ha. of forest land for coal mining in favour of M/s DB Power Limited in Dharamjaygarh Forest Division of Raigarh district of Chhattisgarh. Following the coal block cancellation by Hon'ble Supreme court of India, coal block was not re-auctioned. MoEF has revoked the Forest clearances of the said block in March, 2017 and refunded the compensatory levies of Rs. 49.62 Cr in year 2018 and withheld the already spent Rs. 5.22 Cr. Refunded amount includes CAMPA and refund / adjustment of PGCIL charges against the amount paid by the company to PGCIL for diversion of transmission line.

Subsequent to the CAMPA refund, the actual cost incurred is Rs. 23.08 Cr including the Rs. 5.22 Cr. withheld from CAMPA levies.

There is other saving of Rs. 1.53 Cr from final appraised cost.

Company informed that the works/ activities under the cost head were carried by miscellaneous small value orders/ contracts. The cost incurred includes for taxes, duties, levies and other miscellaneous small value orders.

3.10 Labour Cess

3.10.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/Reference		Cess	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	0		Not considered during the initial appraisal
	Phase-2	0		
	Total	**0**		
Reallocated Cost by DBPL Sept'11	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	32	64 (Over Post contingency Allocation)	Considered due to enactment by Government of Chhattisgarh. DBPL informed that as per DBPL's calculation 1% Cess is payable only on civil construction cost. However, Labour Department of Chhattisgarh like in other state has interpreted that levy of Cess is payable on entire cost of construction which includes materials and supplies too. In brief it is applicable on entire project hard cost of approximately Rs. 6300 Crores i.e. Rs. 64 Cr.
	Phase-2	32		
	Total	**64**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	32		
	Phase-2	32		
	Total	**64**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	5		DBPL to discuss with concerned Government agency to finalize the actual amount payable under this head and inform to Lenders/LIE when finalized.
	Phase-2	5		
	Total	**10**		
Final Appraised Cost	Total	10		

3.10.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Final estimation	CAMPA Refund	Mega Receipt	Balance Cost yet to be incurred	Deviation between final appraised cost and final estimated cost
Labour Cess	10.00	9.70	9.70	-	-	-	0.30

DBPL has incurred Rs. 9.30 Cr. on labour Cess for the project execution against the appraised cost of 10 Cr.

3.11 Miscellaneous Site Enabling Activities

Contracts Summary and Price

Description		Amount (In Rs. Cr.)
Other Misc. Contractors All Misc. multiple contracts below Rs. 30 crore including taxes, duties, freight, fees, direct purchase and any other misc. expenses	Construction of Road, Office Building, Studio Apartment, Guest House, Construction of Fencing & Boundary Wall, Weighbridge, Furniture & Fixture, Chemical Lab Equipment, Construction Power etc.	98.24
Total		98.24

3.11.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Misc. Site Enabling	Cost Change	Measure Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	0		
	Phase-2	0		
	Total	**0**		
Reallocated Cost by DBPL Sept'11	Phase-1	51		Order Value Rs. 98.60 Cr
	Phase-2	47		
	Total	**98**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	51		
	Phase-2	47		
	Total	**98**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	51		Order Value Rs. 98.60 Cr
	Phase-2	47		
	Total	**98**		

Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	51		
	Phase-2	47		
	Total	**98**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	51		
	Phase-2	47.24		
	Total	**98.24**		
Final Appraised Cost	Total	98		

3.11.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	Final Estimation	CAMPA Refund	Mega Receipt	Deviation between final appraised cost and final estimated cost
Miscellaneous Site Enabling	98.24	98.24	-	98.24	-	-	-

DBPL has incurred Rs. 98.24 Cr on Miscellaneous Site Enabling activity. During final cost appraisal these actual incurred expenses were considered as a final appraised cost under this heads.

Company informed that the works/ activities under the cost head were carried by miscellaneous multiple small values orders/ contracts. The cost incurred includes for taxes, duties, levies and other miscellaneous small value orders.

4.0 REVIEW OF SOFT COST HEADs

4.1 Preliminary & Pre-operative, Environment Protection and Start-Up Costs

4.1.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		Prelimi-nary & Pre-ops.	Environ-nment prote-ction cost/ CSR	Start-up Cost	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	123	0	0		
	Phase-2	50	31	0		
	Total	173	31	0		
Reallocated Cost by DBPL Sept'11	Phase-1	123	0	0		
	Phase-2	50	0	0		
	Total	173	0	0		
Cost Post Contingency Allocation 11th June 2013	Phase-1	138	0	0		From balance Contingency Rs. 34.41 Cr.
	Phase-2	69	0	0		
	Total	207	0	0		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	129	13	68	81 (Over Post contingency Allocation)	SCOD: 1st January, 2014 for Phase-1 and 1st April, 2014 for Phase-2 respectively. Increase in pre-operative cost is mainly due to increase in project implementation period by 3 months for Ph-I and 12 months for Ph-II. For Phase-I based on actual preoperative expenditure till September 2013 and prorated expenditure till COD total pre-operative expenses of Rs. 123.18 Crores. DBPL included Rs. 6 Cr. for debt arrangement, upfront fees etc. in pre-operatives, Totaling to Rs. 129 Cr (123+6). For Phase-2 pre-operative expenditure of Rs. 144 Cr. DBPL has considered Rs. 8 Cr. towards debt arrangement etc. and Rs.6 Cr. as insurance cost in Pre-Op cost, totaling to Rs. ~159 cr. (144+8+6) Start-up Cost Required Rs. 136 Cr. (for Coal 78 Cr, For Oil 68 Cr. For Aux Power 10.85 cr. minus for in-firm power 17 Cr) As per of MOEF clearance dated 16th September 2010 condition no. xvi an amount of Rs. 26 Crores shall be earmarked as one time capital cost for CSR programme
	Phase-2	159	13	68		
	Total	288	26	136		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	247	13	92		Increase in pre-operative cost is mainly due to increase in project implementation period (COD) by 24 months for Phase-I. Phase-1 commissioned on 1st April, 2014 but COD postponed to 1st January, 2016 Phase-I based on actual preoperative expenditure till September 2014 and prorated expenditure till COD total pre-operative expenses of Rs. 236.64
	Phase-2	159	13	68		
	Total	406	26	160		

Date/ Reference		Prelimi-nary & Pre-ops.	Environ-nment prote-ction cost/ CSR	Start-up Cost	Cost Change	Major Reasons of Cost Change
						Crores and DBPL included Rs. 10 Cr. for debt arrangement, upfront fees etc. in pre-operatives totaling to ~ Rs. 247 Cr. Start Up Cost increase for Phase-1 by Rs. 34 cr. (For Coal 25 cr. + for Oil 10 Cr. + for Aux power 3.15 Cr. - (minus) Infirm power sell 4 Cr.) DBPL has spent Rs. 58.24 Crore upto 30th Sept'14 for phase-1. Start-up cost of Phase-1 Rs. 92 Cr. = actual expense 58.24 Cr. + increased 34 Cr.
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	219	8	68		
	Phase-2	189	10	18		
	Total	408.03	17.54	86.4		
Final Appraised Cost	Total	408.03	17.54	86.4		

4.1.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	CAMPA Refund	Mega Receipt	Final estimation	Deviation between final appraised cost and final estimated cost
Preliminary & Pre-ops.	408.03	408.03	-	-	-	408.03	-
Environment protection cost-CSR	17.54	17.54	-	-	-	17.54	-
Start-up Cost	86.40	86.40	-	-	-	86.40	-

DBPL has incurred Rs. 408.03 Cr for preliminary and pre-operation activities for declaration of COD of the respective Unit. Additionally DBPL also incurred 86.40 Rs. of Start-up costs for putting the Units into commercial operation. During final cost appraisal these actual incurred expenses were considered as a final appraised cost under these heads.

4.2 Interest during Construction (IDC) Cost

4.2.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		IDC	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	364		
	Phase-2	356		
	Total	**720**		
Reallocated Cost by DBPL Sept'11	Phase-1	364		
	Phase-2	356		
	Total	**720**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	364		
	Phase-2	356		
	Total	**720**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	488	485 (Over Post contingency Allocation)	SCOD: 1st January, 2014 for Ph-1 and 1st April'14 for Ph-2 respectively. Increase cost is mainly due to increase in project implementation period by 3 months for Ph-1 and 12 months for Ph-2
	Phase-2	717		
	Total	**1205**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	1,134	1145 (Over Post contingency Allocation)	Increase due to shifting of COD by 24 for Phase-I. DBPL had requested approval of lenders for revision in COD to 1st January'16 for Phase-I. DBPL mentioned that it is due to non-availability of Long Term Open Access (LTOA) and scarcity of coal availability.
	Phase-2	731		
	Total	**1865**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	887		
	Phase-2	909		
	Total	**1795.89**		
Final Appraised Cost	Total	1795.89		

4.2.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	CAMPA Refund	Mega Receipt	Final Estimation	Deviation between final appraised cost and final estimated cost
IDC	1,795.89	1,795.89	-	-	-	1,795.89	-

DBPL has incurred Rs. 1795.89 Cr. on Interest during the project construction.

4.3 Working Capital Margin (WCM)

4.3.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/ Reference		WC Margin Money	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	52		
	Phase-2	51		
	Total	**103**		
Reallocated Cost by DBPL Sept'11	Phase-1	52		
	Phase-2	51		
	Total	**103**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	52		
	Phase-2	51		
	Total	**103**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	97	86 (Over Post contingency Allocation)	Increase in Working Capital requirement
	Phase-2	92		
	Total	**189**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	154	150 (Over Post contingency Allocation)	
	Phase-2	99		
	Total	**253**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	154		
	Phase-2	116		
	Total	**270.13**		
Final Appraised Cost	Total	270.13		

4.3.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	CAMPA Refund	Mega Receipt	Final Estimation	Deviation between final appraised cost and final estimated cost
WC Margin Money	270.13	270.00	-	-	-	270.00	0.13

DBPL has used the Rs. 270 Cr. from the final appraised WC Margin cost of Rs. 270.13 Cr and has saving of Rs. 0.13 Cr. under the cost head "Working Capital Margin money"

4.4 Contingency

4.4.1 Chronology of Change of Appraised Cost

All Costs in Rs. Crore

Date/Reference		Contingencies	Cost Change	Major Reasons of Cost Change
Lenders Appraised Cost June'11	Phase-1	82		
	Phase-2	100		
	Total	**182**		
Reallocated Cost by DBPL Sept'11	Phase-1	82		
	Phase-2	100		
	Total	**182**		
Cost Post Contingency Allocation 11th June 2013	Phase-1	0	-182	: for land & site development- 1.33 Cr due to increase in land cost :For BTG - Rs. 59.52 Cr. (11.46 Cr for scope modification of BTG contracts for bunker roof and ACW system + 48.06 cr. FOREX impact) : for BOP- 86.74 Cr. (7.88 Cr. scope modification in BOP contract for CHP + 78.86 Cr. due to escalation in BOP contracts) : For Pre-Ops utilization Rs 34.41 Cr : Total Contingency used - Rs. 182 Cr
	Phase-2	0		
	Total	**0**		
Revised Appraised Cost as in MM Supplementary DD Report March'14	Phase-1	0		: Contingency in coal block Rs. 6 Crores and railway siding Rs. 20 Crores have been provided in respective heads.
	Phase-2	0		
	Total	**0**		
Revised Appraised Cost as in MM Additional DD Report Feb'15	Phase-1	0		
	Phase-2	13		
	Total	**13**		
Revised Appraised Cost as in MM TEV Report Sept'16	Phase-1	15		
	Phase-2	0		
	Total	**15**		
Final Appraised Cost	Total	15		

4.4.2 Financial Review

All Costs in Rs. Crore

Lender's Cost Head	Appraised Cost (Crores)	Incurred Cost Till 30th June'19	Balance Cost yet to be incurred	CAMPA Refund	Mega Receipt	Final estimation	Deviation between final appraised cost and final estimated cost
Contingencies	15.00	-	-	-	-	-	15.00

Initially Appraised Contingency Fund (Rs. 182 Cr.) was allocated to the project cost heads during a cost revision on 11th June 2013. During Subsequent cost revisions for proposals of Railway siding and Additional Ash Dyke-2 Rs. 15 Cr were appraised as contingency for these. Rs. 13 Cr were for railway siding and Rs. 2 Cr were for Ash Dyke work. These contingency allocation funds are not used.

DIGITAL SIGNATURE

Prepared by:-

L&T – Sargent & Lundy Limited

L&T Knowledge City, Vadodara, Gujarat.

CIN No. U74210MH1995PLC088099

ANNEXURES

ANNEXURE-1

JUSTIFICATION FOR NON-CONSTRUCTION OF ADDITIONAL ASH DYKE

(As provided by DBPL)

JUSTIFICATION FOR NON-CONSTRUCTION OF ADDITIONAL ASH DYKE (As provided by DBPL)

As per latest guidelines of MOEF & CC, Coal based TPP's have to ensure 100% ash utilization and accordingly we have planned for 100% utilization of fly ash as well as pond ash. Therefore there is no need of construction of number of ash dykes. Only one ash dyke of adequate capacity with minimum 2 lagoons is sufficient to manage storage of bottom ash in accordance to operational requirements as well as to store fly ash in case of short lifting of fly ash by cement plants during rainy season.

Existing ash dyke is constructed over 120 acre land. Initially starter dyke was constructed with top level of 232.5m. Thereafter 1st Raising was done up to RL 235.5m. Now 2nd Raising has also been completed & top level of dyke is now RL 239.0 m

Stage wise Capacity of existing ash dyke

Stages of dyke	Capacity (Lakh MT)	Cumulative Capacity (Lakh MT)
Starter dyke	15.98	15.98
1 Raising	10.21	26.19
2nd Raising – Lagoon 1	5.8	31.99
2nd Raising – Lagoon 2	6.35	38.34

Year wise data pertaining to ash dumped in existing ash dyke till Feb 2020

Financial Year	PLF	Coal Consumption	Ash Generation (LMT)			Fly Ash Diversion to dyke	Total ash in Ash dyke
	%	LMT	Bottom Ash	Fly Ash	Total	LMT	LMT
FY 14-15	--	2.23	0.19	0.737	0.925	0.31	0.50
FY 15-16	45.3	18.09	1.89	6.33	8.22	0.8	2.71
FY 16-17	68.4	55.12	5.59	18.72	24.32	2.3	7.90
FY 17-18	62.2	49.76	4.70	16.63	21.33	2.7	7.41
FY 18-19	64.0	47.04	3.84	16.00	19.84	2.2	6.04
FY 19-20 (Till Feb 20)	61	41.79	3.38	15.42	18.8	2.94	6.32

As per data discussed in above Table in last 5 years total 30.88 lakh MT ash has been dumped into existing ash dyke including fly ash diverted as & when required. Thus total ash dumped @ 1962 TPD (average based upon data from FY 16-17 to 19-20) which needs to be evacuated now to maintain available space intact within existing ash dyke to meet out the operational requirements.

In last 3 months we have maintained pond ash evacuation @ 1000 TPD which shall be increase in this month upto 2500 TPD and subsequently we will achieve pond ash evacuation target of 3500 TPD by next month.

As on date balance capacity of existing ash dyke

Lagoon#1 - 6.02 lakh MT

Lagoon#2 - 1.2 lakh MT

Total - 7.22 lakh MT

(This is verified balance capacity. Difference with reference to above tabulated data is due to quantity of moisture added in wet ash for loading of hywas & trailers in last 5 years)

Thus life of existing ash dyke is of 361 days considering ash dumping @ 2000 TPD & 481 days @ 1500 TPD. We already have started evacuation of pond ash to maintain balance capacity of ash dyke all the times.

Data pertaining to ash generation & ash utilization

Plant Capacity	MW	1200	
Average PLF	%	75	
SCC	MT/MW	0.73	
Ash Content	%	42	
Expected total Ash generation	Lakh MTPA	23	8830 TPD
Expected generation of bottom ash	Lakh MTPA	4.6	1766 TPD
Expected generation of fly ash	Lakh MTPA	18.4	7064 TPD

To ensure 100% fly ash utilization we have signed long term agreement with following Cement Plants and engaged transporters for reclamation of abandoned mines in village Gudeli & Siriyagarh

(A) List of Cement Plants off taking fly ash from DB Power

Cement Plants	Off take quantity (Lakh MT PA)	Remarks
Emami Cement	5	Agreement signed for a period of 3 years effective from 1/7/2019 (Copy attached)
Ambuja Cement	5	Agreement signed for a period of 2.5 years effective from 1/7/2019 (Copy attached)
Shree Cement	1	Reference mail is attached. Discussions with management of Shree Cement is also being done for fly ash off take 3.5 LMT/PAfrom DBPL
Nuvuco Cement	1	Reference mail is attached
Total	**12**	

(B) List of abandoned mines where in fly ash & pond ash is being dumped /proposed to be dumped

Name of Mines	Capacity of Mine (Lakh MT)	Planned dispatch of ash (Lakh MT PA)	Life of areas as per present capacity
Gudeli	21	4.8	4 years
Siriyagarh	6	2.7	2 years
Total		**7.5**	

(C) List of other avenues where in ash utilization is in progress & proposed

Other Areas	Capacity of ash utilization (Lakh MT)	Planned ash utilization (Lakh MT PA)
Landscaping over DBPL land nearby labour colony	10	2.5
Development of areas along DBPL Railway siding	4	1
Brick Plants & Concrete for Road construction (agreement signed with Matikala Board of State Govt. & establishment of plant is in progress)	As per requirement	0.3
Total		**3.8**

Thus total ash utilization planned & in progress as above = 23.3 Lakh MT PA

Whereas total Ash generation expected is 23 Lakh MT PA only.

By managing ash utilization as discussed above we will maintain sufficient balance capacity available all the time in existing ash dyke.

In addition to above we are in discussions with followings to increase ash utilization further as well as to ensure availability of avenues for ash utilization in future.

1. MOEF & CC has also directed Coal India & its subsidiaries to promote ash utilization during stowing of coal mines. Chhal is the nearest mine to DB Power Limited & we are pursuing SECL directly as well as through CECB for allowing ash utilization in abandoned space of Chhal coal mine. SECL has already engaged CMPDI Ranchi for carrying out feasibility study of mines & based upon CMPDI feasibility study will process for amendment in mine plan. Scope of ash utilization is tremendous in stowing of abandoned coal mine of Chhal as the capacity of this mine is 3.5 MTPA & in operation by 2002. Capacity of this mine has now been increased up to 6 MTPA. Part area of this mine which was in operation by 2002 has already been exhausted & stowing in progress.

2. As per direction of MOEF & CC, CECB is pursing NH authorities also to ensure pond ash utilization if construction of embankment of Roads. Matter is already In discussion with NH authorities & very soon we will finalize & start ash utilization in construction of embankment for National Highways. Ash utilization scope is tremendous in construction of National Highways.
3. In addition to above number of other mines in Gudeli & Siriyagarh of same capacity will become abandoned in next 2 years
4. We have identified one mine in village Dumrapara Tehsil Baradwar which is 55 km from DB Power Plant and ash utilization potential is more than 10 LMT. Process to collect details and all required NOC's has also been initiated.

In view of above discussions, we are confident that additional ash dyke is not required & we will manage operations of plant successfully without any threat to plant.

Note: MT is Metric Tonne in this annexure-1

ANNEXURE-2

JUSTIFICATION FOR NON-CONSTRUCTION OF ROR
(As provided by DBPL)

Report Pertaining To Savings Occurred Due To Non-Construction of ROR

(As provided by DBPL)

DBPR siding is connected with Robertson Railway station of Bilaspur – Howrah main line which is 14.3 Km from DB Power Plant. DBPR siding is constructed with full-fledged facilities like four R&D lines with full rake capacity, two number of wagon tipplers for unloading of coal having tippling capacity of 20 wagons per hour per tippler & the siding is electrified.

DBPR siding is constructed to handle 4 to 5 rakes in a day with the existing system without any modifications. As per Railway Engine on Load (EOL) scheme one rake is to be unloaded within 5 hours of free time as specified in the railway board circular dated 4-12-2018.

ROB Station modification works pertaining to DBPL siding approved by SECR in two Phases as per approved ESP (ALT-7) dated 22nd Nov 2017 (Copy attached) which are as below

The Phase # 1 covers three crossovers, one loop line with connecting crossover along with S&T, OHE & FOB works etc.

Accordingly DBPL has opted execution of ROB station modification works of Phase # 1 for connecting DBPL siding through SECR as deposit work and paid an amount of Rs 23 Cr as per demand.

Since DBPL siding lead line works were in completion stage in the month of Oct 2018 whereas works being carried out by SECR against deposit works in Phase # 1 were far from the target then again we approached SECR & requested to find out solution for connectivity of DBPL siding for commissioning of DBPL siding.

Thereafter it was decided & approved for providing taking off by inserting an additional turn out at Ch. 590.618m (Copy attached) and accordingly DBPL siding was connected with ROB Station on 7th March 2019 & 1st Rake arrived at DB Power Wagon Tippler on 27th March 2019. DBPL is comfortably handling 3 rakes per day. This will further improve after completion of Phase # 1 works being carried out by SECR as one additional loop line shall be ready for engine reversal as & when required without interfering main line traffic. The work covered under Phase# I are still in progress through SECR without affecting movement of DBPL rakes.

As per approved master plan of ROB Station number of sidings (Listed here under) were proposed from ROB Station.

1. M/s Aditya Sales
2. M/s BEMPL
3. M/s DB Power Limited
4. M/s Manish Varsainya (Now known as Vedanta Siding VWLR)
5. M/s Mahaveer Coal
6. M/s RCBPL

But in actual only 3 sidings listed at S No 2, 3 & 4 have been constructed & rest has even not initiated any activity in the field. Originally DBPL siding was sanctioned for 5 rakes per day & rest all other sidings were sanctioned for 1 rake per day. Thus total load of rakes was considered 10 Rakes per day.

But BEMPL siding take-off is from down line & not affecting movement of sidings taking off from up line. DBPL siding & Vedanta siding take off are through Up line. In the past at Vedanta 50-60 Rakes in a month were handled successfully but now only 25-30 Rakes are being handled as DBPL Rakes have now being received directly through DBPL siding. SKS Siding has also been commissioned & in future SKS Rakes shall also be diverted to SKS siding. Thereafter only RKM Rakes shall be handled at Vedanta siding till readiness of RKM siding.

In addition to above, SECR has already commissioned 3rd line to develop dedicated freight corridor & in the same scheme to handle increased load of goods & passenger traffic works of 4th line are also in progress.

As discussed above conclusion is that –

- Expected load of Rakes anticipated initially in master plan has reduced drastically.
- Commissioning of 3rd & 4th Line will further reduce interference of Rakes with the main line traffic as flexibility at Stations will increase.
- Availability of additional loop line & crossovers after completion of ROB station modification works will ease out engine reversal process for handling of DBPL Rakes at ROB Station

In view of above we does not foresee any constraint in handling of 4-5 Rakes in future through proposed connectivity in Phase # 1 & construction of ROR is not required

ANNEXURE-3

Settlement Agreement with BHEL

ANNEXURE-4

L&T LTD Email of contract closure

ANNEXURE-5

Contract Closure Certificate with M/s. KEC for Transmission Line

ANNEXURE-6

Contract Closure Certificate by with M/s. L&T-MMH for Wagon Tippler