Thar Coal & Energy Board
Government of Sindh

No. TCEB/Registrar/2-1/2014
Dated: 5th June, 2015

To,

The Secretary,
Energy Department,
Government of Sindh,
Karachi.

Subject: **DETERMINATION OF THAR COAL & ENERGY BOARD IN THE MATTER OF REFERENCE CONTRACT STAGE TARIFF FOR SINDH ENGRO COAL MINING COMPANY MINE OF 3.8 MTPA UP TO 6.5 MTPA AT BLOCK II THAR COALFIELDS, DISTRICT THARPARKAR, SINDH, PAKISTAN.**

I am directed to enclose herewith the subject Determination of Thar Coal and Energy Board (50 pages) in Case No. TCEB/Registrar/2-1/2014.

2. The Determination is being intimated to the Government of Sindh for the purpose of the Notification of the approved tariff in the Official Gazette (Extra Ordinary) pursuant to Rule 10(9) of Thar Coal Tariff Determination Rules, 2014.

3. Please note that only 'Coal Tariff Determination Order' of Thar Coal and Energy Board at page 33 onwards along with Annexures A1, A2, A3, B and C needs to be notified in the Official Gazette (Extra Ordinary).

5/6/2015

(Shahab Qamar Ansari)
Registrar TCEB

A copy is forwarded for information to:

1. Chief Secretary Sindh, Karachi.
2. Principal Secretary to Chairman TCEB/ Chief Minister Sindh, Karachi.

THAR COAL AND ENERGY BOARD ★ GOVERNMENT OF SINDH ★

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Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-1/2014
June 05, 2015

Thar Coal & Energy Board

DETERMINATION OF THAR COAL & ENERGY BOARD IN THE MATTER OF REFERENCE CONTRACT STAGE TARIFF FOR SINDH ENGRO COAL MINING COMPANY MINE OF 3.8 MTPA UP TO 6.5 MTPA AT BLOCK II THAR COALFIELDS, DISTRICT THARPARKAR, SINDH, PAKISTAN

Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-1/2014
May 07, 2015

Determination of Reference Contract Stage Tariff for Sindh Engro Coal Mining Company Mine of 3.8 MTPA up to 6.5 MTPA at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan

Thar Coal Tariff Determination Committee
Constituted in Pursuance of Rule 3(1) of Thar Coal Tariff Determination Rules, 2014

Dr Abdul Ghani Pathan
Member

Mr Sultan Farooq Ahmed Khan
Member

Mr Ejaz Ahmed Khan
Member / Presiding Officer

Thar Coal & Energy Board

Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-1/2014
June 05, 2015

In pursuance of the Rule 10(5) of the Thar Coal Tariff Determination Rules, 2014, it is certified that the Thar Coal & Energy Board, on the recommendation of the Thar Coal Tariff Determination Committee, has approved the Determination of Contract Stage Tariff for Sindh Engro Coal Mining Company Mine of 3.8 MTPA up to 6.5 MTPA at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.

Thar Coal & Energy Board

Ejaz Ahmed Khan
Managing Director
Thar Coal & Energy Board

THAR COAL AND ENERGY BOARD GOVERNMENT OF SINDH

BCM	Bank Cubic Meter
CAR	Contractors' All Risk
COD	Commercial Operations Date
CPI	Consumer Price Index
CSA	Coal Supply Agreement
ECC	Economic Coordination Committee
EPC	Engineering, Procurement & Construction
EPP	Energy Purchase Price
GCV	Gross Calorific Value
GoS	Government of Sindh
HSE	Health, Safety & Environment
IA	Implementation Agreement
ICB	International Competitive Bidding
ICC	In-pit Crushing & Conveying
IDC	Interest During Construction
IRR	Internal Rate of Return
KIBOR	Karachi Inter-Bank Offer Rate
LC	Letter of Credit
LDs	Liquidated Damages
LHV	Lower Heating Value
LIBOR	London Inter-Bank Offer Rate
MJ / Kg	Mega Joules per Kilogram
MSF	Mine Service Facilities
MTPA	Million Tons Per Annum
MW	Megawatt
MT	Million Tons
MYT	Multi Year Tariff
NCV	Net Calorific Value
NEPRA	National Electric Power Regulatory Authority
NOC	No Objection Certificate
NTDC	National Transmission & Despatch Company
O&M	Operations & Maintenance
OGRA	Oil & Gas Regulatory Authority
PKR	Pakistani Rupee
PPA	Power Purchase Agreement
RCOD	Required Commercial Operations Date
RMB	Chinese Renminbi
RoE	Return on Equity
RoEDC	Return on Equity During Construction
SBLC	Stand By Letter of Credit
SBP	State Bank of Pakistan
SCOD	Scheduled Commercial Operations Date
SECMC	Sindh Engro Coal Mining Company
SEPA	Sindh Environmental Protection Agency
TCEB	Thar Coal & Energy Board
TT & OD	Telegraphic Transfer & On Demand
US	United States
USD	United States Dollar

Thar Coal & Energy Board

THAR COAL AND ENERGY BOARD
GOVERNMENT OF SINDH

The Thar Coal & Energy Board, as per the respective notifications of the Government of Sindh and Government of Pakistan is the coal-pricing agency, in accordance with Section 5(m) of Thar Coal & Energy Board Act, 2011. This determination is conducted in accordance with the authority vested with TCEB and pertains to the Petition of Sindh Engro Coal Mining Company for Determination of Reference Contract Stage Tariff for SECMC's Mine of 3.8 MTPA up to 6.5 MTPA at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated January 05, 2015. The coal tariff determination relates to the specific mine lease of Block II Thar Coalfields. The Petition has been assessed and reviewed in accordance with the parameters and guidelines established under the Thar Coal Tariff Determination Rules, 2014 dated November 27, 2014 as notified by Government of Sindh. The coal tariff, so determined, shall form the basis of fuel cost for downstream power generation to be determined by NEPRA.

TARIFF SOUGHT BY PETITIONER

1. The Petitioner has submitted a request for determination of levelized tariff of USD 69.22 per Ton for development & operations of 3.8 MTPA mining capacity and USD 49.93 per Ton for development & operations of 6.5 MTPA mining capacity. The submittal is based upon two independent computations for 3.8 MTPA & 6.5 MTPA capacities respectively. The 3.8 MTPA Project Cost is USD 789.06 Million incurred over a period of 42 months and the 6.5 MTPA capacity envisages an incremental cost of USD 124.73 Million incurred over a period of 24 months. The details of the petitioned costs are provided in Tables 1 to 8 here below:

Table 01 – Petitioned Project Tariff for 3.8 MTPA Mining Capacity

Project Tariff for 3.8 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Total Production Payment Tariff Components	13.28	11.99	13.06
Total Capacity Payment Tariff Components	64.59	40.19	56.16
Total Project Tariff	**77.88**	**52.18**	**69.22**

All amounts in USD per Ton

Table 02 – Petitioned Production Payment Tariff for 3.8 MTPA Mining Capacity

Production Payment Tariff Components for 3.8 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Fuel Cost	7.02	6.57	6.92
Variable O&M – Foreign	4.31	4.03	4.26
Asset Replacement Cost	1.95	1.38	1.89
Royalty	-	-	-
Total Production Payment Tariff Components	**13.28**	**11.99**	**13.06**

All amounts in USD per Ton

Thar Coal & Energy Board

Table 03 – Petitioned Capacity Payment Tariff for 3.8 MTPA Mining Capacity

Capacity Payment Tariff Components for 3.8 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Fixed O&M – Foreign	6.97	6.84	6.96
Fixed O&M – Local	7.20	6.39	6.93
Insurance	1.73	1.73	1.73
Power Cost - By Grid (80%)	1.50	1.49	1.50
Power Cost - By Diesel (20%)	0.66	0.66	0.66
Cost of Working Capital	1.26	1.21	1.25
Debt Principal Repayment	14.54	-	8.79
Debt Interest Payment	8.89	-	6.47
Return on Equity	12.51	12.51	12.51
Return on Equity During Construction	9.35	9.35	9.35
Total Capacity Payment Tariff Components	**64.59**	**40.19**	**56.16**

All amounts in USD per Ton

Table 04 – Petitioned Project Cost for Development of 3.8 MTPA Mining Capacity

Petitioned Project Cost for 3.8 MTPA	Amount
EPC Cost	438.75
Non EPC Cost	202.93
Insurance Cost	6.58
Financing Fee, LC Charges, Sinosure Fees etc.	45.33
Interest During Construction	95.47
Total Project Cost	**789.06**

All amounts in USD Million

Table 05 – Petitioned Project Tariff for 6.5 MTPA Mining Capacity

Petitioned Tariff for 6.5 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Total Production Payment Tariff Components	11.28	10.54	11.20
Total Capacity Payment Tariff Components	43.04	29.10	38.73
Total Project Tariff	**54.31**	**39.64**	**49.93**

All amounts in USD per Ton

Table 06 – Petitioned Production Payment Tariff for 6.5 MTPA Mining Capacity

Production Payment Tariff Components for 6.5 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Fuel Cost	5.85	5.72	5.84
Variable O&M – Foreign	3.7	3.62	3.69
Asset Replacement Cost	1.73	1.20	1.67
Royalty	-	-	-
Total Production Payment Tariff Components	**11.28**	**10.54**	**11.20**

All amounts in USD per Ton

Table 07 – Petitioned Capacity Payment Tariff for 6.5 MTPA Mining Capacity

Capacity Payment Tariff Components for 6.5 MTPA	Year 1 – 10	Year 11 – 30	Year 1 – 30
Fixed O&M – Foreign	5.58	5.45	5.57
Fixed O&M – Local	5.78	5.35	5.66
Insurance	1.21	1.21	1.21
Power Cost - By Grid (80%)	0.87	0.87	0.87
Power Cost - By Diesel (20%)	0.78	0.78	0.78
Cost of Working Capital	1.13	1.11	1.13
Debt Principal Repayment	9.01	-	5.87
Debt Interest Payment	4.31	-	3.28
Return on Equity	8.47	8.47	8.47
Return on Equity During Construction	5.89	5.89	5.89
Total Capacity Payment Tariff Components	**43.04**	**29.10**	**38.73**

All amounts in USD per Ton

Thar Coal & Energy Board

Table 08 – Petitioned Project Cost for Enhancement to 6.5 MTPA Mining Capacity

Petitioned Project Cost for 6.5 MTPA	Amount
EPC Cost	84.51
Non EPC Cost	22.00
Insurance Cost	1.27
Financing Fee, LC Charges, Sinosure Fees etc.	12.37
Interest During Construction	4.59
Total Project Cost	**124.73**

All amounts in USD Million

2. The amounts illustrated above are petitioned on the basis of certain assumptions which are detailed in the following sections. The key assumptions and basis of the Petition are summarized hereunder.

i.	Price of Diesel	PKR 95.91 per Litre
ii.	PKR to USD Exchange Rate Parity	PKR 101.75 per USD
iii.	RMB to USD Exchange Rate Parity	RMB 6.10 per USD
iv.	Cost of Foreign Financing	LIBOR + 4.00%
v.	Cost of Local Financing	KIBOR + 3.00%
vi.	LIBOR Assumption	0.50%
vii.	KIBOR Assumption	9.62%
viii.	Debt to Equity Ratio	70:30
ix.	Debt Repayment Period	10 Years
x.	Equity IRR	20.00%
xi.	Equity Drawdown Profile	75% Upfront & 25% in Final Year
xii.	Average Heat Content (LHV) from Year 1 – 8	11.30 MJ / kg
xiii.	Average Heat Content (LHV) from Year 9 – 30	11.61 MJ / kg
xiv.	Mining Technology	Truck & Shovel
xv.	Construction Period for Development of 3.8 MTPA Capacity	42 Months
xvi.	Construction Period for Enhancement to 6.5 MTPA Capacity	24 Months
xvii.	Overburden Removal for development of 3.8 MTPA Capacity	113 Million BCM
xviii.	Overburden Removal for enhancement to 6.5 MTPA Capacity	18 Million BCM
xix.	Average Slope Angle of the Mine	24° (Degrees)
xx.	Average Rate of Dewatering	30 Cusecs

Thar Coal & Energy Board

PUBLIC HEARING

3. The Board, through the Thar Coal Tariff Determination Committee, conducted a hearing in the matter of the tariff petition filed by the Petitioner on February 03, 2015. In response to the notice, the Board received written comments from only one entity, i.e. Fauji Fertilizer Company Limited (FFC). The comments and corresponding clarifications / explanations are detailed in the following:

What is the basis of justification of power generation using lignite from Thar as compared to imported coal in light of the significantly higher (nearly double in terms of USD per MMBtu) coal price of Thar lignite as compared to imported coal?

3.1. A comparison of Thar coal to imported coal is not relevant in the context of an initial mine capacity of 3.8 MTPA as this is a start-up capacity and mine maturity is expected to reach an optimum level at 22 MTPA. The expected coal tariff at 22 MTPA stage is estimated to be USD 3.4 per MMBtu, which is significantly lower in comparison. Additionally, immediately after achieving the Financial Close for 3.8 MTPA the mine exploitation plan envisages ramping up the capacity to 5.6 MTPA. The coal tariff at 6.5 MTPA becomes comparable to imported coal.

Will the sale price of coal be the same i.e. approximately USD 70 per Ton for both power generators and other users of coal, or will it vary from user to user?

3.2. The Coal Price Petition is for purposes of benchmarking and regulating coal price for power generation as the price of fuel is a pass-through cost under the Power Purchase Agreement of the Power Plants. The present focus of mine development is inextricably linked to dedicated downstream sales to power generating units. As the local market develops and matures for indigenous coal, the free market dynamics are expected to regulate the coal price.

The ratio of Non EPC and EPC costs appears to be quite high. Kindly provide a breakdown of these cost heads.

3.3. Unlike the power generation business coal mine development entails significant other heads of costs besides the EPC Costs, such as additional land acquisition, infrastructure development, large base of security arrangements for workforce, village resettlement costs, etc. The petitioned costs are considered judicious and the Regulator's oversight and review is expected to adjudicate on the justification and validity of these estimated costs.

A decrease in international fuel prices should also adjust downward the EPC and Non EPC costs thus reducing the total project cost?

3.4. The provision for adjustment of project cost upon actual cost of diesel fuel is already incorporated in the respective contracts.

Thar Coal & Energy Board

USD 7.02 per Ton of fuel cost component during operations seems to be on the higher side. Kindly provide basis of this calculation.

3.5. In the absence of utility infrastructure use of diesel as a mainstay fuel during initial mining years gives rise to relatively higher diesel fuel costs. Notwithstanding, mining by its very nature requires a large fleet of trucks, shovels, earthmoving equipment, field monitoring fleets of vehicles etc., all of which are diesel fuelled. All these costs are based on the inventory of mining equipment, their respective efficiencies, expected operating hours, and are obtained through an International Competitive Bidding process. Details of these costs are incorporated in the feasibility study and the Petition for further adjudication by the Regulator.

USD 6.97 per Ton for O&M Local and USD 7.20 per Ton for O&M Foreign per Ton seems to be significantly high. Also, USD 0.27 per Ton per km for transportation cost appears to be high compared to prevailing market prices and these require further justification.

3.6. The costs quoted in the Petition are the outcome of a rigorous analysis and intense negotiations during the ICB process. Details are provided in the feasibility studies for review and adjudication by the Thar Coal & Energy Board.

What is the basis of 113 Million BCM of overburden for the mining of 3.8 Million Tons per year coal extraction?

3.7. Overburden removal estimates are the result of detail geotechnical studies by international consultants to the Project. The initial capacity of 3.8 MTPA corresponds to the fuel requirements of 2x330 MW gross capacity power plants at 37% net thermal efficiency.

Does the operating cost include disposal arrangements of ash which is expected to contain 13 percent sulphur oxides?

3.8. Ash is not generated in the mining operations. The ash and its disposal is the power plant's obligations. Mitigation plan for sulphur management, if required, relates to power plant operations and has no bearing with respect to mining activity.

Thar Coal & Energy Board

Please clarify the basis of Sinosure fee of 7%, which seems to be quite high.

3.9. Sinosure fees relates to country risk insurance for Pakistan for lenders from China, and are subject to bilateral review between the governments of Pakistan and China. The rate quoted is an indicative number, corresponding to market benchmarks.

Coal blending is included in the Non EPC component? As per the details of cost components, blending is not being used in the initial years. Please clarify.

3.10. The exploited coal seams have different calorific values within an acceptable range. The coal supply agreements with power projects requires supply of consistent and uniform quality of coal. Accordingly, the mine developer categorizes exploited coal as per the differing characteristics and blends these respective qualities of coal in coal handling yard for supply to the power plant.

USD 8.30 Million have been mentioned under utility system "operating costs". Please clarify the basis as well as the rationale to capitalize the operating costs?

3.11. Utility system operating costs are incurred during the mine development stage and need to be catered for and capitalized in accordance with accounting best practices.

25% of final equity drawdowns has been suggested at the end. If the project cost does not require such induction, is it correct to assume that the final debt to equity ratio will be close to 80:20?

3.12. Proposed drawdowns of equity and debt are based upon initial discussions with lenders, and will be subject to review and rationalization upon finalization of debt agreements and adjudication by the regulator.

For escalations, will US CPI (aggregate) be used or other specific indices will be used?

3.13. The Petition seeks indexation on the EPC Contract as per US CPI (aggregate). For specific parameters like exchange rate and cost of fuel, appropriate indices are expected to be applicable.

Thar Coal & Energy Board

What is to be considered an economical mining capacity? Will the Board allow for determination of tariff for a mining capacity of 2.0 MTPA which would cause the tariff to be significantly higher?

3.14. The configuration of the mining capacity is determined by an optimum sized coal fired power plant. The feasibility of the Project predicates a mining capacity suitable for 1,200 MW of downstream power generation. Considering the availability constraints of commercial debt for power projects, the power plant development strategy now adopts a two-step investment plan whereby 2x330 MW is developed in the first step, immediately followed by another 330 MW power plant. Accordingly, the mine development plans follow the demand generated for coal with a phased approach of 3.8 MTPA capacity in 42 months and an incremental development of 6.5 MTPA capacity in the next 18 months.

FRAMING OF THE ISSUES

4. Based on the submissions of the Petitioner, comments offered by the stakeholders, and proceedings of the case, the issues have been framed and deliberated in the following manner.

Whether the Petition, as filed, for independent project streams of 3.8 MTPA and 6.5 MTPA is maintainable?

5. The Board considers mine development as one integrated activity conforming to a single mine pit with certain initial capacities, which are ramped up to optimum levels of production in a seamless extension. The Petition, as filed, is clear in the context of highlighting and delineating the impact of economies of scale in mine development. However, for purposes of tariff determination, the two independently portrayed cost streams and capacities need to be integrated into one composite model that reflects the ground realities of progressive mine development.

5.1. The Board, accordingly, will be determining a tariff regime based upon initial 3.8 MTPA ramped up to 6.5 MTPA capacity as one amalgamated mine development plan. Notwithstanding, for the sake of clarity in determined numbers, tariff tables highlighting the specific independent 3.8 MTPA and 6.5 MTPA are referenced in the determination order, if only, for the purposes of comparative impact of mine capacities over tariff.

Thar Coal & Energy Board

Whether the Petition for 3.8 MTPA capacity is economically justifiable?

6. Thar Coal industry is in its embryonic stage of development. A moot point for the Board is rationalization and optimization of a business plan that does not sacrifice the economies of scale inherent in such businesses. In its endeavours to promote mining of Thar Coalfields, the question is where does the Board draw a line with respect to optimal and suboptimal business plans?

6.1. The relevance of optimizing a business plan is relative to the prevailing market conditions, e.g. the optimum mine size for Thar Coalfields during the initial phases of development may not conform to the definition of optimum capacities in more mature mining operations, such as those in South Africa, Australia, Indonesia, and even India. Under the present circumstances, a yardstick available with the Board references to the first contract stage petition being considered in this order. As a comparison the petitioned tariff of 3.8 MTPA is 39% higher than the petitioned 6.5 MTPA tariff. The benchmark of mine optimization established by this Petition evidently highlights the economies of scale impacting coal tariff regimes. The Board is cognizant of the impact of mine size on tariff and accordingly underscores the capacity of 6.5 MTPA as a baseline mine capacity for purposes of this Petition. Future petitions will be evaluated on prevailing market conditions and nonetheless economies of scale will remain a fundamental yardstick for characterising mining capacities for efficient tariff regimes.

6.2. For purposes of this and future determinations, the above stated guiding principles will be the cornerstone of the Board's policy.

Whether the tariff concession period of 30 years, as claimed by the Petitioner, is justified?

7. The design life of the power plant is 30 years, accordingly economic justification prevails in favour of determining a tariff for a 30 year period. The validity of the mining lease period during actual operations can vary depending upon the development cycle of the mine etc. Notwithstanding it is also recognized that the conditions of lease permit an extension and renewal of the lease period beyond 30 years.

Thar Coal & Energy Board

Whether the construction period of 42 months for the development of the 3.8 MTPA capacity, and 24 months for the enhancement to 6.5 MTPA capacity, is justified?

8. The proposed construction periods for respective mine capacities is verifiable against the EPC Contract and the respective schedules of payments, and an independent review by TCEB's consultants confirms the mine development timeline of 42 months for the 3.8 MTPA capacity and 24 months for the 6.5 MTPA capacity as practical.

8.1. In addition to the construction period permitted by the Board, the Petitioner seeks to recover IDC and equity returns over an additional period of 6 months in case of delay as a result of variation of different geographical and hydrogeological parameters such as increase in overburden volume, dewatering volumes, etc.

8.2. The Board recognizes that delay on account of unexpected geological conditions are not uncommon in the mining industry. Therefore the request of the Petitioner to be allowed to recover cost of financing over additional period of 6 months is not entirely unreasonable. However, petition for contract stage tariff is predicated upon the fact that appropriate technical studies and due diligence has been conducted. The findings of such studies that are conducted by consultants of international repute should be robust and reliable, and the Petitioner should therefore have confidence in its petitioned timelines of the contract.

8.3. In consideration of the deliberations here above, it is the decision of the Board that IDC may be allowed to the Petitioner for a maximum period of time overrun of six months beyond the contracted periods of 42 months and 24 months for the 3.8 MTPA and 6.5 MTPA mining capacities respectively. However, the equity returns during this extension period shall not be allowed to accrue.

Whether the request of IDC payments and equity returns in the event of time overruns beyond the stipulated construction period is justified, and should the tariff be allowed to be adjusted for default of GoS, GoP or NTDC?

9. The Petitioner seeks to recover costs, mainly costs of financing, incurred as a result of time overruns resultant due to default of GoS and / or default of NTDC / GoP under the PPA (of the power plant).

9.1. The respective commercial and / or implementation agreements set out in detail the obligations of the respective parties and the remedies to non-performance thereof. The Board considers transfer of the resultant impact of potential defaults in performance of obligations of GoS, NTDC and / or GoP to the coal tariff to be unwarranted and mitigation of such impact needs to be incorporated in the corresponding commercial and / or implementation agreements between the parties.

Thar Coal & Energy Board

In the event of a delay in the implementation of mining capacity expansion to 6.5 MTPA, what remedies, if any, need to be incorporated?

10. As discussed under Paragraph 6 and accompanying sub-paragraphs, optimal mine capacities are critical to the sustainability of an efficient tariff regime. A delay / non-implementation in achieving 6.5 MTPA production within the stipulated period of 18 months after 3.8 MTPA COD will result in continuation of a higher price of coal beyond the first two years. In case of longer delay periods the continued stream of higher coal price due to sub-optimal production levels will also have a significant impact on levelized cost of coal.

10.1. The Board does recognizes that margins for certain delays need to be built into the tariff regime with the dual purpose of (a) allowing partial relief to the Petitioner in case of intrinsically connected events, for example, delay in market off-take agreements; and (b) to avoid situations where open ended timelines result in triggering uncertainties in the robustness of the business plan.

10.2. The Board considers it prudent to accommodate a delay of six months beyond the stipulated 18 month period without incorporating any penalizing factor. If a delay in achieving COD of 6.5 MTPA occurs beyond the 24 month period subsequent to the COD of 3.8 MTPA, the Petitioner shall surrender an amount equivalent to the higher of 1% Equity IRR or USD 3.25 Million per annum from its accrued ROE. This deduction shall be applicable up to such time as the Petitioner achieves commercial operations for 6.5 MTPA capacity or higher. A pro rata calculation of deductions will be applicable in case summations of delays include partial years.

Whether the EPC Cost of USD 438.74 Million for development of the 3.8 MTPA capacity and USD 84.51 Million for enhancement to 6.5 MTPA mining capacity are justified?

11. The EPC Contract was executed on September 10, 2014 between CMEC, hereinafter referred to as the **EPC Contractor**, and SECMC for a contract price of USD 461.50 Million split into two contracts of Offshore EPC Contract equal to USD 101.60 Million and Onshore EPC Contract equal to USD 359.90 Million. In accordance with the provisions of the contract, these prices are subject to change through application of certain indexations discussed in further detail later in this section. Applying the prevailing changes in cost of diesel fuel the Petitioner subsequently submitted Onshore EPC Cost equal to USD 337.14 Million, adjusted downward from the reference contracted cost of USD 359.90 Million through application of change in price of diesel fuel.

Table 09 – Petitioned EPC Cost for Development of 3.8 MTPA Capacity

EPC Cost	Amount
Offshore EPC Cost	101.60
Onshore EPC Cost	337.14
Total EPC Cost	**438.74**

All amounts in USD Million

Thar Coal & Energy Board

11.1. The EPC Offshore cost of USD 101.6 Million relates to procurement of equipment for use during mine development. This is further detailed into subcomponents as tabulated here below.

Table 10 – Petitioned Offshore EPC Cost for Development of 3.8 MTPA Capacity

Offshore EPC Cost	Amount
Overburden Removal Equipment	49.30
Reordered Equipment for Overburden Removal & Lignite Production	10.60
Dewatering Equipment	10.20
Drainage Equipment	2.50
Coal Handling Equipment	6.20
Power Generation & Transmission Equipment	13.20
Mine Service Facilities Equipment	9.60
Total Offshore EPC Cost	**101.60**

All amounts in USD Million

11.2. The Petitioner submitted that the life expectancy of the 50 Ton trucks of 48 months would require reordering prior to the end of the construction period. Dewatering & Drainage Equipment costs mainly cater for development of wells and procurement of pumping equipment for underground and surface dewatering, whereas Coal Handling Equipment includes semi-mobile crushing plants & conveyors. Power Generation & Transmission Equipment costs include procurement of multiple diesel generators having an approximate aggregate capacity of 24 MW along with transformers, switching equipment and cables required for supply of power to dewatering equipment and other facilities of the mine. Mine Service Facilities equipment include various ancillary vehicles and equipment such as tools, including trucks, cars, buses, fire fighting equipment, ambulance, loaders etc. The Petitioner submits that the EPC Onshore cost amounts to USD 337.14 Million and pertain to development of the mine to the desired capacity over a period of 42 months. This is inclusive of costs for construction services, overburden removal services, lignite production overheads, power generation overheads, and cost of diesel required for overburden removal, lignite production, and power generation.

Table 11 – Petitioned Onshore EPC Cost for Development of 3.8 MTPA Capacity

Onshore EPC Cost	Amount
Construction Services	41.40
Overburden Removal Services	161.80
Lignite Production Services	2.81
Power Generation Services	3.00
Cost of Diesel	128.13
Total Onshore EPC Cost	**337.14**

All amounts in USD Million

11.3. Construction Services is a lump sum contracted cost of USD 41.40 Million submitted to be payable on account of engineering works involving geological survey and detail design, drilling and water outlets of 29 wells, development of two flood protection dams, water treatment house, water supply system, fire-fighting water pump house, completion of diesel generator substation's foundation and installation, coal handling system involving crusher station and transfer & conveyer bridge installation, construction of workshop & warehouse and auxiliary structures,

administration & accommodation structure including dining hall, and development of roads over the mining area.

11.4. Cost for Overburden Removal Services are broken down into subcomponents of Overheads, Manpower, Spare Parts, and Tyres. These costs are calculated on the basis of unit rates provided for in the Offshore EPC Contract.

11.5. Lignite Production Overheads as submitted by the Petitioner to be equal to a rate of USD 1.055 per Ton of coal removed in accordance with the Onshore EPC Contract, whereas the non-diesel & non-overhead cost component is quoted at USD 0.888 per Ton of coal removed. The expected coal to be removed during the mine development period as per the conditions of the EPC Contract equal 1.45 Million Tons. This computes to a total cost of USD 2.81 Million for Lignite Production Services.

11.6. Power Generation Overheads are submitted as a lump sum fixed price of USD 3.0 Million, payable in twelve quarterly instalments to the EPC Contractor subsequent to six months of commencement of mine development.

11.7. The reference price of Diesel for computation in the contract was assumed at PKR 116.75 per Litre, or USD 1.11 per Litre (based on an exchange rate of PKR 105.18 per USD). Subsequently, at the time of the development of Petition the prevalent diesel price was equal to PKR 95.91 per Litre based on which the Petitioner filed for revision of this cost component from USD 150.89 Million down to USD 128.13 .

11.8. The Petitioner also submitted an EPC Cost of USD 84.51 Million for enhancement of mine capacity from 3.8 MTPA to 6.5 MTPA. These costs are based on an executed EPC Expansion Agreement entered in to with the existing EPC Contractor.. The respective onshore and offshore costs as submitted by the Petitioner are tabulated hereunder.

Table 12 – Petitioned EPC Cost for Enhancement to 6.5 MTPA Capacity

EPC Cost	Amount
Offshore EPC Cost	34.58
Onshore EPC Cost	49.93
Total EPC Cost	**84.51**

All amounts in USD Million

Table 13 – Petitioned Offshore EPC Cost for Enhancement to 6.5 MTPA Capacity

Offshore EPC Cost	Amount
Overburden Removal Equipment	19.95
Dewatering & Drainage Equipment	1.50
Coal Handling Equipment	5.42
Power Generation & Transmission Equipment	6.36
Mine Service Facilities Equipment	1.35
Total Offshore EPC Cost	**34.58**

All amounts in USD Million

11.9. The Offshore EPC Cost of USD 34.58 Million is mainly for the procurement of five 6.5 m^3 excavators and sixty 50 Ton trucks, in addition to the initially procured twenty 6.5 m^3 excavators and one hundred and thirty eight trucks. This cost also includes procurement of pumps, wells and pipes for dewatering & drainage system, a semi-

mobile crusher and conveyors for the coal handling system, power transformers, switching equipment and cables, and mine service facilities and ancillary equipment, as tabulated above.

Table 14 – Petitioned Onshore EPC Cost for Enhancement to 6.5 MTPA Capacity

Onshore EPC Cost	Amount
Construction of Lignite, Crushing & Dispatch System	4.40
Construction of Mine Service Facilities	2.79
Construction of Dewatering Wells	1.43
Overburden Removal (Non Diesel Component)	25.58
Cost of Diesel for Overburden Removal	15.73
Total Onshore EPC Cost	**49.93**

All amounts in USD Million

11.10. The Onshore EPC Cost for the enhancement of capacity to 6.5 MTPA as submitted is USD 49.93 Million. These relate to construction of lignite crushing, dispatch & storage system, diesel, and overheads, tyres, spares & labour for removal of additional overburden of 18 Million BCM. The cost of diesel equal to USD 15.73 Million, similar to the adjustment above, is revised from the contracted cost of USD 18.52 Million on account of variation in notified price of diesel.

11.11. The Board notes this is a first of a kind open cast mine venture in Pakistan and no benchmarks are available for Pakistan. Independent consultants have reviewed these costs and found them to be reasonable with respect to global benchmarks. Notwithstanding, the Board has reviewed the process of international competitive bidding as adapted by the Petitioner and finds that in conformity with industry practice. In light of the above the Petitioned EPC Costs for the Contract Stage Determination are found reasonable.

11.12. Assuming an exchange rate of PKR 101.75 per USD and cost of diesel of PKR 82.50 per Litre, the Board approves an EPC Cost of USD 420.88 Million for excavation of 113 million BCM for the development of the 3.8 MTPA capacity over a period of 42 months, and USD 82.31 Million for excavation of an additional 18 million BCM for the enhancement of capacity to 6.5 MTPA over a period of 24 months.

Table 15 – Assessed EPC Cost for Development of 3.8 MTPA Capacity

EPC Cost	Amount
Offshore EPC Cost	101.60
Onshore EPC Cost	319.28
Total EPC Cost	**420.88**

All amounts in USD Million

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Table 16 – Assessed EPC Cost for Enhancement to 6.5 MTPA Capacity

EPC Cost	Amount
Offshore EPC Cost	34.58
Onshore EPC Cost	47.73
Total EPC Cost	**82.31**

All amounts in USD Million

11.13. The Petitioner submitted that the EPC Cost is petitioned on the basis of a certain overburden volume. Variations in this volume shall lead to adjustment in EPC Cost at a rate of USD 2.5 per BCM as per the terms of the contracts, in addition to possible further capital expenditure required to be incurred for removal of this additional volume. The Petitioner also submitted that mining on the proposed scale has never been undertaken in Pakistan, and therefore both the Petitioner and the EPC Contractor seek an allowance of adjustment in tariff for the said variations, if incurred.

11.14. The Board considers that the increased cost of overburden removal due to possible variation in overburden volume, resulting from the change in geological conditions or change in design slope angle, should not be passed on automatically, to the end consumers. It should be subject to regulatory oversight and limitations. Such adjustments without any overall cap leave considerable room for accommodating inefficiencies and are liable to misuse.

11.15. Furthermore, a Contract stage tariff is predicated upon the fact that appropriate studies and due diligence is conducted and resulting findings are substantively robust and reliable. The tariff benchmarks 113 million BCM as a reference overburden volume. Adjustments in costs of overburden removal will be at the actual documented and verified overburden removal subject to maximum limits as defined hereunder.

11.16. The Board constraints that adjustment if any, shall be subject to an overall cap and will only be permitted to the extent required, if supported by justification for the review of the Board. The cumulative impact on potential upward cost adjustments due to increase in overburden volumes and / or blasting requirements for hard strata is restricted to a maximum of 5% of the assessed cost in this respect, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board. Any cost in excess of this would not be acceptable for adjustment.

11.17. The Petitioner also submitted that EPC Cost is petitioned on the basis of surface and underground dewatering at a rate of 30 cusecs. Variations in this rate shall lead to increase in EPC Cost, which the Petitioner is unable to estimate at this point in time. The Petitioner has therefore requested that costs associated with dewatering be adjusted to actual incurred costs at the Commercial Operations Date based on documentary evidences submitted to TCEB.

11.18. A risk on account of dewatering costs is treated in the same manner as for cost associated with overburden removal, and therefore is benchmarked at a reference rate of 30 cusecs, paid at actual and upward revision only permitted to the extent of

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10% variation of assessed cost in this regard, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board.

11.19. Lastly, the Petitioner has requested for escalations in EPC Cost against variations in PKR / USD parity, RMB / USD parity, US CPI and Cost of Diesel, in accordance with the terms of contract.

11.20. This request of the Petitioner is considered to be reasonable by the Board, and the EPC Cost shall therefore be subject to escalations on account of variations in PKR / USD parity, RMB / USD parity, US CPI, and Cost of Diesel from the established benchmarks, in accordance with the terms of the EPC Contract, during the allowable construction / development period.

Whether the Non EPC Costs of USD 202.93 Million for development of the 3.8 MTPA capacity and USD 22.00 Million for enhancement to 6.5 MTPA mining capacity are justified?

12. The Petitioner submits Non EPC Cost equal to USD 202.90 Million for development of 3.8 MTPA capacity, and USD 22.00 Million for enhancement to 6.5 MTPA capacity.

Table 17 – Petitioned Non EPC Cost for Development of 3.8 MTPA Capacity

Non EPC Cost	Amount
Capital Items	30.33
Utility System – Effluent Pond	8.30
Salaries, Wages & Benefit	32.78
Operating Expenses	21.71
Consultancy & Studies	21.19
Legal & Professional Services Charges	5.00
Land Acquisition & Village Relocation	61.99
Project Development Cost	21.60
Total Non EPC Cost	**202.90**

All amounts in USD Million

12.1. Capital Items amounting to USD 30.33 Million have been petitioned on account of various expenses of a capital nature that shall be borne by the Petitioner themselves. This includes an additional stockyard, as the Petitioner seeks to establish a stockyard for 30 day inventory as a contingency measure, and the EPC Cost caters for only 15 days of such storage facilities. Other items include costs for coal blending systems including a stacker and reclaimer, up-gradation of 5,000 kVA B3 power connection to 10,000 kVA B4, transformers & switchyards, procurement of vehicles for operations at site, development of a temporary site office required till establishment of permanent facilities, development of permanent site office, procurement of IT network, infrastructure & equipment for use at site, procurement of IT infrastructure & equipment for use at head office, development of head office, procurement of survey equipment, procurement of security equipment, and

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development of security staff accommodations, check posts & other infrastructure including watch towers, search lights etc.

12.2. The Petitioner has submitted USD 8.30 Million for Utility System – Effluent Pond of which the significant portion is attributable to development of a temporary storage of 15 days capacity for effluent disposal in case of failure of effluent line developed by GoS for this purposes. This cost is petitioned based on the PC-I estimates available for similar projects in Thar Coalfields. The remaining costs include O&M of the developed line and the disposal charges to be paid to GoS for use of their effluent line.

12.3. Other major Non EPC Cost head is Salaries, Wages & Benefits equal to USD 32.78 Million. The Petitioner has submitted that this includes total remuneration of 155 employees, including 5 Expats for a total period of 42 months including recruitment expenses. The costs related to employees dining, catering, housekeeping & laundry services and rota travelling for all employees over the life of the Project have also been petitioned under this cost head. The Petitioner has also submitted expected organization structure of Sindh Engro Coal Mining Company for undertaking the Project.

12.4. Operating Expenses of USD 21.71 Million relate to operations and maintenance of site facilities, head office in Karachi, security arrangements for site (through Rangers, and private security firms), and local & international travel of employees for conduct of meetings with local and international counterparties.

12.5. The Petitioner submits that it will engage various technical consultants, financial & legal advisors during project construction phase for supervision and monitoring. Moreover, there will be several technical services required during the construction phase such as hydro-geological monitoring, geotechnical studies, etc. for which appropriate consulting services companies shall be engaged by the Petitioner. The cost of Consultancy & Studies of USD 21.19 Million also cater for implementation of HSE standards in line with Engro Corporation policies for Du Pont safety systems and certification in addition to conditional NOC from SEPA, costs of engaging legal services for dealing with court and litigation matters, and costs pertaining to training of employees.

12.6. Legal & Professional Services Charges are assumed at USD 5.00 Million based on an estimate for legal services by internal / external legal counsel for Project, audit & tax advisory services, and professional, legal & expert advice charges etc. The Petitioner has requested that this cost may be adjusted to actual costs incurred till Commercial Operations Date.

12.7. The Legal & Professional fees are capped at USD 5.00 million with adjustments for actual costs at COD. Any possible legal fees in case of village relocation will need to be justified under this separate cost head.

12.8. USD 61.99 Million are petitioned on account of Land Acquisition & Village Relocation. Village relocation costs for one of the villages, Thariyo Halepoto expected to require relocation before the eighth year of operations, is submitted as part of the project cost equal to USD 22.40 Million. The Petitioner has submitted

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that this relocation activity may be delayed, and instead of being capitalized it be made a part of the operational costs. Therefore the Petitioner requests that Non EPC Cost may be reduced by USD 22.40 Million and O&M Cost for the first five years of commercial operations be increased by cumulative USD 26.12 Million (to account for increase in household numbers in accordance with the data of Population Census Organization Pakistan).

12.9. Project Development Cost are petitioned as USD 21.60 Million entailing various consultancy charges, salaries & wages prior to financial close, operating expenses, fees & charges etc. incurred for development of the project subsequent to grant of Exploration License. USD 15.17 Million have been incurred till September 2014, and USD 6.43 Million are further expected to be incurred.

Table 18 – Petitioned Non EPC Cost for Enhancement to 6.5 MTPA Capacity

Non EPC Cost	Amount
Salaries, Wages & Benefits	4.00
Operating Expenses	1.50
Consultancy and Studies	1.10
Capital Items	15.40
Total Non EPC Cost	**22.00**

All amounts in USD Million

12.10. Similarly, the Petitioner has submitted expenses for Non EPC Cost over the 24 month period of capacity enhancement to 6.5 MTPA similar to those petitioned for the development of the 3.8 MTPA capacity. The Petitioner states that costs for additional 28 employees, vehicles, operations & maintenance expenses at site and head office, coal blending and additional stockyard to cater to increased 2.7 MTPA capacity, and other equipment shall be incurred for enhancement of capacity.

12.11. On review of petitioned costs for Non EPC, the Board finds the costs for Salaries, Wages & Benefits and construction & furnishing of site buildings to be excessive. The costs claimed under these heads are reduced by USD 7.98 Million. Furthermore, costs for court, legal matters & lawyers, and professional & legal experts are also on the high side and are reduced by USD 2.12 Million. On the same principle, the Non EPC Cost submitted by the Petitioner for enhancement to 6.5 MTPA mining capacity is also subject to a reduction of USD 0.58 Million.

12.12. The Petitioner has requested that cost for Land Acquisition & Village Relocation be allowed to be adjusted to actual incurred. The Petitioner has estimated these costs to be incurred on the basis of a draft Resettlement Action Plan developed by the Petitioner in line with the Resettlement Policy Framework for Thar Coalfields dated February 2014 developed by Mott McDonald on behalf of Energy Department, Government of Sindh. Also, the Petitioner has submitted that land shall be acquired on the basis of rates approved by GoS, which shall be notified to the Petitioner by Land Revenue Department, Government of Sindh.

12.13. Land Acquisition & Village Relocation, if approved by the competent government authority, is generally a non-controllable cost, and the request of the Petition for such cost to be adjusted to actual incurred is reasonable. The Board allows adjustment of the provisioned costs of USD 39.59 Million on this account to actual costs incurred upon achievement of commercial operations.

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12.14. Project Development Cost are petitioned to be adjusted to actual expenses incurred till achievement of Financial Close. However, in order to protect end consumer from uncertainties of open-ended adjustments, Project Development Cost shall be allowed to be adjusted subject to a cap of USD 21.60 Million.

12.15. Project Development Costs also include approximately USD 4.01 Million on account of current mining activity at site undertaken by the Petitioner. The Petitioner has submitted that it has been able to excavate an area of approximately 1,000 m x 600 m and 5 m in depth.

12.16. The Board notes that this cost is already covered under the EPC Contract and should therefore not be allowed to become a part of the tariff to avoid duplication. Costs related to the current mining activity may be allowed to be adjusted to actual incurred till achievement of financial close subject to maximum allowable costs not being more expensive than the associated rates under the EPC Contract. Accordingly the corresponding EPC Cost for equivalent works shall be reduced by the amount of overburden removed under this activity.

12.17. Accordingly, Non EPC Cost are capped at USD 126.80 Million for development of the 3.8 MTPA capacity and capped at USD 21.42 Million for enhancement of capacity to 6.5 MTPA. However, for development of 3.8 MTPA capacity, USD 39.59 Million for Land Acquisition & Village Relocation shall be allowed in addition to the above subject to adjustment to actual costs incurred till achievement of commercial operations date.

Whether the Insurance During Construction, as claimed by the Petitioner, is justified?

13. The Petitioner has submitted costs for Insurance equal to 1.50% of EPC Cost which is computed to be USD 6.58 Million for development of 3.8 MTPA capacity and USD 1.27 Million for the enhancement to 6.5 MTPA capacity. The Petitioner has requested that this cost may adjusted to actual costs incurred for the Project. This cost relates to Marine and Air Cargo Cover, Loss of Revenue Profits (following Marine incident) Cover, Contractors' All Risks Cover, Loss of Revenue (following CAR) Cover, Public (Third Party General) Liability Cover, Terrorism Physical Loss or Damage Cover, and Miscellaneous Coverage etc.

13.1. The Petitioner does not have firm quotations available and have assumed costs for insurance to be equal to 1.50% of EPC Cost on an indicative basis. The Board considers that actual Insurance Costs to be allowed, subject to a maximum of 1.35% of EPC Cost, is reasonable, and shall be allowed to the Petitioner on provision of documentary evidence demonstrating incurrence of costs in this respect.

Whether the proposed Terms of Debt Financing including Interest During Construction, Sinosure Fees, and Financing Fees & Charges are justified?

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14. The Petitioner has based the total Project Cost on a debt to equity ratio of 70:30. The Petitioner refers this debt to equity ratio in the benchmark established for power projects by NEPRA. Additionally the Petitioner claims to reflect the constraints applied by Lenders in this regard.

14.1. The Board notes that comparison to power projects has no bearing and no relevance. Financing for Power Projects is based upon Limited/Non-recourse financing. Debt for this project is fully secured by the cover of Sovereign Guarantee of the Government of Pakistan.

14.2. The Board considers a Debt:Equity ratio of 80:20 as the basis of this determination. It is estimated that in the final configuration and indexation/escalation of project costs the required quantum of debt will stay within the ceiling of USD 700 million as provided by the Sovereign Guarantee.

14.3. However, keeping in view the requirements of maintaining a certain buffer for availability of debt under the ceiling of Sovereign Guarantee (USD 700 million), the Board agrees to allow the Petitioner a Debt:Equity ratio of up to 75:25, only if financing requirements necessitate injection of capital beyond the USD 700 million. In that case additional capital may be injected by increasing the equity share up to a maximum of 25%.

14.4. Equity quantum in excess of 25% will be treated as commercial debt to the project at the prevailing rates but not to exceed KIBOR plus 3%..

14.5. Total debt financing is petitioned to be secured through a mix of local and foreign sources of financing. The petitioned cost of debt for local financing is proposed at KIBOR + 3.00% and for foreign financing is proposed at LIBOR + 4.00%. Additionally, a onetime Sinosure fees of 7% of total debt financing is petitioned to be applicable to foreign financing.

14.6. Subsequent to filing of its Petition, the Petitioner has submitted a revised financing plan wherein they inform that upon intervention of the Ministry of Finance they have succeeded in obtaining term sheet for 100% of project debt through local financing at a cost of KIBOR + 1.75%. The Petitioner further informed that there is less likelihood that the Lenders may agree to a more plausible benchmark of KIBOR plus 1%, which typically commensurate with returns associated with secured instruments like the Pakistan Investment Bond.

14.7. In view of above, cost of financing permitted to the Project shall be on the basis of actual cost secured for 100% locally funded debt, subject to maximum cap of KIBOR + 1.75%. Notwithstanding, the Board is still of the opinion that with the available Sovereign Guarantee, more efficient terms of financing could and should have been negotiated, and the Petitioner is advised to diligently work to reduce the cost of financing for the Project prior to Financial Close.

14.8. In case, the Petitioner reverts to a mix of Foreign and Local Debt, the tariff will be computed according to the final Terms Sheets for debt financing. The impact of

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better financing terms and the accruing gain will be computed towards applicable reduction in tariff.

14.9. Equity drawdowns are petitioned as 75% upfront and 25% in the last year of project development over a period of 42 months for development of 3.8 MTPA capacity and 24 months for enhancement to 6.5 MTPA mining capacity. The Board notes that front-loading drawdowns with equity unnecessarily burdens the tariff and is not in best interests of the consumer. Furthermore, there seem to be no compelling reasons for the Petitioner to propose an inefficient and lop-sided drawdown schedule. Typical equity and debt drawdowns are on a pro-rata basis and the Petitioner should incorporate the same in its cost of financing. However, the Petitioner has submitted information whereby they are injecting upfront equity in project development and field studies pending the Financing Close.

14.10. Considering the exigencies of project schedule, the Board permits upfront initial equity drawdowns up to a maximum of 35% followed by pro-rata drawdowns of debt and equity.

14.11. Interest During Construction shall be allowed to the Petitioner based on actual cost of financing subject to a maximum of KIBOR + 1.75% over a construction period of 42 months for the development of 3.8 MTPA capacity and 24 months for enhancement to 6.5 MTPA mining capacities respectively. Construction period may be extendable up to six (6) and three (3) months for 3.8 MTPA & 6.5 MTPA respectively, in case of variations from established benchmarks of geological and/or hydro-geological parameters subject to provisions as mentioned elsewhere in this determination.

14.12. Financing & LC Charges are petitioned on the basis of assumptions tabulated hereunder.

Table 19 – Petitioned Financing & LC Charges for Development of 3.8 MTPA Capacity

Financing & LC Charges	Basis of Assumption	Amount
Arrangement Fee	2.0% of total debt amount	11.05
Commitment Fee	0.5% of outstanding total debt amount	4.60
Debt Security Trustee Fee	0.1% of Loan Amount per year	1.93
SBLC	2.0% of instalment per year of total loan	3.11
LC Charges	0.5% of LC Amount + 0.25% per Quarter	5.13
Sinosure Fees	7% of Total Foreign Debt Servicing Component	19.51
Total Financing & LC Charges		**45.33**

All amounts in USD Million

Table 20 – Petitioned Financing & LC Charges for Enhancement to 6.5 MTPA Capacity

Financing & LC Charges	Basis of Assumption	Amount
Arrangement Fee	2.0% of total debt amount	1.75
Commitment Fee	0.5% of outstanding total debt amount	0.31
Debt Security Trustee Fee	0.1% of Loan Amount per year	0.17
SBLC	2.0% of instalment per year of total loan	0.22
LC Charges	0.5% of LC Amount + 0.25% per Quarter	0.83
Sinosure Fees	7% of Total Foreign Debt Servicing Component	9.10
Total Financing & LC Charges		**12.38**

All amounts in USD Million

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14.13. Financing & LC Charges represent the industry practice and is not significantly affected by the risk profile of a project. Therefore, similarities can be drawn from precedence set by other regulators in this respect. NEPRA limits these costs to 3.5% of debt secured. The Board therefore considers the same to be applied in case of the Project. However, the Petitioner further submitted that in contrast with the power sector, LC Charges for the mining sector would be higher, as incurrence of LC Charges discontinues subsequent to import of equipment in the earlier years of the construction in the power sector. In the mining sector, LC Charges on account of services shall continue to be incurred over the duration of the construction over the entire construction period. Based on this argument, it is reasonable to expect LC Charges for the mining sector to be marginally higher.

14.14. In consideration of the above, the Board permits Financing & LC Charges to the Project up to a maximum of 4.0% of total debt secured.

What should be the treatment of revenue earned on pre-COD production of 1.45 MT of lignite?

15. A critical parameter determining the progress towards achieving COD relates to the EPC Contractor demonstrating that it has reached the target seam of coal for lignite production. The EPC Contract benchmarks a contracted production of 1.45 MT of lignite as per Coal Specifications defined in the said Contract, prior to achievement of commercial operations. Additionally, production of peat shall also be a by-product of the mine development process and will be generating revenues.

15.1. Downstream power generating facilities have an inextricable link up with mine development and will be the purchaser of the pre-COD production of lignite. The revenue generated out of sale of 1.45 million tons of lignite production has to be bound in the Capex framework.

15.2. The cash flows generated in this manner by the Project may be utilized as an alternate source of financing without any additional cost related thereto. Accordingly, offsetting capital costs using revenue generated through sale of such coal at full tariff shall be in the benefit of the end consumer who shall not have to bear the cost of financing from either debt or equity to the extent of revenue generated in this manner.

15.3. It is the decision of the Board that this sale of 1.45 MT be recognized at a tariff equal to that determined for first year of operations, and this amount be used as a source of financing to fund the capital cost requirements for enhancement of mining capacity to 6.5 MTPA. Therefore, the capital requirement of USD 108.75 Million may be reduced by the expected revenue of USD 87.60 Million, subject to adjustment to actual revenue realised in this respect, and the remaining requirement of USD 21.14 Million may be financed through prevailing ratio of debt and equity.

15.4. Any additional revenue generated through sale of peat at actual realisable value may also be used to offset the capital requirements in a similar manner.

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Whether the equity returns as claimed by the Petitioner are justified?

16. Equity returns allowed to become a part of the tariff shall be such that the Petitioner is able to realise a 20.00% IRR on its (equity) investment in line with the directions of Economic Coordination Committee (ECC) of Pakistan dated October 15, 2010.

Whether adjustments on account of variations in heating content of extracted coal is justified?

17. The Petitioner has requested that Production Payment of the determined tariff be allowed to be adjusted in case of variations in the heating content of coal from the established benchmarks of 11.30 MJ / Kg during the first eight years of operations and 11.61 MJ / Kg during the remaining period of the tariff concession. This request is submitted on the basis of the assumption that the power plant shall contract for offtake of coal on the basis of energy content rather than tonnage, and therefore the Petitioner seeks tariff adjustment to realise recovery of costs incurred for production of additional tonnage to meet the energy requirements or vice versa.

17.1. The Board notes that it is industry practice to benchmark coal price based upon an acceptable range of coal quality as variations in Calorific Value impact the requirements for actual tonnage of mined coal. Petitioner's tariff is fixed on a cost plus basis and accordingly any additional tonnage requirements will merit compensation in terms of adjustments under the Production Cost regime.

17.2. The Petitioner submits that for the first eight years, the projected heating value of Lignite is 11.3 MJ / Kg. In case the heating value of mined coal is lower than 11.3 MJ / Kg the Petitioner is permitted for adjustments subject to a maximum downward limit of 2.5% based upon a reference heating value of 11.3 MJ / Kg. Any increase in heating value from the reference of 11.3 MJ / Kg will result in lesser tonnage in mined coal and a corresponding downward adjustment in the Production Payment Price.

17.3. During the remaining period of the term of this tariff (after the first eight years), the coal quality is benchmarked at 11.61 MJ / Kg. Accordingly, variations if any, in the heating value of mined coal will be treated and benchmarked as per the treatment defined here above.

17.4. The adjustments will be computed on an annual basis.

Whether operational costs as claimed for 3.8 MTPA & 6.5 MTPA capacity, including cost of fuel, O&M, power cost, insurance during operations, asset replacement, and cost of working capital, are justified?

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18. The Petitioner has submitted its O&M Costs based on a commercial bid made available from the EPC Contractor. Variable O&M pertains to utilization of tyres, capital and operational spares & consumables for main mining and auxiliary equipment to be incurred during the operational period of the project.

Table 21 – Petitioned Variable O&M for Operations of 3.8 MTPA Capacity

Variable O&M – Foreign	Year 1	Year 2	Year 3 – 8	Year 9 – 30
Spares / Consumables	11.52	10.08	9.85	9.29
Tyres	7.49	6.56	6.41	6.05
Variable O&M – Foreign	**19.01**	**16.64**	**16.26**	**15.34**

All amounts in USD Million

Table 22 – Petitioned Variable O&M for Operations of 6.5 MTPA Capacity

Variable O&M – Foreign	Year 1	Year 2	Year 3 – 30
Spares / Consumables	15.74	15.62	14.25
Tyres	10.27	10.19	9.30
Variable O&M – Foreign	**26.01**	**25.81**	**23.55**

All amounts in USD Million

18.1. Fixed O&M – Foreign costs entail contractor overheads including project supervision, crush stone for haul roads construction, engineering & mine planning, travelling and all other overhead costs, and labour & human resource costs include salaries, wages & benefits for the O&M contractor.

Table 23 – Petitioned Fixed O&M (Foreign) for Operations of 3.8 MTPA Capacity

Fixed O&M – Foreign	Year 1	Year 2	Year 3 – 30
Overheads	19.49	17.16	16.79
Direct Labour / Manpower	10.86	9.42	9.19
Fixed O&M – Foreign	**30.35**	**26.58**	**25.98**

All amounts in USD Million

Table 24 – Petitioned Fixed O&M (Foreign) for Operations of 6.5 MTPA Capacity

Fixed O&M – Foreign	Year 1	Year 2	Year 3 – 30
Overheads	24.47	24.28	21.68
Direct Labour / Manpower	15.13	15.01	13.77
Fixed O&M – Foreign	**39.60**	**39.29**	**35.45**

All amounts in USD Million

18.2. The Petitioner submits that upon conduct of a mine optimization study, average energy content during the first eight years of operations was found to be lower than the expected value of 11.61 MJ / Kg as indicated in the feasibility study and therefore, expecting increased production than 3.8 MTPA during these initial years, the Petitioner submitted proportionately higher Foreign O&M Costs for approval in comparison to the costs quoted in the commercial bid received with respect thereto.

18.3. The Board notes that based on the industrial practice of benchmarking coal price upon an acceptable range of calorific value, the Petitioner's request is justified only to the extent of variable components of Foreign O&M. Accordingly, it permits the proportionately higher costs of variable Foreign O&M, but does not allow any adjustment on account of heat content variations for fixed Foreign O&M. Furthermore, the costs submitted in the commercial bid are found to be reasonable, and the Board permits Foreign O&M as tabulated below.

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Table 25 – Assessed Variable O&M (Foreign)

Variable O&M – Foreign	Year 1	Year 2	Year 3	Year 4	Year 5 – 30
Spares / Consumables	11.02	12.77	15.73	15.05	14.37
Tyres	7.17	8.33	10.26	9.82	9.37
Variable O&M – Foreign	**18.19**	**21.10**	**25.99**	**24.87**	**23.74**

All amounts in USD Million

Table 26 – Assessed Fixed O&M (Foreign)

Fixed O&M – Foreign	Year 1	Year 2	Year 3	Year 4	Year 5 – 30
Overheads	19.49	20.91	24.28	22.98	21.67
Direct Labour / Manpower	10.86	12.33	15.01	14.39	13.76
Fixed O&M – Foreign	**30.35**	**33.24**	**39.29**	**37.37**	**35.43**

All amounts in USD Million

18.4. Fixed O&M – Local caters to costs incurred by the Petitioner in the way of its salaries, wages & benefits, site and office expenses, site and office equipment replacement, consultancy studies, external legal service expenses, effluent disposal / utility system, financial charges etc. The expected expenses over the operational period of the mine are tabulated hereunder.

Table 27 – Petitioned Fixed O&M (Local) for Operations of 3.8 MTPA Capacity

Fixed O&M – Local	Year 1	Year 2	Year 3 – 10	Year 11 – 30
Salaries, Wages & Benefits	8.50	8.50	8.50	8.50
Consultancy & Legal Services	4.30	4.30	4.30	4.30
Capital Items	2.10	2.10	2.10	2.10
Land Rehabilitation	0.66	0.67	0.67	0.62
Utility System	0.45	0.45	0.45	0.45
Operating Expenses	6.34	5.35	5.19	5.18
Financial Charges	6.05	6.05	6.05	3.12
Fixed O&M – Foreign	**28.41**	**27.42**	**27.26**	**24.28**

All amounts in USD Million

Table 28 – Petitioned Fixed O&M (Local) for Operations of 6.5 MTPA Capacity

Fixed O&M – Local	Year 1	Year 2	Year 3 – 10	Year 11 – 30
Salaries, Wages & Benefits	12.75	12.75	12.75	12.75
Consultancy & Legal Services	6.45	6.45	6.45	6.45
Capital Items	3.15	3.15	3.15	3.15
Land Rehabilitation	1.00	0.93	0.93	0.93
Utility System	0.68	0.68	0.68	0.68
Operating Expenses	8.99	8.27	7.37	7.22
Financial Charges	6.70	6.70	6.70	3.41
Fixed O&M – Foreign	**39.71**	**38.93**	**38.03**	**34.59**

All amounts in USD Million

18.5. The Board notes that Fixed O&M – Local costs for development of 3.8 MTPA were subjected to a 50% increase for consideration towards operations of 6.5 MTPA mining capacity. Increase in mining capacity should not result in a linear increase of costs by 50%, and therefore increase in each cost head needs to be justified. Moreover, costs for Salaries, Wages & Benefits and Operating Expenses reflect the high corporate standards of Petitioner and are considered to be generous at expense of the end consumer. Assumptions for Consultancy & Legal Services also

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seem to be on the higher side. Assumptions for computation of Financial Charges, however, are found to be in line with the general industrial practice.

18.6. Therefore, the Board considers the following costs for Fixed O&M – Local to be reasonable and to be allowed as part of the tariff.

Table 29 – Assessed Fixed O&M (Local)

Fixed O&M – Local	Year 1	Year 2	Year 3	Year 4 – 12*	Year 13 – 30
Salaries, Wages & Benefits	6.80	7.14	7.48	7.48	7.48
Consultancy & Legal Services	1.85	2.13	2.41	2.41	2.41
Capital Items	2.10	2.45	2.80	2.80	2.80
Land Rehabilitation	0.66	0.83	1.00	0.94	0.93
Utility System	0.45	0.56	0.68	0.68	0.68
Operating Expenses	5.28	5.94	5.43	4.84	4.83
Financial Charges	6.86	7.04	7.22	6.60	4.36
Fixed O&M – Foreign	**24.01**	**26.09**	**27.02**	**25.74**	**23.49**

** Average for the Years*

All amounts in USD Million

18.7. Additionally, cost of USD 26.12 Million on account of village relocation & land acquisition shall be allowed to the Petitioner as part of O&M during the first five years of operations equal to USD 5.22 Million per annum, and shall be subject to adjustment to actual costs incurred in this respect.

18.8. The Petitioner has also sought adjustment in O&M on account of variation in overburden volumes however, as deliberated earlier, the Petitioner shall be permitted a maximum upward variation of 5% of assessed costs related to overburden volume, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board.

18.9. Cost of Fuel is directly proportional to the amount of overburden removed, and shall be procured locally from Islamkot, Mithi by the O&M Contractor through a local supplier.

18.10. Similar to the treatment of indexation on account of heat content value discussed above, cost of fuel, a variable component of Foreign O&M, has also been increased by the proportionate amount of additional Foreign O&M Cost and the Board permits such adjustment accordingly.

Table 30 – Assessed Cost of Fuel

Cost of Fuel	Year 1	Year 2	Year 3	Year 4	Year 5 – 30
Cost of Fuel	25.35	29.19	35.76	34.01	32.26
Cost of Fuel	**25.35**	**29.19**	**35.76**	**34.01**	**32.26**

All amounts in USD Million

18.11. Taking into account unavailability of grid, power costs have been petitioned as 80% power acquired through the grid and 20% through diesel generation. Power is primarily required to supply electrical equipment such as coal handling system, MSF, Underground & Surface Water Pumps, Lighting & Illumination networks, Telecommunications, Water Treatment System, Fire, Raw & Potable Water Systems, etc. Also, an incremental power requirement after enhancement to 6.5 MTPA is expected to be met through diesel generation.

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18.12. Diesel as a source of power generation is permitted by the Board. However, prior to achievement of financial close the Petitioner is strongly advised to revisit its technical implementation plans in this respect, and explore other less expensive options for provision of electricity to the mining facility, e.g. Mine Mouth Renewable Energy Generation in a hybrid configuration with diesel as backup and/or a reliable grid supply from the utility.

Table 31 – Assessed Cost of Power

Cost of Power	Year 1	Year 2	Year 3	Year 4 – 30
Cost of Power by Grid	5.72	5.72	5.70	5.68
Cost of Power by Diesel	2.18	3.27	4.36	4.36
Cost of Power	**7.90**	**8.99**	**10.06**	**10.04**

All amounts in USD Million

18.13. Furthermore, tariff adjustments as a result of variation in the cost of power attributable to dewatering is permitted subject to a maximum upward cost of 10% of cost assessed in this respect. However, such adjustments shall only be permissible upon provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board.

18.14. The Petitioner has submitted that the assets in use has a finite life and shall need replacement on a periodic basis. This includes replacement of mining equipment every 5 years for trucks and 8 years for shovels, auxiliary equipment every 8 years, mine service facilities equipment every 8 years, coal handling systems every 15 years, additional wells infrastructure, and pumps having a life cycle of an estimated 8 years. However, as these costs vary significantly each year, the Petitioner seeks this cost to be made a part of the tariff over three levelized periods based on the life cycle of the assets. These periods are proposed as five, ten, and seven years respectively. In order to arrive at the levelized cost, the Petitioner assumes the revenue to be deposited in a sinking fund earning annual interest of 0.25% on the US Dollar accounts.

18.15. The Board has taken note of an initial business plan of the Petitioner, whereby in order to keep a low threshold of investments low capacity equipment, and lower associated capital costs have been selected over high performance, efficiency, and throughput equipment. Selection of the latter over former potentially results in a higher cost of exploited coal. The Board also observes that in the detailed feasibility study, the Petitioner had based their equipment selection on more efficient systems, e.g. 12m^3 and 100 Ton or larger capacity trucks, and In-pit Crushing & Conveying (ICC) systems for coal. The initially low mine capacity of 3.8 MTPA seems to have impacted on this decision to achieve initial low machinery capital expenditure.

Table 32 – Assessed Cost of Asset Replacement

Year	Cost in Tariff	Opening Balance	Asset Expense	Interest Earned	Closing Balance
1	11.57	11.57	-	0.01	11.58
2	11.57	23.15	-	0.03	23.18
3	11.57	34.75	-	0.04	34.79
4	11.57	46.36	-	0.06	46.42
5	11.57	57.98	57.86	0.00	0.13

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Year	Cost in Tariff	Opening Balance	Asset Expense	Interest Earned	Closing Balance
6	10.96	11.09	2.59	0.01	8.52
7	10.96	19.48	2.17	0.02	17.34
8	10.96	28.30	0.39	0.03	27.94
9	10.96	38.91	16.59	0.03	22.34
10	10.96	33.30	1.81	0.04	31.53
11	10.96	42.50	3.00	0.05	39.54
12	10.96	50.51	2.35	0.06	48.22
13	10.96	59.18	59.05	0.00	0.14
14	10.96	11.10	1.79	0.01	9.32
15	10.96	20.29	9.68	0.01	10.62
16	14.46	25.08	3.81	0.03	21.29
17	14.46	35.75	22.01	0.02	13.75
18	14.46	28.21	0.39	0.03	27.85
19	14.46	42.30	1.58	0.05	40.77
20	14.46	55.23	2.61	0.07	52.68
21	14.46	67.14	60.43	0.01	6.72
22	14.46	21.17	1.15	0.03	20.05
23	-	20.05	0.36	0.02	19.71
24	-	19.71	0.36	0.02	19.38
25	-	19.38	17.77	0.00	1.61
26	-	1.61	1.05	0.00	0.56
27	-	0.56	0.24	0.00	0.32
28	-	0.32	0.11	0.00	0.22
29	-	0.22	0.11	0.00	0.11
30	-	0.11	0.11	-	-

All amounts in USD Million

18.16. The ramp up to 6.5 MTPA will clearly dictate the need for high capacity, high efficiency machinery & equipment along with conveyor belt scheme for transport of coal to the power plant, as against the initially opted trucking mode of transport. Accordingly, the Petitioner is expected to submit to the Board an appropriately revised machinery deployment plan that is in sync with the production plans for higher capacities. In this determination, the Board tags these items of machinery and equipment for priority upgrade to higher efficiency modes of operations. Failing any timely submission of introduction of efficient techniques of mining operations at higher capacities (6.5 MTPA and above), the Board will take appropriate measures to ensure high efficiency choice of equipment resulting in lower costs of coal exploitation / production.

18.17. The Petitioner has submitted zero costs on account of royalty while seeking adjustments in tariff equal to the amount notified by Government of Sindh and as revised from time to time. However, Energy Department, Government of Sindh, in its Letter No SO (COORD)/ED(Coal)/5-7/2015 dated January 8, 2015 has notified the rate of royalty to be applicable on coal equal to 7.5% on the value at the pit's mouth subject to minimum charge of PKR 150 per Ton.

18.18. It is the decision of the Board that the notified treatment shall prevail on the total tariff determined for the respective year, and the same is incorporated in the determination the Petitioner subject to revisions by GoS from time to time.

18.19. The Board has also taken note of the communication by Energy Department, Government of Sindh has, vide Letter No SO (TECH) ED/8-55/2008 dated April 08,

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2015, conveying its approval for exemption from payment of royalty to the Petitioner under Rule 99 of Sindh Coal Mining Concession Rules 2002 for a period of one year with effect from start of commercial operations of 3.8 MTPA mining capacity. Therefore, no royalty has been made applicable during the first year of operations.

18.20. The Petitioner has petitioned the cost of working capital facility, expected to be maintained during the operations of the mine, to be allowed as part of the tariff. The total working capital facility has been petitioned to be financed at a cost of 1 Month KIBOR + 2.00%.

18.21. The Petitioner sought working capital of 60 days for receivables on production tariff of the mine, which shall be recoverable as part of EPP of power tariff. Considering the uniqueness of this transaction, wherein the Thar coalmines and downstream power plants have an umbilical business relationship, the Board allows a working capital cost to cover receivables for production price of tariff for a period of thirty days.

18.22. Coal inventory has been requested for thirty days. The Petitioner has submitted that lead time for procurement of coal by the plant shall be sixty days in case of production failure by the mine, therefore sixty days of inventory, thirty days at power plant and mine each, is required to be maintained. The Board considers the Petitioner's request as plausible and permits the same as part of the cost of working capital.

18.23. Working capital for twenty one days of diesel at site is requested by the Petitioner, which is considered reasonable and is allowed by the Board.

18.24. The terms of the O&M bid submitted by the Petitioner mandate a thirty days advance to be paid, for which a working capital cost has been petitioned. The Board considers this request to be reasonable and permits cost for thirty days of advance as part of the working capital cycle.

18.25. Working capital cost for spares of two years have been petitioned to be maintained on site in light of the long lead times for the equipment on account of their specialized nature. The Board notes that storing spares over a long term period reflects planning inefficiencies and leads to deterioration of stored equipment. Six months of spares is considered to reasonable and the same is being permitted to the Petitioner.

18.26. In line with the industrial practice, the Board approves and permits KIBOR + 2.00% as the cost of working capital to be allowed on the working capital facility per annum.

Whether the Petitioner is justified in seeking USD 0.27 per Ton per km as cost of transportation of coal to the power plant?

19. The Petitioner has submitted USD 0.27 per Ton per km to be the transportation costs which shall be added onto the ex-mine tariff. These costs are submitted to be

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computed by the Petitioner's consultants, RWE, and subsequently adjusted for the prevalent HSD prices on December 01, 2014. Moreover, the cost has been based on the following assumptions.

Table 33 – Assumptions for Petitioned Cost of Transportation to Power Plant

Assumptions for Computation of Transportation Costs		
Capacity of Trucks	Tons	50
No of Trucks	Trucks	10
Cost per Truck	USD Million	0.46
Useful Life of Trucks	Years	5
Cost of Financing	Per Annum	7.5%
Average Coal Demand per Annum	MTPA	3.34
Operating Hours per Truck per Annum	Hours	4,160
Fuel Consumption	Litre per Hour	50
Diesel Price	USD per Litre	1.02
Personnel Employed	No of Employees	23
Personnel Remuneration	USD per Annum	9,600
O&M of Trucks	% of Investment	20%
Distance from Mine to Power Plant	km	4.5

All amounts in USD Million

19.1. The assumptions listed above results in a fixed price of USD 0.68 per Ton and variable charge of USD 0.63 per Ton for a total cost of USD 1.31 per Ton. Assuming a 4.5 km distance from mine to the power plant, this cost is computed to be USD 0.291 per Ton per km, and through indexation of the diesel price to the price benchmarked in the petition of USD 0.943 per Litre, this results in the petitioned transportation cost of 0.27 per Ton per km. Moreover, 0.2% losses have been assumed during transportation of coal for the mine mouth power plants.

19.2. The above assumptions were tailored to Pakistan's market dynamics, where price, efficiency, and capacity of trucks were revised to USD 0.14 Million, and 20 Tons respectively. Moreover, average cost of financing for such trucks shall be 15%, as the Petitioner submitted that transportation of coal from mine to power plant shall be outsourced. Taking the above into consideration, the transportation cost is computed to be USD 0.268 per Ton per km.

19.3. The petitioned cost of USD 0.27 per Ton per km is found to be justified and the same is permitted by the Board for the mine mouth power plant of the Petitioner.

19.4. Notwithstanding, the Board strongly advises the Petitioner to submit a Petition prior to achievement of financial close for higher capacities, whereby transportation of coal to the power plants is undertaken utilizing a conveyor belt system to realise operational efficiencies, failing which the Board may consider declaring an upfront tariff in this respect.

Other Considerations for Determination

20. The Petitioner submitted that the power purchaser may allow one unit of the plant to start production earlier than SCOD to overcome the power shortfall currently

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prevailing in the country. Therefore, in order to cater to the power plants fuel requirement, the Petitioner may have to bring ahead the mine's SCOD and commence production earlier at a lower capacity. The Petitioner now seeks adjustment in tariff for all increases in costs on account of this early production.

20.1. Considering the timelines that are realisable, the Board does not perceive the need to bring ahead COD. The issue is of a hypothetical nature as there are no definite plans in this respect. When definite plans and timelines exist in this respect, the Petitioner is advised to bring the case to the Board at such time and the Board shall consider the merits of the request then.

20.2. The Petitioner has sought adjustment for all construction and pre-commissioning expenses borne by the Petitioner till achievement of COD. The Petitioner has sought actualized cost adjustments on account of capital spares, initial diesel inventory, operators' training, site supervision, overheads including but not limited to audit fees, contingency, and establishments costs etc.

20.3. These costs have been discussed under the relevant individual cost components and the indexations and adjustments thereon have been catered for through permission or non-permission thereof. These are well thought-out implementation plans preceded by thorough engineering and design studies. The plea to seek an open ended window for cost adjustment is not justified.

20.4. The Petitioner also seeks adjustment for increase in project costs due to change in law, non-implementation of ECC incentive package for local coal development, or delay in payment from government owned institution beyond 06 months.

20.5. Implications on account of change in law are allowed to be a pass through in tariff. The Petitioner shall be allowed adjustment on account of change in law, and non-implementation of ECC incentive package. The request of the Petitioner to allow adjustment for any delay in any payment due to the Petitioner from government owned institution beyond 06 month as additional cost shall not be allowed as adjustment in either the development / construction period nor the operational period, as recovery of such costs / damages should be catered to in the individual commercial agreements related thereto.

20.6. The Petitioner has sought adjustments in tariff on account of hedging costs, however no such costs shall be allowed to the Petitioner, in accordance with precedence set down by other regulatory authorities.

20.7. The Petitioner foresees failure to achieve RCOD of 48 months on account of (a) variation in overburden volume, dewatering volume, and requirements for blasting, (b) Delay in offtake by the plant, (c) delay in transmission line by NTDC, (d) Failure by GoS to comply with its obligations under GoS IA, (e) force majeure events as defined in GoS IA, and (f) non-implementation of ECC incentive package., and therefore seeks adjustments in tariff on account of cost overruns due to such time overruns.

20.8. It is the decision of the Board that (a) cost variations on account of changes in the identified geological parameters have already been deliberated upon and no additional variation on this account shall be allowed, (b) the terms of LDs or

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recovery thereof for delay in off take by the plant should be catered to in CSA, (c) the power plant shall address implications of such delay in the PPA, and the mine operations do not get directly impacted by such factors, however if there is a carry on effect on mine operations then this will need to be mitigated and addressed in the CSA between the mine and the coal purchaser, (d) the terms of LDs or recovery thereof triggered by GoS default should be addressed in totality under respective obligations as per the IA, (e) possible impact of force majeure events as per the GoS IA would need to be addressed and covered under the applicable remedies and relief under the IA, and (f) only change in fiscal incentives in case of non-implementation of ECC or a change in law shall be permitted for adjustments in tariff.

20.9. The Petitioner has requested for adjustment on account of additional investment required on account of lower coal quality. The Petitioner has submitted that increased production to meet the contracted energy content requirement of coal may lead to incurrence of additional investment for procurement of equipment.

20.10. The Board has already addressed the impact of lower heating value on cost of coal exploited. No further window of relief due to coal quality is considered appropriate.

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No TCEB/Registrar/2-1/2014: This determination is conducted in accordance with the authority vested with Thar Coal Energy Board and pertains to the Petition dated January 05, 2015 of Sindh Engro Coal Mining Company for Determination of Reference Contract Stage Tariff for SECMC's Mine at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan. The Petition is assessed and reviewed in accordance with the parameters and guidelines established under the Thar Coal Tariff Determination Rules, 2014.

The Petitioner has submitted a request for determination of levelized tariff of USD 69.22 per Ton for development & operations of 3.8 MTPA mining capacity and USD 49.93 per Ton for development & operations of 6.5 MTPA mining capacity. The submittal is based upon two independent computations for 3.8 MTPA & 6.5 MTPA capacities respectively.

The Tariff Determination recognizes the inherent characteristics of mine development where a single mine pit is progressively developed to higher capacities. The determination is based upon an initial production of 3.8 MTPA lignite, which is ramped up to 6.5 MTPA as per the mine expansion plan, submitted by the Petitioner.

Pursuant to Rule 10 of the Thar Coal Tariff Determination Rules 2014, Sindh Engro Coal Mining Company is allowed to charge the following ex mine mouth tariff for the composite production regimes of 3.8 MTPA & 6.5 MTPA:

Table I – Determined Composite Tariff

Project Tariff	Year 1 – 12 Average	Year 13 – 30 Average	Year 1 – 30 Levelized
Total Production Payment Tariff Components	14.19	11.93	13.64
Total Capacity Payment Tariff Components	38.03	19.46	32.49
Total Project Tariff	**52.22**	**31.39**	**46.13**

All amounts in USD per Ton

Table II – Production Payment Component

Production Payment Tariff	Year 1 – 12 Average	Year 13 – 30 Average	Year 1 – 30 Levelized
Fuel Cost	5.28	4.92	5.23
Variable O&M – Foreign	3.85	3.62	3.83
Asset Replacement Cost	1.91	1.20	1.84
Royalty	3.15	2.19	2.74
Total Production Payment Tariff Components	**14.19**	**11.93**	**13.64**

All amounts in USD per Ton

Table III –Capacity Payment Component

Capacity Payment Tariff	Year 1 – 12 Average	Year 13 – 30 Average	Year 1 – 30 Levelized
Fixed O&M – Foreign	5.89	5.45	5.85
Fixed O&M – Local	4.99	3.67	4.71
Insurance	1.11	1.05	1.1
Power Cost - By Grid (80%)	0.96	0.87	0.96
Power Cost - By Diesel (20%)	0.66	0.67	0.66
Cost of Working Capital	0.54	0.50	0.53
Debt Principal Repayment	9.77	0.03-	6.11
Debt Interest Payment	6.24	-	4.72
Equity Returns	7.88	7.22	7.83
Total Capacity Payment Tariff Components	**38.04**	**19.46**	**32.47**

All amounts in USD per Ton

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GENERAL CONDITIONS

i. The reference tariff is computed on the basis of net capacity of 3.8 MTPA during the first 1.5 years and 6.5 MTPA for the remaining period of 28.5 years.

ii. The above tariff is applicable for a period of 30 years on BOO basis commencing from Commercial Operations Date of the 3.8 MTPA mine.

iii. The transportation cost to the power plant on trucking mode will be USD 0.27/Ton-kilometer.

iv. The Petitioner shall achieve financial close by or before December 31, 2015 for the tariff to remain valid.

v. The cost of financing is based upon KIBOR (7.96%) + 1.75%. Tariff is computed on basis of 100% Rupee Debt. In case, the Petitioner reverts to a mix of Foreign and Local Debt, the tariff will be computed according to the final Terms Sheets for debt financing. The impact of better financing terms and the accruing gain will be computed towards applicable reduction in tariff.

vi. The basis of this determination is a Debt to Equity ratio of 80:20. The Board agrees to further allow the Petitioner a Debt:Equity ratio of up to 75:25, only if financing requirements necessitate injection of capital beyond the cover provided by the Sovereign Guarantee i.e. USD 700 million. In that case additional capital may be injected by increasing the equity share up to a maximum of 25%. Equity quantum in excess of 25% will be treated as commercial debt to the project at the prevailing rates but not to exceed KIBOR plus 3%.

vii. Tariff is configured on upfront initial equity drawdowns up to a maximum of 35% followed by pro-rata drawdowns of debt and equity.

viii. Debt servicing shall be paid during the first 10 years of each capacity establishment, i.e. first 10 years for 3.8 MTPA capacity, and from 1.5 to 11.5 years for 6.5 MTPA capacity for the incremental amount of debt.

ix. Pre-COD sale of 1.45 million Tons of lignite will be priced at the full first year tariff of coal as per this Determination. The proceeds of this sale will be utilized to finance the capital for expansion of mine to 6.5 MTPA capacity.

x. Working Capital facility and the resultant cost is permitted for a maximum of 30 days of receivables on production payment tariff, 30 days of coal inventory, 21 days of diesel inventory, 30 days of (foreign) O&M advance, 6 months of spares inventory. The financing cost of the working capital facility is permitted at a maximum of 1 Month KIBOR + 2.00%.

xi. Project Tariff is based on a reference exchange rate of PKR 101.75 per USD, diesel price of PKR 82.50 per Litre, project cost of USD 730.92 Million for development of 3.8 MTPA capacity, and an incremental project cost of USD 108.75 Million for enhancement to 6.5 MTPA (of which USD 87.60 Million is benchmarked to be offset through zero cost of funding generated from sale of coal extracted prior to COD).

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xii. The development / construction period allowed for the development of 3.8 MTPA capacity is 42 months from achievement of financial close. A maximum of 6 months extension in the stipulated period is allowed, during which only Interest During Construction and indexations & escalations (detailed in 'REFERENCE TARIFF ADJUSTMENTS & ESCALATIONS' section) is permitted to be adjusted.

xiii. Construction period for the development of 6.5 MTPA mine is 24 months from achievement of financial close for enhancement to 6.5 MTPA capacity. The scheduled COD of 6.5 MTPA mine capacity is 18 months beyond the 3.8 MTPA mine. An extension of up to three-month beyond the stipulated construction period is allowed on account of impact of overburden volumes & hard rock strata during which only Interest During Construction and indexations & escalations (detailed in 'REFERENCE TARIFF ADJUSTMENTS & ESCALATIONS' section) is permitted to be adjusted.

xiv. A six-month delay in COD of 6.5 MTPA impacted by delay in downstream off-take agreements is permitted, without any bearing on the tariff. If a delay in achieving COD of 6.5 MTPA occurs beyond the 24-month period subsequent to the COD of 3.8 MTPA, the Petitioner shall surrender an amount equivalent to the higher of, 1% Equity IRR or USD 3.25 Million per annum from its accrued ROE. This deduction shall be applicable up to such time as the Petitioner achieves commercial operations for 6.5 MTPA capacity or higher. A pro rata calculation of deductions will be applicable in case summations of delays include partial years.

xv. The Petitioner is entitled to adjustment of costs in accordance with the adjustments listed in detail below under 'REFERENCE TARIFF ADJUSTMENTS & ESCALATIONS' section of this document and also indexations in accordance with the mechanisms laid down under the 'REFERENCE TARIFF INDEXATIONS' section of this document.

xvi. The detailed cost components of tariff are tabulated in Annexure A1-A3 appended to the end of this Order, whereas detailed project costs and debt servicing schedule are appended as Annexure B and Annexure C respectively.

REFERENCE TARIFF ADJUSTMENTS & ESCALATIONS

The reference tariff shall be subject to the following indexations and escalations only, at COD of respective capacities.

i. Cumulative adjustment in EPC Cost relating to overburden removal and/or hard rock strata up to 5% of the assessed cost in this regard, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board. Any cost in excess of this would not be acceptable for adjustment.

ii. The impact of dewatering if any on EPC Cost and Cost of Power is capped to a maximum variation equal to 10 % of assessed cost, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party

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acceptable to the Board. Any cost in excess of this would not be acceptable for adjustment.

iii. Cumulative adjustment in O&M Cost relating to overburden removal and blasting of hard strata up to 5% of the assessed cost in this regard, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board. Any cost in excess of this would not be acceptable for adjustment.

iv. Adjustment in Cost of Power (operational period) related to dewatering maximum variations equal to 10% of assessed cost in this regard, subject to provision of sufficient documentary evidence and technical review conducted by a reputable party acceptable to the Board. Any cost in excess of this would not be acceptable for adjustment.

v. EPC Cost components including Overburden Removal Services (Manpower), Overburden Removal Services (Spare Parts), Overburden Removal Services (Tyres), and Lignite Production Services (Non Diesel & Non Overhead) shall be allowed to be escalated using US CPI as benchmark. Cost of Diesel shall be escalated using price of diesel, as notified by OGRA for Islamkot, District Mithi, as benchmark. EPC Cost other than Cost of Diesel shall be escalated using both USD / PKR exchange rate and RMB / USD exchange rate as benchmarks. These costs, or portions thereof, shall be escalated from the date of determination order till the respective of date of invoicing, subject to a maximum period of 48 months for development of 3.8 MTPA capacity, and 27 months for enhancement to 6.5 MTPA capacity after achievement of the respective financial close.

vi. Adjustment in Non EPC Cost for Land Acquisition & Village Relocation to be adjusted to actual incurred till commencement of commercial operations for the Non EPC component thereof, and at actual incurred for the O&M component thereof.

vii. Insurance cost during the construction and operations shall be adjusted to actual incurred subject to a maximum of 1.35% of EPC Cost, and allowed on submission of documentary evidence.

viii. Financing & LC Charges shall be adjusted to actual costs incurred till achievement of Commercial Operations Date, subject to a maximum allowable cost equal to 4.0% of debt secured by the project.

ix. Interest During Construction shall be adjusted to actual costs incurred subject to maximum spread of 1.75% over KIBOR, 80% debt secured, and prorate drawdowns subsequent to 35% upfront equity injection over the maximum allowable construction period of 42 months and 24 months for the development of 3.8 MTPA and 6.5 MTPA mining capacities respectively. However, maximum six additional months of time overruns beyond the allowable construction periods is permitted to be adjusted in the tariff.

x. Equity Returns shall be allowed to be adjusted on the basis of the drawdown profile, which is permitted to be on a prorate basis subsequent to maximum upfront equity drawdown of 35%, during a construction period of 42 months and 24 months for the development of 3.8 MTPA and 6.5 MTPA mining capacities respectively.

xi. No provision for income tax, workers profit participation fund and workers welfare fund, any other tax, custom/excise duty or other duty, levy, charge, surcharge or other governmental impositions, payable by the Project has been accounted for in the tariff. If the Petitioner is obligated to pay any of the above tax the exact amount will be reimbursed by the off taker on production of original receipts. However, withholding tax on dividend will not be pass though under the tariff.

Reference Tariff Indexations

The indexations shall be applicable on the reference tariff shall only be as detailed hereunder.

i. **Fuel Cost**

$$\text{Fuel Cost}_{(\text{rev})} = \text{Fuel Cost}_{x} \times \frac{\text{Diesel Price}_{(\text{rev})}}{82.50}$$

Where,

Fuel $\text{Cost}_{(\text{rev})}$ is the revised Fuel Cost Component

Fuel Cost_{x} is the Fuel Cost of x^{th} year of operations

Diesel $\text{Price}_{(\text{rev})}$ is the Delivered Diesel Price in terms of PKR per Litre notified by OGRA for Islamkot, District Mithi adjusted for NCV-GCV factor (Reference – 1.0574), Specific gravity (Reference – 0.84), and Calorific Value (Gross) (Reference – 44.2MJ/kg)

Frequency of indexation shall be as and when notified by Oil & Gas Regulatory Authority

ii. **Variable O&M**

$$\text{Variable O\&M}_{(\text{rev})} = \text{Variable O\&M}_{x} \times \frac{\text{US CPI}_{(\text{rev})}}{238.031} \times \frac{\text{PKR/USD}_{(\text{rev})}}{101.75} \times \frac{6.10}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

Variable $\text{O\&M}_{(\text{rev})}$ is the revised Variable O&M Component

Variable $\text{O\&M}_{x}$ is the Variable O&M Component of x^{th} year of operations

US $\text{CPI}_{(\text{rev})}$ is the latest United States Consumer Price Index for All Urban Consumers (CPI-U) notified by the US Bureau of Labor Statistics

Thar Coal & Energy Board

PKR/USD $_{(rev)}$ is the revised TT & OD selling rate of US Dollars as on the date on which the indexation is applicable, as notified by the National Bank of Pakistan

RMB/USD$_{(rev)}$ is the revised TT & OD selling rate of Chinese RMB as on the date on which the indexation is applicable, as notified by the People's Bank of China

Frequency of indexation shall be quarterly

iii. Asset Replacement

$$\text{Asset Replacement}_{(rev)} = \text{Asset Replacement}_x \times \frac{\text{US CPI}_{(rev)}}{238.031} \times \frac{\text{PKR/USD}_{(rev)}}{101.75} \times \frac{6.10}{\text{RMB/USD}_{(rev)}}$$

Where,

Asset Replacement$_{(rev)}$ is the revised Asset Replacement Component

Asset Replacement $_x$ is the Asset Replacement Component of x^{th} year of operations

US CPI$_{(rev)}$ is the latest United States Consumer Price Index for All Urban Consumers (CPI-U) notified by the US Bureau of Labor Statistics

PKR/USD $_{(rev)}$ is the revised TT & OD selling rate of US Dollars as on the date on which the indexation is applicable, as notified by the National Bank of Pakistan

RMB/USD$_{(rev)}$ is the revised TT & OD selling rate of Chinese RMB as on the date on which the indexation is applicable, as notified by the People's Bank of China

Frequency of indexation shall be quarterly

iv. Royalty

$$\text{Royalty}_{(rev)} = \text{Coal Price}_y \times \text{Royalty}$$

Where,

Royalty$_{(rev)}$ is the revised Royalty Component

Coal Price$_y$ is the Price of Coal (excluding Royalty) in y^{th} month of operations

Royalty is the minimum of 7.5% of Production Payment Price of Coal (excluding Royalty) or PKR 150 per Ton or as otherwise notified by GoS for Royalty in Thar Coalfields

Frequency of Indexation shall be as and when notified by GoS

Thar Coal & Energy Board

v. Fixed O&M – Local

$$\text{Fixed O\&M - Local}_{(rev)} = \text{Fixed O\&M - Local}_{x} \times \frac{\text{Local CPI}_{(rev)}}{206.11}$$

Where,

Fixed O&M – $\text{Local}_{(rev)}$ is the revised Fixed O&M – Local Component

Fixed O&M – Local_{x} is the Fixed O&M – Local Component in x^{th} year of operations

Local $\text{CPI}_{(rev)}$ is the latest is Consumer Price Index of Pakistan as notified by the Pakistan Bureau of Statistics

Frequency of Indexation shall be quarterly

vi. Fixed O&M – Foreign

$$\text{Fixed O\&M Foreign}_{(rev)} = \text{Fixed O\&M Foreign}_{x} \times \frac{\text{US CPI}_{(rev)}}{238.031} \times \frac{\text{PKR/USD}_{(rev)}}{101.75} \times \frac{6.10}{\text{RMB/USD}_{(rev)}}$$

Where,

Fixed O&M – $\text{Foreign}_{(rev)}$ is the revised Variable O&M Component

Fixed O&M – Foreign_{x} is the Variable O&M Component of x^{th} year of operations

US $\text{CPI}_{(rev)}$ is the latest United States Consumer Price Index for All Urban Consumers (CPI-U) notified by the US Bureau of Labor Statistics

PKR/USD $_{(rev)}$ is the revised TT & OD selling rate of US Dollars as on the date on which the indexation is applicable, as notified by the National Bank of Pakistan

$\text{RMB/USD}_{(rev)}$ is the revised TT & OD selling rate of Chinese RMB as on the date on which the indexation is applicable, as notified by the People's Bank of China

Frequency of indexation shall be quarterly

vii. Power Cost – By Grid

$$\text{Power Cost - By Grid}_{(rev)} = \text{Power Cost - By Grid}_{x} \times \frac{\text{Grid Rate}_{(rev)}}{16.28} \times \frac{\text{\% of Grid}_{(rev)}}{80\%}$$

Where,

Power Cost – $\text{By Grid}_{(rev)}$ is the revised Power Cost – By Grid Component

Power Cost – By Grid_{x} is the Power Cost – By Grid Component in x^{th} year of operations

Thar Coal & Energy Board

Grid Power Rate$_{(rev)}$ is the revised industrial rate of power cost as notified by HESCO

% of Grid$_{(rev)}$ is the percentage of power acquired from grid in x^{th} year of operations

Frequency of indexation shall be as and when notified by HESCO

viii. Power Cost – By Diesel

$$\text{Power Cost} - \text{By Diesel}_{(rev)} = \text{Power Cost} - \text{By Diesel}_{x} \times \frac{\text{Diesel Price}_{(rev)}}{82.50} \times \frac{\%\ \text{of Diesel}_{(rev)}}{80\%}$$

Where,

Power Cost – By Diesel Diesel$_{(rev)}$ is the revised Power Cost – By Diesel Component

Power Cost – By Diesel$_x$ is the Power Cost – Diesel Component in x^{th} year of operations

Diesel Price$_{(rev)}$ is the Delivered Diesel Price in terms of PKR per Litre notified by OGRA for Islamkot, District Mithi adjusted for NCV-GCV factor (Reference – 1.0574), Specific gravity (Reference – 0.84), and Calorific Value (Gross) (Reference – 44.2MJ/kg)

% of Diesel$_{(rev)}$ is the percentage of power generated by Diesel in x^{th} year of operations

Frequency of indexation shall be as and when notified by OGRA

ix. Cost of Working Capital

$$WC_{(rev)} = WC_x \times \left(a_x \frac{\text{Prod Pmt}_{(rev)}}{\text{Prod Pmt}_x} + b_x \frac{\text{Coal}_{(rev)}}{\text{Coal}_x} + c_x \frac{\text{Diesel}_{(rev)}}{82.50} + d_x \frac{\text{US CPI}_{(rev)} \times \text{PKR/USD}_{(rev)} \times 6.10}{238.031 \times 101.75 \times \text{RMB/USD}_{(rev)}}\right) \times \frac{\text{KIBOR}_{(rev)} + 2.00\%}{10.00\%}$$

Where,

Cost of WC$_{(rev)}$ is the revised Cost of Working Capital Component

Cost of WC$_x$ is the Cost of Working Capital in x^{th} year of operations

a_x is the proportion of Coal Inventory Cost for 30 days calculated at Production Payment Price to amount of working capital facility in x^{th} year of operations

b_x is the proportion of Production Payment Price for 60 days to amount of working capital facility in x^{th} year of operations

c_x is the proportion of Fuel Cost for 21 days to amount of working capital facility in x^{th} year of operations

Prod Pmt$_{(rev)}$ is the Production Payment Price as determined by TCEB after incorporating indexations till latest month

Thar Coal & Energy Board

Prod Pmt_x is the Production Payment Price as determined by TCEB for x^{th} year of operations

$Coal_{(rev)}$ is the Coal Price (excluding Working Capital Component) as determined by TCEB after incorporating indexations till latest month

$Coal_x$ is the Coal Price (excluding Working Capital Component) as determined by TCEB at COD for x^{th} year of operations

Diesel $Price_{(rev)}$ is the Delivered Diesel Price in terms of PKR per Litre notified by OGRA for Islamkot, District Mithi adjusted for NCV-GCV factor (Reference – 1.0574), Specific gravity (Reference – 0.84), and Calorific Value (Gross) (Reference – 44.2MJ/kg)

$KIBOR_{(rev)}$ is 1-Month KIBOR rate at the end of the 1 month period prior to the month in which indexation is applicable, as notified by the State Bank of Pakistan

Frequency of Indexation shall be monthly

x. Interest Payments

$$\text{Interest} - \text{Local}_{(\text{rev})} = \text{Interest} - \text{Local}_x \times \frac{\text{KIBOR}_{(\text{rev})} + 1.75\%}{9.71\%}$$

Where,

Interest – $Local_{(rev)}$ is the Interest Payment – Local Component

Interest – $Local_x$ is Interest Payment – Local Component determined by TCEB for x^{th} year of operations, subject to adjustment on account of escalations till COD.

$KIBOR_{(rev)}$ is the relevant KIBOR rate prevailing for x^{th} year of operations, as notified by State Bank of Pakistan

Frequency of Indexation shall be semi-annually or as repayments are agreed with lender

xi. Equity Returns

$$\text{Equity Returns}_{(\text{rev})} = \text{Equity Returns}_x \times \frac{\text{PKR/USD}_{(\text{rev})}}{101.75}$$

Where,

Equity $Returns_{(rev)}$ is the revised Equity Returns Component

Equity $Returns_x$ is the Equity Returns component determined by TCEB for x^{th} period of operations

Thar Coal & Energy Board

PKR/USD $_{(rev)}$ is the revised TT & OD selling rate of US Dollars as on the date on which the indexation is applicable, as notified by the National Bank of Pakistan

Frequency of Indexation shall quarterly

xii. Cost of Transportation

$$\text{Cost of Transportation}_{(rev)} = \text{Cost of Transportation}_{x} \times \frac{\text{Diesel Price}_{(rev)}}{82.50}$$

Where,

Cost of Transportation$_{(rev)}$ is the revised Cost of Transportation applicable on tariff

Cost of Transportation$_{x}$ is the Cost of Transportation applicable on tariff as determined by TCEB for x^{th} period of operations

Diesel Price$_{(rev)}$ is the Delivered Diesel Price in terms of PKR per Litre notified by OGRA for Islamkot, District Mithi adjusted for NCV-GCV factor (Reference – 1.0574), Specific gravity (Reference – 0.84), and Calorific Value (Gross) (Reference – 44.2MJ/kg)

Frequency of Indexation shall be as notified by OGRA

xiii. Heat Content Adjustment

$$\text{Adjusted Prod Pmt}_{(rev)} = \text{Prod Pmt}_{x} \times \frac{\text{Heating Value}_{(ref)}}{\text{Heating Value}_{(rev)}}$$

Where

Adjusted Prod Pmt$_{(rev)}$ is the Production Payment Price adjusted for heating value (LHV)

Indexed Prod Pmt$_{x}$ is the reference Production Payment Price in x^{th} year of operations

Heating Value$_{(ref)}$ is the heat content of coal, which for Year 1 – 8 is equal to 11.30 MJ / kg (LHV) and for Year 9 – 30 is equal to 11.61 MJ / kg (LHV)

Heating Value$_{(rev)}$ is the actual average heating value (LHV) during the relevant quarter of x^{th} of operations subject to a minimum heating value (LHV) permitted for Year 1 – 8 of 11.0175 MJ / Kg and for Year 9 – 30 of 11.31975 MJ / Kg

Indexation shall be computed annually.

Thar Coal & Energy Board

ANNEXURE A-1

Coal Price of 3.8 Mtpa Leading to 6.5Mtpa Capacity Mine of Thar Block II

Year	Fuel Cost	Variable O&M	Asset Cost	Royalty	Total Prod Payments	Fixed O&M Foreign	Fixed O&M Local	Insurance	Grid Power (80%)	Diesel Power (20%)	Cost of Working Capital	Principal Debt	Interest Payment	Equity Returns	Total Capacity Payments	Total
1	6.6706	4.7860	3.0441	-	14.5007	7.9868	7.8663	1.4952	1.5053	0.5731	0.5852	9.6803	14.7121	12.0206	56.4251	70.9258
2	5.6689	4.0964	2.2462	4.1600	16.1715	6.4534	6.2107	1.2112	1.1107	0.6357	0.5834	7.9565	10.3022	8.9914	43.4552	59.6267
3	5.5010	3.9999	1.7797	3.5566	14.8372	6.0446	5.0637	1.0451	0.8769	0.6701	0.5468	7.0128	7.6599	7.2205	36.1404	50.9776
4	5.2319	3.8256	1.7797	3.4936	14.3308	5.7477	4.9779	1.0451	0.8738	0.6701	0.5369	7.7103	6.9624	7.2205	35.7447	50.0756
5	4.9629	3.6513	1.7797	3.4362	13.8300	5.4508	4.9614	1.0451	0.8738	0.6701	0.5271	8.4771	6.1956	7.2205	35.4215	49.2515
6	4.9629	3.6513	1.6868	3.3687	13.6697	5.4508	4.1577	1.0451	0.8738	0.6701	0.5245	9.3202	5.3525	7.2205	34.6152	48.2849
7	4.9629	3.6513	1.6868	3.3687	13.6697	5.4508	4.1577	1.0451	0.8738	0.6701	0.5245	10.2472	4.4255	7.2205	34.6152	48.2849
8	4.9629	3.6513	1.6868	3.3687	13.6697	5.4508	4.1577	1.0451	0.8738	0.6701	0.5245	11.2663	3.4064	7.2205	34.6152	48.2849
9	4.9223	3.6215	1.6868	3.3633	13.5940	5.4508	4.1577	1.0451	0.8738	0.6701	0.5230	12.3868	2.2859	7.2205	34.6137	48.2078
10	4.9223	3.6215	1.6868	3.3633	13.5940	5.4508	4.1577	1.0451	0.8738	0.6701	0.5230	13.6188	1.0539	7.2205	34.6137	48.2078
11	4.9223	3.6215	1.6868	2.2570	12.4877	5.4508	3.6851	1.0451	0.8738	0.6701	0.5048	0.3669	0.0456	7.2205	19.8628	32.3505
12	4.9223	3.6215	1.6868	2.2411	12.4718	5.4508	3.6794	1.0451	0.8738	0.6701	0.5045	0.1921	0.0141	7.2205	19.6506	32.1224
13	4.9223	3.6215	1.6868	2.2252	12.4559	5.4508	3.6737	1.0451	0.8738	0.6701	0.5043	-	-	7.2205	19.4384	31.8942
14	4.9223	3.6215	1.6868	2.2252	12.4559	5.4508	3.6737	1.0451	0.8738	0.6701	0.5043	-	-	7.2205	19.4384	31.8942
15	4.9223	3.6215	1.6868	2.2252	12.4559	5.4508	3.6737	1.0451	0.8738	0.6701	0.5043	-	-	7.2205	19.4384	31.8942
16	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
17	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
18	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
19	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
20	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
21	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
22	4.9223	3.6215	2.2239	2.2662	13.0339	5.4508	3.6737	1.0451	0.8738	0.6701	0.5138	-	-	7.2205	19.4479	32.4818
23	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
24	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
25	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
26	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
27	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
28	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
29	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
30	4.9223	3.6215	-	2.0964	10.6403	5.4508	3.6737	1.0451	0.8738	0.6701	0.4744	-	-	7.2205	19.4085	30.0488
01-12	5.3539	3.9062	1.9638	2.9441	14.1678	6.0060	5.1102	1.1253	0.9872	0.6530	0.5416	8.4599	6.5345	8.0757	37.4934	51.6612
13-30	4.9223	3.6215	1.5033	2.2112	12.2583	5.4508	3.6737	1.0451	0.8738	0.6701	0.5010	-	-	7.2205	19.4351	31.6935
01-30	**5.2342**	**3.8273**	**1.8361**	**2.7409**	**13.6385**	**5.8521**	**4.7120**	**1.1031**	**0.9557**	**0.6577**	**0.5303**	**6.1148**	**4.7231**	**7.8387**	**32.4875**	**46.1260**

All Amount in USD per Ton

The Coal Field Pvt. Ltd.

THAR COAL AND ENERGY BOARD GOVERNMENT OF SINDH

ANNEXURE A-2

Annual Profile for Coal Price of 3.8 Mtpa Capacity Mine of Thar Block II

Year	Fuel Cost	Variable O&M	Asset Cost	Royalty	Total Prod Payments	Fixed O&M Foreign	Fixed O&M Local	Insurance	Grid Power (80%)	Diesel Power (20%)	Cost of Working Capital	Principal Debt	Interest Payment	Equity Returns	Total Capacity Payments	Total
1	6.8171	4.8911	3.0441	-	14.7524	7.9868	7.8663	1.4952	1.5053	0.5731	0.5902	9.6803	14.7121	12.0206	56.4300	71.1824
2	5.9477	4.2503	3.0441	5.1356	18.3778	6.9947	7.6070	1.4952	1.5053	0.5731	0.6448	10.6431	13.7494	12.0206	55.2332	73.6110
3	5.8113	4.1476	1.1677	4.8764	16.0030	6.8368	7.5649	1.4952	1.5000	0.5693	0.6050	11.7016	12.6908	10.9285	53.8921	69.8951
4	5.8113	4.1476	1.1677	4.8749	16.0016	6.8368	7.5504	1.4952	1.4947	0.5693	0.6049	12.8654	11.5270	10.9285	53.8724	69.8740
5	5.8113	4.1476	1.1677	4.8749	16.0016	6.8368	7.5504	1.4952	1.4947	0.5693	0.6049	14.1450	10.2475	10.9285	53.8724	69.8740
6	5.8113	4.1476	1.9651	4.8326	16.7566	6.8368	6.1757	1.4952	1.4947	0.5693	0.6174	15.5518	8.8407	10.9285	52.5101	69.2666
7	5.8113	4.1476	1.9651	4.8326	16.7566	6.8368	6.1757	1.4952	1.4947	0.5693	0.6174	17.0985	7.2939	10.9285	52.5101	69.2666
8	5.8113	4.1476	1.9651	4.8326	16.7566	6.8368	6.1757	1.4952	1.4947	0.5693	0.6174	18.7991	5.5933	10.9285	52.5101	69.2666
9	5.6562	4.0368	1.9651	4.8122	16.4703	6.8368	6.1757	1.4952	1.4947	0.5693	0.6118	20.6688	3.7236	10.9285	52.5045	68.9748
10	5.6562	4.0368	1.9651	4.8122	16.4703	6.8368	6.1757	1.4952	1.4947	0.5693	0.6118	22.7245	1.6680	10.9285	52.5045	68.9748
11	5.6562	4.0368	1.9651	2.9198	14.5779	6.8368	5.3673	1.4952	1.4947	0.5693	0.5806	-	-	10.9285	27.2725	41.8504
12	5.6562	4.0368	1.9651	2.9198	14.5779	6.8368	5.3673	1.4952	1.4947	0.5693	0.5806	-	-	10.9285	27.2725	41.8504
13	5.6562	4.0368	1.9651	2.9198	14.5779	6.8368	5.3673	1.4952	1.4947	0.5693	0.5806	-	-	10.9285	27.2725	41.8504
14	5.6562	4.0368	1.9651	2.9198	14.5779	6.8368	5.3673	1.4952	1.4947	0.5693	0.5806	-	-	10.9285	27.2725	41.8504
15	5.6562	4.0368	1.9651	2.9198	14.5779	6.8368	5.3673	1.4952	1.4947	0.5693	0.5806	-	-	10.9285	27.2725	41.8504
16	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
17	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
18	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
19	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
20	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
21	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
22	5.6562	4.0368	2.5585	2.9651	15.2166	6.8368	5.3673	1.4952	1.4947	0.5693	0.5911	-	-	10.9285	27.2830	42.4996
23	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
24	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
25	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
26	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
27	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
28	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
29	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
30	5.6562	4.0368	-	2.7698	12.4628	6.8368	5.3673	1.4952	1.4947	0.5693	0.5459	-	-	10.9285	27.2378	39.7006
01-10	5.9580	4.2568	2.0032	4.1700	16.3880	7.0282	7.0799	1.4952	1.4984	0.5704	0.6121	14.2903	10.1022	11.2369	53.9136	70.3017
11-30	5.6562	4.0368	1.7834	2.9059	14.3824	6.8368	5.3673	1.4952	1.4947	0.5693	0.5774	-	-	10.9285	27.2693	41.6517
01-30	**5.8529**	**4.1802**	**1.9267**	**3.7299**	**15.6897**	**6.9616**	**6.4836**	**1.4952**	**1.4971**	**0.5700**	**0.6001**	**9.3146**	**6.5847**	**11.1295**	**44.6364**	**60.3261**

All Amount in USD per Ton

Not to be Quoted

ANNEXURE A-3

Annual Profile for Coal Price of 6.5Mtpa Capacity Mine of Thar Block II

Year	Fuel Cost	Variable O&M	Asset Cost	Royalty	Total Prod Payments	Fixed O&M Foreign	Fixed O&M Local	Insurance	Grid Power (80%)	Diesel Power (20%)	Cost of Working Capital	Principal Debt	Interest Payment	Equity Returns	Total Capacity Payments	Total
1	5.6506	4.1097	1.7797	3.5933	15.1332	6.0908	5.2428	1.0451	0.8785	0.6712	0.5486	6.6952	7.9775	7.2205	36.3702	51.5034
2	5.5470	4.0333	1.7797	3.5675	14.9274	6.0446	5.1331	1.0451	0.8754	0.6701	0.5446	7.3611	7.3116	7.2205	36.2061	51.1335
3	4.9993	3.6786	1.7797	3.4433	13.9009	5.4523	4.9944	1.0451	0.8738	0.6701	0.5246	8.0932	6.5795	7.2205	35.4536	49.3545
4	4.9993	3.6786	1.7797	3.4107	13.8683	5.4523	4.5596	1.0451	0.8738	0.6701	0.5241	8.8982	5.7745	7.2205	35.0182	48.8865
5	4.9993	3.6215	1.7797	3.3762	13.7767	5.4523	4.1577	1.0451	0.8738	0.6701	0.5226	9.7831	4.8895	7.2205	34.6149	48.3915
6	4.9993	3.6215	1.6868	3.3691	13.6768	5.4523	4.1577	1.0451	0.8738	0.6701	0.5209	10.7561	3.9165	7.2205	34.6132	48.2900
7	4.9606	3.6215	1.6868	3.3661	13.6350	5.4523	4.1577	1.0451	0.8738	0.6701	0.5200	11.8259	2.8468	7.2205	34.6123	48.2473
8	4.9218	3.6215	1.6868	3.3631	13.5933	5.4523	4.1577	1.0451	0.8738	0.6701	0.5191	13.0021	1.6706	7.2205	34.6114	48.2047
9	4.9218	3.6215	1.6868	2.7922	13.0224	5.4523	3.6851	1.0451	0.8738	0.6701	0.5097	6.9921	0.5505	7.2205	26.9993	40.0217
10	4.9218	3.6215	1.6868	2.2568	12.4869	5.4523	3.6851	1.0451	0.8738	0.6701	0.5009	0.3843	0.0282	7.2205	19.8604	32.3474
11	4.9218	3.6215	1.6868	2.2250	12.4551	5.4523	3.6737	1.0451	0.8738	0.6701	0.5004	-	-	7.2205	19.4360	31.8911
12	4.9218	3.6215	1.6868	2.2250	12.4551	5.4523	3.6737	1.0451	0.8738	0.6701	0.5004	-	-	7.2205	19.4360	31.8911
13	4.9218	3.6215	1.6868	2.2250	12.4551	5.4523	3.6737	1.0451	0.8738	0.6701	0.5004	-	-	7.2205	19.4360	31.8911
14	4.9218	3.6215	1.6868	2.2250	12.4551	5.4523	3.6737	1.0451	0.8738	0.6701	0.5004	-	-	7.2205	19.4360	31.8911
15	4.9218	3.6215	1.6868	2.2250	12.4551	5.4523	3.6737	1.0451	0.8738	0.6701	0.5004	-	-	7.2205	19.4360	31.8911
16	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
17	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
18	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
19	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
20	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
21	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
22	4.9218	3.6215	2.2239	2.2660	13.0331	5.4523	3.6737	1.0451	0.8738	0.6701	0.5099	-	-	7.2205	19.4455	32.4787
23	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
24	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
25	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
26	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
27	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
28	4.9218	3.6215	-	2.0962	10.6395	5.4523	3.6737	1.0451	0.8738	0.6701	0.4706	-	-	7.2205	19.4062	30.0457
29*	2.4609	1.8108	-	1.0481	5.3198	2.7262	1.8369	0.5226	0.4369	0.3351	0.2353	-	-	3.6103	9.7031	15.0229
01-10	5.1500	3.7625	1.7441	3.3330	13.9896	5.6264	4.5341	1.0451	0.8747	0.6703	0.5269	8.4175	4.8683	7.2205	33.7840	47.7736
11-29	4.8297	3.5538	1.5539	2.1756	12.1131	5.3503	3.6050	1.0256	0.8575	0.6576	0.4893	-	-	7.0855	19.0708	31.1839
01-29*	**5.0391**	**3.6902**	**1.6783**	**2.9323**	**13.3399**	**5.5308**	**4.2124**	**1.0383**	**0.8688**	**0.6659**	**0.5139**	**5.5030**	**3.1827**	**7.1738**	**28.6895**	**42.0294**

All Amount in USD per Ton

** Half a year of operations*

Annexure B

Table IV – Assessed Project Cost for Development of 3.8 MTPA Mining Capacity

Assessed Project Cost for 3.8 Mtpa	Amount
EPC Cost	420.88
Non EPC Cost	166.39
Insurance Cost	5.68
Financing Fee, LC Charges, Sinosure Fees etc.	23.39
Interest During Construction	114.57
Total Project Cost	**730.92**

All amounts in USD Million

Table V – Assessed Project Cost for Development of 6.5 MTPA Mining Capacity

Assessed Project Cost for 6.5 Mtpa	Amount
EPC Cost	82.31
Non EPC Cost	21.42
Insurance Cost	1.11
Financing Fee, LC Charges, Sinosure Fees etc.	0.68
Interest During Construction	3.22
Pre COD Revenue Offset	(87.60)
Total Project Cost	**21.14**

All amounts in USD Million

Thar Coal & Energy Board

Annexure C

Table VI – Debt Servicing Requirement for Development of 3.8 MTPA Mining Capacity

Year	Period	Principal	Repayment	Interest	Balance	Instalment
1	1	584.737	17.957	28.389	566.780	46.346
	2	566.780	18.828	27.517	547.951	46.346
2	3	547.951	19.743	26.603	528.209	46.346
	4	528.209	20.701	25.645	507.508	46.346
3	5	507.508	21.706	24.640	485.802	46.346
	6	485.802	22.760	23.586	463.042	46.346
4	7	463.042	23.865	22.481	439.177	46.346
	8	439.177	25.024	21.322	414.153	46.346
5	9	414.153	26.239	20.107	387.915	46.346
	10	387.915	27.512	18.833	360.402	46.346
6	11	360.402	28.848	17.498	331.554	46.346
	12	331.554	30.249	16.097	301.305	46.346
7	13	301.305	31.717	14.628	269.588	46.346
	14	269.588	33.257	13.089	236.331	46.346
8	15	236.331	34.872	11.474	201.459	46.346
	16	201.459	36.565	9.781	164.894	46.346
9	17	164.894	38.340	8.006	126.554	46.346
	18	126.554	40.201	6.144	86.353	46.346
10	19	86.353	42.153	4.192	44.200	46.346
	20	44.200	44.200	2.146	-	46.346

All amounts in USD Million

Table VII – Debt Servicing Requirement for Development of 6.5 MTPA Mining Capacity

Year	Period	Principal	Repayment	Interest	Balance	Instalment
1	1	16.914	0.519	0.821	16.395	1.341
	2	16.395	0.545	0.796	15.850	1.341
2	3	15.850	0.571	0.770	15.279	1.341
	4	15.279	0.599	0.742	14.680	1.341
3	5	14.680	0.628	0.713	14.052	1.341
	6	14.052	0.658	0.682	13.394	1.341
4	7	13.394	0.690	0.650	12.704	1.341
	8	12.704	0.724	0.617	11.980	1.341
5	9	11.980	0.759	0.582	11.221	1.341
	10	11.221	0.796	0.545	10.425	1.341
6	11	10.425	0.834	0.506	9.591	1.341
	12	9.591	0.875	0.466	8.716	1.341
7	13	8.716	0.917	0.423	7.798	1.341
	14	7.798	0.962	0.379	6.836	1.341
8	15	6.836	1.009	0.332	5.827	1.341
	16	5.827	1.058	0.283	4.770	1.341
9	17	4.770	1.109	0.232	3.661	1.341
	18	3.661	1.163	0.178	2.498	1.341
10	19	2.498	1.219	0.121	1.279	1.341
	20	1.279	1.279	0.062	-	1.341

All amounts in USD Million

Thar Coal & Energy Board