



## **Thar Coal & Energy Board**

Government of Sindh

No TCEB/Registrar/2-2/2015  
December 09, 2016

**DETERMINATION OF THAR COAL & ENERGY  
BOARD IN THE MATTER OF REFERENCE  
FEASIBILITY STAGE TARIFF FOR SINO SINDH  
RESOURCES LIMITED PAKISTAN MINE OF 7.8  
MTPA AT BLOCK-I THAR COALFIELDS, DISTRICT  
THARPARKAR, SINDH, PAKISTAN**





## Thar Coal & Energy Board Government of Sindh


No TCEB/Registrar/2-2/2015  
December 09, 2016

**Determination of Reference Feasibility Stage Tariff for Sino  
Sindh Resources Limited Pakistan Mine of 7.8 MTPA at  
Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan**

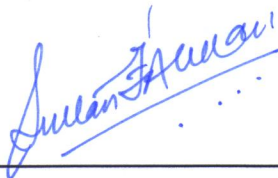
### **Thar Coal Tariff Determination Committee**

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 Rashid Hussein Kazi**  
Member / Presiding Officer





## Thar Coal & Energy Board Government of Sindh

No TCEB/Registrar/2-2/2015  
January 9, 2017

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 Feasibility Stage Tariff for Sino Sindh Resources Limited Pakistan Mine of 7.8 MTPA at Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.

**Rashid Hussein Kazi**

Managing Director  
Thar Coal & Energy Board

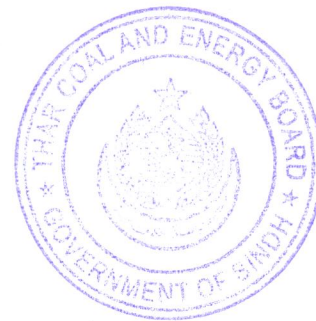






## Thar Coal & Energy Board Government of Sindh

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
MMBtu	Million British Thermal Units
MSF	Mine Service Facilities
MTPA	Million Tonnes Per Annum
MW	Megawatt
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
SCEL	Sindh Carbon Energy Limited
SCOD	Scheduled Commercial Operations Date
SEPA	Sindh Environmental Protection Agency
TCP	Tariff Concession Period
TCEB	Thar Coal & Energy Board
TT & OD	Telegraphic Transfer & On Demand
US	United States
USD	United States Dollar







# Thar Coal & 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 Sino Sindh Resources Limited for Determination of Feasibility Stage Tariff for SSRL's Mine of 7.8 Mtpa at Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated 5<sup>th</sup> September, 2016. The coal tariff determination relates to the specific mine lease of Block-I 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.

### 1. SALIENT FEATURES

#### 1.1. CONFORMANCE WITH THAR COAL PRICING FRAMEWORK

The initially submitted Petition did not conform to the guidelines provided by the Thar Coal Pricing Framework. It was structured around leasing of mining equipment and a claim of an EPC Profit additional to the Policy permitted Equity IRR of 20%. This computation was in complete variance from the established guidelines as outlined under the Thar Coal Pricing Framework. This Petition was returned to SSRL with fresh instructions that the Petition be submitted in accordance with established guidelines for structuring a tariff computation on a cost-plus regime as outlined in the relevant TCEB Guidelines on Coal Pricing Framework.

#### 1.2. TARIFF SOUGHT

The Petitioner has re-submitted a request for determination of levelized tariff of USD 48.50 per tonne for development & operations of 7.8 Mtpa mining capacity. The petitioned Project Cost for 7.8 Mtpa is USD 1058.33 Million incurred over a period of 33 years starting from the year 2017 of which the first three years (up to 2019) is the mine development phase and from 2020 the mine is expected to come in to full production of 7.8 Mtpa. The details of the petitioned costs are provided in Tables 1 to 3 here below:

Table 01 – Petitioned Project Tariff for 7.8 Mtpa Mining Capacity

Project Tariff for 7.8 Mtpa	Year 1 – 10	Year 11 – 30	Year 1 – 30
Production Payment Tariff Components	13.15	12.59	12.28
Capacity Payment Tariff Components	40.02	26.05	30.71
Tariff (Average)	53.17	38.64	42.99

All amounts in USD per Tonne

Table 02 – Petitioned Capacity Payment Tariff for 7.8 Mtpa Mining Capacity

Capacity Payment Tariff Components for 7.8 Mtpa	Year 1 – 10	Year 11 – 30	Year 1 – 30
Fixed O&M	16.23	14.97	15.40
Insurance	1.54	1.54	1.54
Cost of Working Capital	0.61	0.44	0.50
Debt Service	10.19	-	3.40
Return on Equity	6.82	6.82	6.82
Return on Equity During Construction	2.27	2.27	2.27
Capacity Payment Tariff Components (Average)	40.02	26.05	30.71

All amounts in USD per Tonne







# Thar Coal & Energy Board Government of Sindh

Table 03 – Petitioned Project Cost for Development of 7.8 Mtpa Mining Capacity

Petitioned Project Cost for 7.8 Mtpa	Amount
EPC Cost	803.1
Non EPC Cost	87.60
Project Development Cost	26.00
Insurance During Construction Cost	10.84
Financing Fees and Charges.	17.70
Sinosure Fee	55.62
Interest During Construction	57.45
<b>Total Project Cost</b>	<b>1,058.33</b>

All amounts in USD Million

## 1.3. ASSUMPTIONS

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 72.79 per Litre
ii.	PKR to USD Exchange Rate Parity	PKR 104.62 per USD
iii.	USD to RMB Exchange Rate Parity	RMB 6.66 per USD
iv.	Cost of Foreign Financing	LIBOR + 3.00%
v.	LIBOR Assumption – 6 month	1.13 %
vi.	Debt to Equity Ratio	75:25
vii.	Debt Repayment Period	10 Years
viii.	Equity IRR	20.00%
ix.	Mining Technology	Truck & Shovel
x.	Construction Period for Development of 7.8 Mtpa Capacity	30 Months
xi.	Overburden Removal for the development of 7.8 Mtpa Capacity	160 Million BCM
xii.	Average Slope Angle of the Mine	24° (Degrees)
xiii.	Average Stripping Ratio in Mining Area	7.6
xiv.	Average Rate of Dewatering	52.02 million m <sup>3</sup> /yr

## 2. MATERIAL ASPECTS OF THE PETITION - ANALYSIS & DECISIONS

Based on the submissions of the Petitioner, the salient computational and cost aspects of the Petition impacting the tariff are highlighted assessed and subsequently determined as heretofore.

### 2.1. SELECTION OF MINING TECHNOLOGY

Initially four scenarios viz: Shovel & Truck, Shovel & Truck with Semi-Mobile IPCC, Shovel & Fully-Mobile IPCC and Bucket Wheel Excavator System were analysed and compared. It was concluded that Shovel & Truck combination is more economical as compared to the other three options. After that, five schemes comprising of various sizes of truck-shovel combinations, viz: 7 m<sup>3</sup> shovel & 60 ton truck; 7 m<sup>3</sup> shovel & 55 ton truck; 15 m<sup>3</sup> shovel & 108 ton truck; 20 m<sup>3</sup> shovel & 154 ton truck and 35 m<sup>3</sup> shovel & 220 ton truck were analysed and compared. It was concluded and proposed by the Petitioner that 7 m<sup>3</sup> shovel & 60 ton capacity truck combination was more economical as compared to the other four options. TCTDC conducted in-house detailed analysis on scheme-1 ( i.e 7 m<sup>3</sup> shovel & 60 ton truck) and scheme-5 (i.e. 35 m<sup>3</sup> shovel & 220 ton capacity truck). The analysis results are summarized in the following table:







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Table 04 – Evaluation based upon 32<sup>1</sup> years production and parameters provided by SSRL

Parameter	Scheme-1		Scheme-5	
	Shovel: 7 m3 (Hydraulic)	Truck: 60 ton	Shovel: 35 m3 (power)	Truck: 220 ton
Quantity	107	2134	20	166
Unit capital cost (Myuan)	7	0.75	80	21
Total capital cost (Myuan)	749	1600.5	1600	3486
Operating hours (hour)	4232063	27327051	916667	6689701
Hourly operating cost (Yuan/hour)	980.75	576.73	3589.06	2001.09
Total operating cost (Myuan)	4150.596	15760.33	3289.973	13386.694
Total capital + operating cost (Myuan)	4899.596	17360.83	4889.973	16872.694
<b>Total scheme cost (Myuan)</b>	<b>22,260.426</b>		<b>21,762.667</b>	

Difference b/w scheme-1 & scheme-  
(MYuan)

(498)

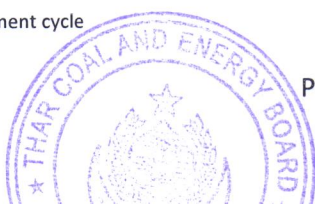
In continuation of analysis regarding equipment utilization and deployment schedules in the context of the useful life of mining and overburden removal is analysed and the following table reflects a rational approach towards quantifying useful life of the relevant equipment:

Table 05 – Useful Life of Deployed Equipment

Equipment brought into service	Petitioned	Rationalized
Hydraulic excavator 7m3	8	9
Dump truck 60t	3	3
Wheel loader 3m3	8	10
Caterpillar bulldozer 320Hp	8	10
Hydraulic excavator 1.6m3	8	11
Sprinkler 20t	5	10
Grader 220HP	8	9
Grader 20t	8	9
Wheel type hydraulic backhoe 1.1m3	8	11
Fuel truck 18t	8	10
Grease vehicle	8	10

Some of the operating parameters were changed along with the impact of changed operating hours resulting from revised figures on useful life of equipment s as to make a more realistic baseline for

<sup>1</sup> Production years include development cycle



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## Thar Coal & Energy Board Government of Sindh

numbers of deployed equipment and the analysis was repeated. The analysis results are presented in the following table

Table 06 – Evaluation based upon 32<sup>2</sup> years production and revised operating parameters

Parameter	Scheme-1		Scheme-5	
	Shovel: 7m3	Truck: 60 ton	Shovel:35 m3	Truck: 220 ton
Quantity	107	2,134	16	122
Unit capital cost (Myuan)	7	1	80	21
Total capital cost (Myuan)	749	1,601	1,280	2,562
Operating hours (hours)	4,232,063	27,327,051	781,845	5,705,775
Hourly operating cost (Yuan/hour)	981	577	2,764	2,001
Total operating cost (Myuan)	4,151	15,760	2,161	11,418
Total capital + operating cost (Myuan)	4,900	17,361	3,441	13,980
Total scheme cost (Myuan)	22,260		17,421	
Difference (Myuan)	(4,840)			

It is clear from the above results in Table 06 that Scheme-5 representing the deployment of 35 m3 shovels and 220 ton trucks that despite higher capital costs for Scheme 5, the Operating Cost establishes a significant advantage in terms of over all cost savings for the project. The cost differential in favour of Scheme-5 is, 4840 MYuan.

On the basis of the above details with respect to equipment selection and deployment parameters the Petitioner is advised to take cognizance of cost and performance efficiencies that can be possibly achieved. It is advised that appropriate assessment be carried out prior and during contract negotiations so that benefits accruing out of the more efficient deployment configurations are reflected in the subsequent tariff..

### 2.2. Non EPC COSTS

The Petitioner submits Non EPC Cost equal to USD 87.60 Million for development of 7.8 Mtpa capacity. The petitioned non-EPC Costs are claimed in lieu of:

- (a) Estimates of future costs incurred in relation to Land Acquisition & Relocation, Infrastructure, Project Development, and Corporate Costs (Head Office Costs), and;
- (b) Project Development Costs.

The details of claimed costs are tabulated in Table 07 here below.

Table 07 – Petitioned Non EPC Cost for Development of 7.8 Mtpa Capacity

Land Purchase Costs	17.60
Relocation Costs	70.00
<b>Sub Total Non-EPC Costs</b>	<b>87.60</b>

<sup>2</sup> Production years include development cycle



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## Thar Coal & Energy Board Government of Sindh

Project Development Costs	
Salaries & Wages	12.00
Office Rental	1.20
Operating Expenses	3.24
Consultancies	2.00
Lease & Guarantee Costs	3.00
Survey & Tests	3.50
Environmental Costs	0.10
Sub Total Project Development Costs	26.00
<b>Total Non-EPC Costs</b>	<b>111.60</b>

*All amounts in USD Million*

The claimed Project Development Costs are a combination of estimates and anticipated spending which is not substantiated in sufficient detail in the accompanying documentation. In the overall context the claimed non-EPC costs appear to be in proportion to the size and quantum of works that needs to be carried out. Notwithstanding, the listed costs will be required to be substantiated with sufficient documentary evidence and quotations. Additionally, the Survey & Tests Costs tag Boiler Combustion Tests as an incurred cost. This is not clear as the occurrence of this cost if at all, falls in the domain of the power generation facility and not mine development. Such costs will not be admitted as a specific cost under the cost-plus regime for coal tariff. The Petitioner is required to offer details for justification in the final inclusion in the non-EPC Costs in the subsequent Petition at the Contract Stage.

Land Purchase and Re-location Costs are noted for reference and the numbers will be controlled and actualised subsequent to the specific transactions and more detailing.

### 2.3. ESTIMATES OF OVERBURDEN VOLUMES

The Petitioner has submitted that the total waste volume of 1929.76 Mbcm would be required to be removed from mining area over a period of 32 years of mining operation and 2 years of mine development period. They have further submitted that 228 Mtons of lignite would be recovered from the mining area over a period of 30 years of full production mining operation and 7.8 Mtons of lignite would be recovered before COD.

The Petitioner has developed a block model for block-II, in the feasibility study, for resource estimation and classification. Pit Shell Files generated by the petitioner have been reviewed by TCTDC and it is revealed that total waste volume in the mining area is 1806.061 Mbcm against 1929.76 Mbcm as mentioned by the petitioner. Review of the Pit Shell Files also reveals the total coal resource in the mining area is 268.122 Mtons of lignite against the targeted tonnage of 228 Mtons. Since the petitioned targeted volume of waste material is 123.7 Mbcm higher than the volumes determined from Pit Shell Files, therefore, waste volume schedule has been revised accordingly.

As per Pit Shell Files, over all stripping ratio is calculated as 6.74.



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### 2.4. THE DESIGNED SLOPE ANGLE

The petitioner has analysed various slope angles for stability analysis of high walls using computer software. Material properties were determined from laboratory and field tests. The test results and generalized lithology of mining area were used to build a computer model for the analysis. Pore water pressure was also incorporated in the model. Various iterations were run for various slope angles and it was concluded that the overall slope angle of 24 degrees is the optimum safe slope angle for high walls having the safety factor of 1.3.

### 2.5. OPERATIONS & MAINTENANCE COSTS

The Petitioner has submitted its O&M Costs based on best estimates derived from:

- (a) Technical Specifications and Brochures of major equipment vendors, and;
- (b) Best Cost estimates of staff salaries and operations duties of various equipment.

Table 08 – Petitioned Variable O&M costs in the Tariff for for 7.8 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11-30 (Average)	Year 1 – 30 (Average)
Spares / Consumables	11.38	10.77	11.01
Asset Replacement	1.77	1.48	1.58
Variable O&M	13.15	12.25	12.59
Royalty	-	-	-

All amounts in USD / Ton

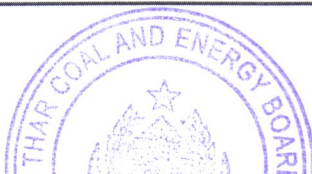
Asset replacement costs are categorized on two counts. One component relates to irregular replacement cycle(s) which are governed by the useful life of the deployed machinery as per the Table 05 here above. The other component of asset replacement assumes a regular six year replacement cycle for machinery, equipment and buildings. This application of an across the board time cycle for replacement without discriminating the need and timelines for replacement for replaced asset is arbitrary and results in cost unjustifiable cost overloads. As at this stage exact outlay of replacement cycles based on available information is not possible, a high level adjustment is applied so that the respective cost component gets rationalised.

Fixed O&M costs entail contractor overheads including project supervision, all other overhead costs including Management & Administration wages, labour & human resource costs.

Table 09 – Petitioned Fixed O&M for Operations of 7.8 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11 – 30 (Average)	Year 1 – 30 (Average)
Fixed O&M	16.23	14.97	15.40
Working Capital Interest	0.61	0.44	0.50
Insurance	1.54	1.54	1.54
ROEDC	2.27	2.27	2.27
ROE	6.82	6.82	6.82
Principal	10.19	0.00	3.40
Interest	2.35	0.00	0.78
<b>Total Fixed Costs</b>	<b>40.02</b>	<b>26.05</b>	<b>30.71</b>

All amounts in USD / Ton







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The Petitioned Fixed Costs contain estimates and inclusion of costs that are extraneous and not in line with efficient cost plus tariff computations. As a case in point the cost structure for staff includes costs apportioned to language training, safety training and in some case skill training. In brief the whole cost computation on Training is not acceptable as one would expect trained management and labor force to be deployed and in any case these are one time training costs and cannot be repeatedly lumped on to the account of one project. Such trainings are and should be part of standard HR Development Cycle of an organization and are not project specific.

While computing equipment utilisation factors the estimates of the Petitioner are on the conservative side to the extent that a significant impact on deployment of major equipment is observed, resulting in substantially high procurement and operating costs. The same has been rationalised for major equipment and the resultant table highlights the differential in petitioned operating costs and the determined costs.

The Base Cost utilized for computing Operating Cost is assumed to be derived from budgetary quotes from equipment vendors. Also the operating costs of consumables and spares at this stage are understood to be best estimates extracted from equipment brochures. The Board has carried forward the submitted figures of procurement costs and the accompanying estimates for spares and consumables. It is nonetheless expected that in the subsequent petition i.e. at Contract Stage the fundamental cost configurations for operations would be stringently negotiated and controlled. The assumed cost of Diesel of Rs. 72.79/litre is rationalised to Rs. 74.5/litre to bring it in conformity with the prevailing prices of fuel in Pakistan.

In light of the above rationalization and determination of equipment operating cost the following table reflects the determined component of the Tariff with respect to Variable and Fixed Costs.

Table 10 – Determined Variable O&M costs in the Tariff for 7.8 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11-30 (Average)	Year 1 – 30 (Average)
Spares / Consumables	9.57	9.08	9.25
Asset Replacement	2.63	1.92	2.16
Royalty	3.41	2.28	2.66
<b>Variable Costs</b>	<b>15.62</b>	<b>13.28-</b>	<b>14.06-</b>

All amounts in USD / Ton

Table 11 – Determined Fixed O&M for Operations of 7.8 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11 – 30 (Average)	Year 1 – 30 (Average)
Fixed O&M	7.56	7.01	7.10
Working Capital Interest	0.52	0.35	0.40
Insurance	1.32	1.32	1.32
ROEDC	2.31	2.31	2.31
ROE	6.12	6.12	6.12
Principal	9.14	0.00	3.05
Interest	2.94	0.00	0.98
<b>Total Fixed Costs</b>	<b>29.90</b>	<b>17.11</b>	<b>21.37</b>

All amounts in USD / Ton







## Thar Coal & Energy Board Government of Sindh

### 2.6. EPC COSTS & TARIFF SUMMARY

EPC cost of USD 803.1 Million for the development of 7.8 Mtpa capacity mine has been requested by the petitioner. The projects capital costs, the cost of debt, and other parameters like fuel, labor costs, useful life of deployed.

As stated in this evaluation a high level assessment and review of major cost and operational components is conducted which has resulted in a levelized tariff of USD 40.62 per ton over the thirty year mine production term.

A concise table summarising the outcome of evaluations is set out in Table 12 here below, which provides a comparative review of the petitioned tariff constituents along with the determined tariff components.

Table 12 Comparison of Determined & Petitioned Costs for Development of 7.8 Mtpa Capacity SSRL mine

	Current	Submitted with Tariff Petition
Summary of Costs	USDm	USDm
EPC Cost	684.00	803.10
Land Acquisition Cost	17.58	17.58
Rehabilitation Cost	70.00	70.00
Development Costs	26.04	26.04
Insurance Fee	10.26	10.84
Arrangement & Commitment Fee	15.20	17.70
Interest During Construction	77.64	57.45
Sinosure Fee	49.91	55.62
<b>Total Project Costs</b>	<b>950.64</b>	<b>1,058.33</b>
<b>Levelized Tariff</b>	<b>40.62</b>	<b>48.50</b>

### 2.7. MISCELLANEOUS

#### 2.7.1. TERMS OF DEBT FINANCING

The Project is proposed to be structured with a Debt:Equity ratio of 75:25. The Feasibility Stage Petition structures the total Project Debt on Foreign Financing at a rate of KIBOR + 3%. TCTDC considers this as a presentation that reflects more on the optics of the final tariff number than the market realities of bank financing. It is estimated that a more realistic number for Debt Financing would be around LIBOR + 4.5%. Accordingly, this determination is benchmarked on LIBOR + 4.5% for foreign Debt. This also establishes the upper ceiling for the cost of debt. Additionally, a onetime Sinosure fees of 7% of total debt financing is petitioned to be applicable to foreign financing.

The petitioned terms of debt subject to above set guidelines are applied for determination of the Feasibility Stage Tariff of SSRL.







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### 2.7.2. RETURNS ON EQUITY

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. The validity of this policy is further extended to December 2016 vide Government of Sindh Notification No. SO(Tech)/ED(Coal)/8-60/2015 dated 16<sup>th</sup> March, 2016.

### 2.7.3. INSURANCE DURING CONSTRUCTION

The Petition claims the cost of Insurance During Construction at 1.55% of the EPC cost. This is higher than the cost established in earlier determinations which is benchmarked at 1.35% of the EPC Cost. Presently there are no firm quotes for insurance cover. The Board considers that actual Insurance Costs will be allowed, subject to a maximum of 1.35% of EPC Cost.

### 2.7.4. FINANCING & LC CHARGES

Financing and LC charges are petitioned on the basis of the following table:

Table 13 – Petitioned Financing & LC Charges for Development of 4 Mtpa Capacity

#### Financing Fees & Charges

Foreign Debt Arrangement Fee	% of Debt	1.20%
Foreign Debt Security Trustee Fee	% of Debt	1.00%
Sino Sure Fee	% of Debt	7.00%
Commitment Charges	% per Annum	0.50%
LC Charges	% per Annum	0.15%
Local Debt Arrangement Fee	% of Debt	1.50%
Local Debt Security Trustee Fee	% of Debt	1.00%
Commitment Charges	% per Annum	0.50%
LC Charges	% per Annum	0.15%

The percentages listed above are generally and in some cases significantly higher than the prevailing rates for similar projects. However, at this stage the Board suffices in making the above notation and expects that the subsequent petition will refer to actual market rates that commensurate with the nature of business and associated debt.

Interest During Construction shall be allowed to the Petitioner based on actual cost of financing subject to a maximum of KIBOR + 3.0%.

### 2.7.5. ROYALTY

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







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applicable on coal equal to 7.5% on the value at the pit's mouth subject to minimum charge of PKR 150 per tonne.

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.

### 2.7.6. WORKING CAPITAL

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 + 3.00%.

Table 14 – Petitioned Working Capital for Development of 7.8 Mtpa Capacity

Payables	30 Days
Receivables — Operational	18 Days
Coal Inventory — Production Payments	15 Days
Lubricants	10 Days
Diesel Inventory	10 Days

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. The claimed cost of finance for Working Capital may be adjusted as per the above limitation of KIBOR + 2%. The Contract Stage Petition is required to incorporate the said change in its cost computation for Working Capital.





# Thar Coal & Energy Board Government of Sindh

## COAL TARIFF DETERMINATION ORDER

**No. TCEB/Registrar/2-3/2015:** This determination is conducted in accordance with the authority vested with TCEB and pertains to the Petition of Sino Sindh Resources Limited (SSRL) for Determination of Reference Feasibility Stage Tariff for SSRL's Mine of 7.8 Mtpa at Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated 5<sup>th</sup> September, 2016. The coal tariff determination relates to the specific mine lease of Block-I Thar Coalfields. 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 48.50 per tonne for development & operations of 7.8 Mtpa mining capacity..

Pursuant to Rule 10 of the Thar Coal Tariff Determination Rules 2014, Sino Sindh Resources Limited is allowed to reference the following Feasibility Stage ex mine mouth tariff:

Table I – Determined Project Tariff

Project Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Average
Total Production Payment Tariff	15.62	13.28	14.06
Total Capacity Payment Tariff Components	29.90	17.11	21.37
Project Tariff	45.52	30.39	35.43
Levelized Tariff			40.62

All amounts in USD per Tonne

Table II – Determined Production Payment Tariff

Production Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Average
Variable O&M – Inclusive of Asset Replacement & Fuel	12.21	11.00	11.40
Royalty	3.41	2.28	2.66
Total Production Payment Tariff Components	15.62	13.28	14.06

All amounts in USD per Tonne

Table III – Determined Capacity Payment Tariff

Capacity Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Average
Fixed O&M – Foreign	7.56	7.01	7.19
Insurance	1.32	1.32	1.32
Cost of Working Capital	0.52	0.35	0.40
Debt Principal Repayment	9.14	0.00	3.05
Debt Interest Payment	2.94	0.00	0.98
Equity Returns	8.43	8.43	8.43
Total Capacity Payment Tariff Components	29.90	17.11	21.37

All amounts in USD per Tonne







## Thar Coal & Energy Board Government of Sindh




Table IV – Assessed Project Cost for Development of 7.8 Mtpa Mining Capacity

### Project Cost

EPC Cost	684.00
Non EPC Cost	87.58
Project Development Cost	26.04
Insurance During Construction	10.26
Financing Fee & Charges	15.20
Sinosure Fee	49.91
Interest During Construction	77.64
<b>Total Project Cost</b>	<b>950.64</b>

All amounts in USD Million







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- i. The reference tariff is computed on the basis of net capacity of 7.8 Mtpa
- ii. The above tariff is applicable for a period of 30 years on BOO basis commencing from Commercial Operations Date of the 7.8 Mtpa mine.
- iii. The Petitioner shall achieve financial close by or before December 31, 2016 for the tariff to remain valid.
- iv. Debt servicing shall be paid during the first 10 years,
- v. Project Tariff is based on a reference exchange rate of PKR 107.00 per USD, diesel price of PKR 74.50 per Litre, project cost of USD 950.64 Million for development of 7.8 Mtpa capacity. Debt to Equity structure has been permitted at 75:25, with 100% Foreign Financing. The cost of financing is based upon KIBOR + 3.% for Local Financing & LIBOR + 4.5% for Foreign Financing
- vi. The Petitioned development / construction period for the development of 7.8 Mtpa capacity is 36 months from achievement of financial close..
- vii. This is a Feasibility Stage Tariff. For purposes of guidance, the subsequent Contract Stage Tariff as determined by the Board (The Reference Tariff) shall be 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.
- viii. The detailed cost components of tariff are tabulated in Annexure A appended to the end of this document.

### Reference Tariff Adjustments & Escalations

The reference tariff shall only be subject to the following indexations and escalations.

- i. 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. Moreover, Cost of Diesel shall be escalated using price of diesel, as notified by OGRA for Islamabad, District Mithi, as benchmark and EPC Cost other than Cost of Diesel shall be escalated using both USD / PKR exchange rate and RMB / USD exchange rate as benchmarks.
- ii. 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.
- iii. 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.







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- iv. 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.
- v. Interest during Construction shall be adjusted to actual costs incurred subject to maximum spread of 3.0% over KIBOR for Local Loan and LIBOR plus 4.5% for Foreign Loan.
- vi. 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 tax the exact amount will be reimbursed by the off taker on production of original receipts. However, withholding tax on dividend will not be passed though under the tariff.

### Reference Tariff Indexations

As a principled guidance, the indexations applicable on the Contract Stage (Reference Tariff) shall be as detailed hereunder.

#### a. Fixed O&M

The Fixed O&M component shall be quarterly indexed to each of the following.

- i. x% of the Fixed O&M component shall be indexed to the Consumer Power Tariff, as notified by the National Electric Power Regulatory Authority (NEPRA); and
- ii. y% of the Fixed O&M component shall be indexed to the CPI, as notified by the Pakistan Bureau of Statistics (PBS), or the relevant official authority for foreign cost component.
- iii. a% of the Fixed O&M component, denominated in foreign currency, shall be indexed to the applicable exchange rate, based on the revised TT & OD selling rate of the foreign currency, as notified by the NBP.

The indexation of Fixed O&M shall be based on the following formula.

$$\text{Fixed O\&M}_{\text{Adj}} = \text{O\&M}_{\text{Ref}} \times \left[ \left( x\% \times \frac{\text{Power Tariff}_{\text{Adj}}}{\text{Power Tariff}_{\text{Ref}}} \right) + \left( y\% \times \frac{\text{CPI}_{\text{Adj}}}{\text{CPI}_{\text{Ref}}} \right) \right] \times \left[ a\% \times \frac{\text{FX}_{\text{Adj}}}{\text{FX}_{\text{Ref}}} \right]$$

Where

Fixed O&M <sub>Adj</sub>	is the revised Fixed O&M component applicable for the relevant quarter
O&M <sub>Ref</sub>	is the Reference O&M Tariff Component
CPI <sub>Adj</sub>	is the revised CPI for the month prior to the month in which indexation is applicable, issued by PBS
CPI <sub>Ref</sub>	is the CPI or equivalent index of the foreign country for the month in which the Reference Tariff Component was determined, issued by the relevant official / government authority



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Power Tariff <sub>Adj</sub>	is the revised Power Tariff of the power station located at mine mouth from which electricity is procured, issued by NEPRA a month prior to the month in which indexation is applicable
Power Tariff <sub>Ref</sub>	is the Power Tariff of the power station located at mine mouth from which electricity is procured, issued by NEPRA in the month in which Reference Tariff Component was determined
FX <sub>Adj</sub>	is the revised TT & OD selling rate of the relevant foreign currency as on the date on which the indexation is applicable, as notified by the NBP
FX <sub>Ref</sub>	is the TT & OD selling rate of the relevant foreign currency as on the date on which the Reference Tariff Component was determined, as notified by the NBP

### b. Variable O&M

The Variable O&M component shall be quarterly indexed to each of the following.

- w% of the Variable O&M shall be indexed to the cost of Diesel fuel in Pakistan, as notified by the Oil & Gas Regulatory Authority (OGRA);
- x% of the Variable O&M shall be indexed to the Global Crude Benchmark (Brent), as notified by NASDAQ;
- y% of the Variable O&M shall be indexed to the US PPI Tyres, as notified by the US Bureau of Labour and Statistics (US BLS); and
- z% of the Variable O&M shall be indexed to the US PPI Machinery & Equipment, as notified by the US Bureau of Labour and Statistics.
- a% of the Variable O&M component, denominated in foreign currency, shall be indexed to the applicable exchange rate, based on the revised TT & OD selling rate of the foreign currency, as notified by the NBP.

The applicable formula shall be as follows.

$$O\&M_{Adj} = O\&M_{Ref} \times \left[ v\% \times \frac{CPI_{Adj}}{CPI_{Ref}} + w\% \times \frac{D_{Adj}}{D_{Ref}} + x\% \times \frac{C_{Adj}}{C_{Ref}} + y\% \times \frac{T_{Adj}}{T_{Ref}} + z\% \times \frac{ME_{Adj}}{ME_{Ref}} \right] \times \left[ a\% \times \frac{FX_{Adj}}{FX_{Ref}} \right]$$

Where

O&M <sub>Adj</sub>	is the revised Variable O&M component applicable for the relevant quarter
O&M <sub>Ref</sub>	is the Reference Variable O&M Tariff Component
CPI <sub>Adj</sub>	is the revised CPI or equivalent index of the foreign country for the month prior to the month in which



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	indexation is applicable, issued by the relevant official / government authority
$CPI_{Ref}$	is the CPI or equivalent index of the foreign country for the month in which the Reference Tariff Component was determined, issued by the relevant official / government authority
$D_{Adj}$	is the revised cost of diesel fuel in Pakistan for the month prior to the month in which indexation is applicable, as notified by the OGRA
$D_{Ref}$	is the cost of diesel fuel in Pakistan for the month in which the Reference Tariff Component was determined, as notified by the OGRA
$C_{Adj}$	is the revised Global Crude Benchmark (Brent) for the month prior to the month in which indexation is applicable, as notified by NASDAQ
$C_{Ref}$	is the Global Crude Benchmark for the month in which the Reference Tariff Component was determined, as notified by NASDAQ
$T_{Adj}$	is the revised PPI for Tyres in US for the month prior to the month in which indexation is applicable, as notified by US BLS
$T_{Ref}$	is the PPI for Tyres in US for the month in which the Reference Tariff Component was determined, as notified by US BLS
$ME_{Adj}$	is the revised PPI for Construction Machinery & Equipment in US for the month prior to the month in which indexation is applicable, as notified by US BLS
$ME_{Ref}$	is the PPI for Construction Machinery & Equipment in US for the month in which the Reference Tariff Component was determined, as notified by US BLS
$FX_{Adj}$	is the revised TT & OD selling rate of the relevant foreign currency as on the date on which the indexation is applicable, as notified by the NBP
$FX_{Ref}$	is the TT & OD selling rate of the relevant foreign currency as on the date on which the Reference Tariff Component was determined, as notified by the NBP

### c. Working Capital Interest

The interest charge of the Working Capital Facility shall be adjusted on a quarterly basis as a result of variation in the 1-Month KIBOR rate, as notified by the State Bank of Pakistan (SBP). The formula







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applicable for the adjustment shall be as follows. Increase in interest charge resulting directly from increase in amount of Working Capital on the basis determined by TCEB shall be allowed as a direct pass-through expense.

$$WC_{Adj} = WC_x \times \left( a_x \frac{Prod\ Pmt_{Adj}}{Prod\ Pmt_x} + b_x \frac{Coal_{Adj}}{Coal_x} + c_x \frac{Diesel_{Adj}}{Diesel_{Ref}} + d_x \frac{CPI_{Adj} \times FX_{Adj}}{CPI_{Ref} \times FX_{Ref}} \right) \times \frac{KIBOR_{Adj} + y\%}{KIBOR_{Ref} + y\%}$$

Where

$WC_{Adj}$	is the revised Working Capital Interest component applicable for the relevant quarter
$Prod\ Pmt_{Adj}$	is the adjusted Production Payment Tariff Component at the time of indexation
$Prod\ Pmt_x$	is the Reference Production Payment Tariff Component applicable in year x
$Coal_{Adj}$	is the adjusted Production Payment Tariff Component of coal at the time of indexation
$Coal_x$	is the Reference Production Payment Tariff Component of coal applicable in year x
$Diesel_{Adj}$	is the revised Cost of Diesel applicable in year x, as notified by Oil & Gas Regulatory Authority
$Diesel_{Ref}$	is the reference Cost of Diesel prevailing for the month in which Reference Tariff Component was determined, as notified by Oil & Gas Regulatory Authority
$CPI_{Adj}$	is the revised CPI or equivalent index of the foreign country for the month prior to the month in which indexation is applicable, issued by the relevant official / government authority
$CPI_{Ref}$	is the CPI or equivalent index of the foreign country for the month in which the Reference Tariff Component was determined, issued by the relevant official / government authority
$FX_{Adj}$	is the revised TT & OD selling rate of the relevant foreign currency as on the date on which the indexation is applicable, as notified by the NBP
$FX_{Ref}$	is the TT & OD selling rate of the relevant foreign currency as on the date on which the Reference Tariff Component was determined, as notified by the NBP
$KIBOR_{Adj}$	is the revised 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 SBP





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KIBOR<sub>Ref</sub>

is the 1-Month KIBOR rate prevailing at the time of determination of the Reference Tariff Component, as notified by the SBP

y%

is the component of the interest charge over and above the KIBOR rate for the Working Capital Facility, as approved and determined by TCEB at COD / Capacity Enhancement Stage

### d. Insurance Cost

Insurance Cost component of the Coal Tariff shall be indexed with the exchange rate of the relevant currency, where procurement of a% of insurance is from foreign sources. The applicable formula for quarterly adjustments shall be as follows:

$$\text{Insurance Cost}_{\text{Adj}} = \text{Insurance Cost}_{\text{Ref}} \times a\% \times \frac{\text{FX}_{\text{Adj}}}{\text{FX}_{\text{Ref}}}$$

Where

Insurance Cost<sub>Adj</sub>

is the revised Insurance Cost component applicable for the relevant quarter

Insurance Cost<sub>Ref</sub>

is the Reference insurance Cost Tariff Component

FX<sub>Adj</sub>

is the revised TT & OD selling rate of the relevant foreign currency as on the date on which the indexation is applicable, as notified by the NBP

FX<sub>Ref</sub>

is the TT & OD selling rate of the relevant foreign currency as on the date on which the Reference Tariff Component was determined, as notified by the NBP

### e. Equity Payments

Equity Payments (RoE) component of the Coal Tariff shall be quarterly indexed to the USD / PKR exchange rate, based on the revised TT & OD selling rate of USD, as notified by the NBP. The following formula shall apply.

$$\text{Equity Payments}_{\text{Adj}} = \text{Equity Payments}_{\text{Ref}} \times \frac{\text{FX USD}_{\text{Adj}}}{\text{FX USD}_{\text{Ref}}}$$

Where

Equity Payments<sub>Adj</sub>

is the revised Equity Payments (RoE) component applicable for the relevant quarter

Equity Payments<sub>Ref</sub>

is the Reference Equity Payments Tariff Component







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FX USD<sub>Adj</sub>

is the revised TT & OD selling rate of PKR / USD as on the date on which the indexation is applicable, as notified by the NBP

FX USD<sub>Ref</sub>

is the TT & OD selling rate of PRK / USD as on the date on which the Reference Tariff Component was determined, as notified by the NBP

### f. Debt Payments

Debt Payments component of the Coal Tariff shall be indexed biannually, or in line with the annual repayment frequency, in the following manner.

### g. Principal

The Reference Debt Principal Payments Tariff Component shall be biannually indexed to USD / PKR exchange rate, based on the revised TT & OD selling rate of USD notified by the NBP, where  $a\%$  of the Debt Principal Payments are attributable to debt procured from foreign sources. The applicable formula shall be as follows:

$$\text{Debt Principal Payments}_{\text{Adj}} = \text{Debt Principal Payments}_{\text{Ref}} \times a\% \times \frac{\text{FX USD}_{\text{Adj}}}{\text{FX USD}_{\text{Ref}}}$$

Where

Debt Principal Payments<sub>Adj</sub> is the revised Debt Principal Payments component applicable for the relevant biannual period

Debt Principal Payments<sub>Ref</sub> is the Reference Debt Principal Payments Tariff Component

FX USD<sub>Adj</sub> is the revised TT & OD selling rate of PKR / USD as on the date on which the indexation is applicable, as notified by the NBP

FX USD<sub>Ref</sub> is the TT & OD selling rate of PRK / USD as on the date on which the Reference Tariff Component was determined, as notified by the NBP

### h. Interest (Local)

The Interest (Local) component of the Coal Tariff shall be adjusted on a biannual basis as a result of variation in the 6-Month KIBOR rate, as notified by the SBP. The formula applicable for the adjustment shall be as follows.

$$\text{Interest (Local)}_{\text{Adj}} = \text{Interest (Local)}_{\text{Ref}} \times \frac{\text{KIBOR}_{\text{Adj}} + \text{Spread}}{\text{KIBOR}_{\text{Ref}} + \text{Spread}}$$





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Where

Interest (Local) <sub>Adj</sub>	is the revised Interest (Local) component of the Tariff applicable for the relevant biannual period
Interest (Local) <sub>Ref</sub>	is the Reference Interest (Local) Tariff Component
KIBOR <sub>Adj</sub>	is the revised 6-Month KIBOR rate at the end of the biannual period prior to the month in which indexation is applicable, as notified by the SBP
KIBOR <sub>Ref</sub>	is the 6-Month KIBOR rate prevailing at the time of determination of the Reference Tariff Component, as notified by the SBP
Spread	is the component of the interest charge over and above the KIBOR rate for the Debt Financing, as approved and determined by TCEB at COD / Capacity Enhancement Stage

### i. Interest (Foreign)

The Interest (Foreign) component of the Coal Tariff shall be adjusted on a biannual basis as a result of variation in the 6-Month LIBOR rate, as notified by the relevant official / government authority. The formula applicable for the adjustment shall be as follows:

$$\text{Interest (Foreign)}_{\text{Adj}} = \text{Interest (Foreign)}_{\text{Ref}} \times \frac{\text{LIBOR}_{\text{Adj}} + \text{Spread}}{\text{LIBOR}_{\text{Ref}} + \text{Spread}} \times \frac{\text{FX USD}_{\text{Adj}}}{\text{FX USD}_{\text{Ref}}}$$

Where

Interest (Foreign) <sub>Adj</sub>	is the revised Interest (Foreign) component of the Tariff applicable for the relevant biannual period
Interest (Foreign) <sub>Ref</sub>	is the Reference Interest (Foreign) Tariff Component
LIBOR <sub>Adj</sub>	is the revised 6-Month LIBOR rate at the end of the biannual period prior to the month in which indexation is applicable, as notified by the relevant official / government authority
LIBOR <sub>Ref</sub>	is the 6-Month LIBOR rate prevailing at the time of determination of the Reference Tariff Component, as notified by the relevant official / government authority
Spread	is the component of the interest charge over and above the LIBOR rate for the Debt Financing, as approved and determined by TCEB at COD / Capacity Enhancement Stage







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FX USD<sub>Adj</sub>

is the revised TT & OD selling rate of PKR / USD as on the date on which the indexation is applicable, as notified by the NBP

FX USD<sub>Ref</sub>

is the TT & OD selling rate of PRK / USD as on the date on which the Reference Tariff Component was determined, as notified by the NBP

## j. Asset Replacement

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

Where,

Asset Replacement<sub>(rev)</sub> is the revised Asset Replacement Component

Asset Replacement<sub>x</sub> is the Asset Replacement Component of  $x^{\text{th}}$  year of operations

US CPI<sub>(rev)</sub> is the latest United States Consumer Price Index for All Urban Consumers (CPI-U) notified by the US Bureau of Labor Statistics

US CPI<sub>(Ref)</sub> is the United States Consumer Price Index for All Urban Consumers (CPI-U) notified by the US Bureau of Labor Statistics as at the time of determination of the Reference Tariff Component

PKR/USD<sub>(rev)</sub> 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

PKR/USD<sub>(Ref)</sub> is the prevailing TT & OD selling rate of US Dollars at the time of determination of the Reference Tariff Component, as notified by the National Bank of Pakistan

RMB/USD<sub>(rev)</sub> 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

RMB/USD<sub>(Ref)</sub> is the TT & OD selling rate of Chinese RMB at the time of determination of the Reference Tariff Component, as notified by the People's Bank of China

Frequency of indexation shall be quarterly

## k. Royalty

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

Where,

Royalty<sub>(rev)</sub> is the revised Royalty Component

Coal Price<sub>y</sub> is the Price of Coal (excluding Royalty) in  $y^{\text{th}}$  month of operations





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

Frequency of Indexation shall be as and when notified by GoS

Frequency of Indexation shall be as and when notified by GoS

### I. Power Cost – By Grid

$$\text{Power Cost – By Grid}_{(\text{rev})} = \text{Power Cost – By Grid}_x \times \frac{\text{Grid Rate}_{(\text{rev})}}{\text{Grid Rate}_{(\text{Ref})}}$$

Where,

Power Cost – By Grid<sub>(rev)</sub> is the revised Power Cost – By Grid Component

Power Cost – By Grid<sub>x</sub> is the Power Cost – By Grid Component in  $x^{\text{th}}$  year of operations

Grid Power Rate<sub>(rev)</sub> is the revised industrial rate of power cost as notified by HESCO

Grid Power Rate<sub>(Ref)</sub> is the industrial rate of power cost at the time of determination of the Reference Tariff Component, as notified by HESCO

Frequency of indexation shall be as and when notified by HESCO







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## Annexure - A

### Annual Profile for Coal Price of 7.8 Mtpa Capacity Mine of Thar Block-I

PRODUCTION (VARIABLE) PAYMENTS							CAPACITY (FIXED) PAYMENTS							
	Year	Variable O&M	Asset Replacement Reserve	Royalty	Total Production Payments	Fixed O&M	Insurance	Working Capital Interest	ROEDC	ROE	Principal	Interest	Total Capacity Payments	Tariff
1	Dec-20	10.71	1.81	3.53	16.06	8.67	1.32	0.54	2.31	6.12	7.03	5.05	31.03	47.09
2	Dec-21	10.19	2.55	3.56	16.30	8.85	1.32	0.54	2.31	6.12	7.43	4.65	31.22	47.53
3	Dec-22	9.97	2.55	3.46	15.98	7.79	1.32	0.53	2.31	6.12	7.86	4.22	30.15	46.13
4	Dec-23	9.59	2.58	3.42	15.59	7.62	1.32	0.52	2.31	6.12	8.30	3.77	29.96	45.56
5	Dec-24	9.32	2.95	3.41	15.67	7.40	1.32	0.52	2.31	6.12	8.78	3.30	29.74	45.42
6	Dec-25	9.50	2.90	3.41	15.82	7.36	1.32	0.52	2.31	6.12	9.28	2.80	29.71	45.53
7	Dec-26	8.61	2.90	3.31	14.83	6.98	1.32	0.51	2.31	6.12	9.81	2.27	29.31	44.14
8	Dec-27	9.08	2.90	3.35	15.33	6.94	1.32	0.51	2.31	6.12	10.37	1.71	29.28	44.60
9	Dec-28	9.51	2.59	3.36	15.45	6.95	1.32	0.51	2.31	6.12	10.96	1.12	29.29	44.74
10	Dec-29	9.25	2.59	3.34	15.18	6.99	1.32	0.51	2.31	6.12	11.59	0.49	29.33	44.51
11	Dec-30	9.75	2.59	2.40	14.73	7.09	1.32	0.36	2.31	6.12	-	-	17.21	31.94
12	Dec-31	9.45	2.59	2.36	14.41	6.98	1.32	0.36	2.31	6.12	-	-	17.09	31.49
13	Dec-32	9.23	2.62	2.35	14.20	7.01	1.32	0.36	2.31	6.12	-	-	17.12	31.32
14	Dec-33	9.45	2.56	2.38	14.39	7.23	1.32	0.36	2.31	6.12	-	-	17.34	31.72
15	Dec-34	8.59	2.56	2.29	13.44	6.99	1.32	0.35	2.31	6.12	-	-	17.09	30.52
16	Dec-35	9.03	2.56	2.33	13.92	7.03	1.32	0.35	2.31	6.12	-	-	17.14	31.06
17	Dec-36	9.46	2.49	2.39	14.34	7.43	1.32	0.36	2.31	6.12	-	-	17.54	31.88
18	Dec-37	9.29	2.49	2.34	14.12	7.01	1.32	0.36	2.31	6.12	-	-	17.11	31.23
19	Dec-38	9.87	2.49	2.40	14.76	7.07	1.32	0.36	2.31	6.12	-	-	17.18	31.94
20	Dec-39	9.51	1.86	2.33	13.70	7.21	1.32	0.35	2.31	6.12	-	-	17.32	31.02
21	Dec-40	9.63	1.83	2.33	13.79	7.16	1.32	0.35	2.31	6.12	-	-	17.27	31.06
22	Dec-41	9.93	1.80	2.36	14.09	7.21	1.32	0.36	2.31	6.12	-	-	17.31	31.41
23	Dec-42	8.94	1.49	2.25	12.68	7.17	1.32	0.34	2.31	6.12	-	-	17.27	29.95
24	Dec-43	8.18	1.37	2.14	11.69	6.78	1.32	0.33	2.31	6.12	-	-	16.85	28.54
25	Dec-44	8.57	1.35	2.17	12.09	6.81	1.32	0.33	2.31	6.12	-	-	16.89	28.98
26	Dec-45	8.26	1.34	2.15	11.74	6.80	1.32	0.33	2.31	6.12	-	-	16.88	28.62
27	Dec-46	8.90	1.34	2.20	12.44	6.80	1.32	0.33	2.31	6.12	-	-	16.88	29.32
28	Dec-47	8.63	1.32	2.18	12.13	6.82	1.32	0.33	2.31	6.12	-	-	16.90	29.02
29	Dec-48	8.38	0.87	2.12	11.36	6.81	1.32	0.32	2.31	6.12	-	-	16.88	28.24
30	Dec-49	8.62	0.87	2.14	11.62	6.82	1.32	0.33	2.31	6.12	-	-	16.89	28.51

### Levelized Tariff

Year 1 - 10	6.32	1.68	2.24	10.24	5.03	0.86	0.34	1.51	3.99	5.71	2.17	19.60	29.85
Year 11 - 30	8.34	2.00	2.09	12.44	6.37	1.19	0.32	2.09	5.53	0.00	0.00	15.49	27.93
Year 1 - 30	9.54	2.45	3.05	15.04	7.49	1.32	0.46	2.31	6.12	5.71	2.17	25.58	40.62

All Amount in USD per Tonne

