Thar Coal & Energy Board
Government of Sindh

No. TCEB/Registrar/2-3/2015/2340
Dated: 15th June, 2016

To,

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

Subject: **DETERMINATION OF THAR COAL & ENERGY BOARD IN THE MATTER OF FEASIBILITY STAGE TARIFF FOR SINDH CARBON ENERGY LIMITED MINE OF 4.0 MTPA AT BLOCK VI THAR COALFIELD, DISTRICT THARPARKAR, SINDH, PAKISTAN.**

I am directed to enclose herewith the subject Determination of Thar Coal and Energy Board (29 pages) in Case No. TCEB/Registrar/2-3/2015.

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 17 onwards along with Annexure A needs to be notified in the Official Gazette (Extra Ordinary).

THAR COAL AND ENERGY BOARD * GOVERNMENT OF SINDH *

15/6/16

(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.
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Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-3/2015
June 02, 2016

DETERMINATION OF THAR COAL & ENERGY BOARD IN THE MATTER OF REFERENCE FEASIBILITY STAGE TARIFF FOR SINDH CARBON ENERGY LIMITED PAKISTAN MINE OF 4.0 MTPA AT BLOCK VI THAR COALFIELDS, DISTRICT THARPARKAR, SINDH, PAKISTAN

Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-3/2015
June 02, 2016

Determination of Reference Feasibility Stage Tariff for Sindh Carbon Energy Limited Pakistan Mine of 4.0 MTPA at Block VI 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

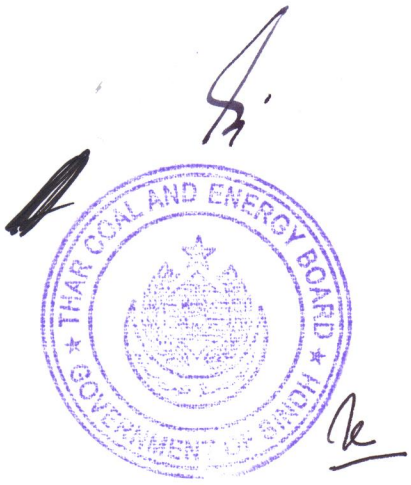
Thar Coal & Energy Board
Government of Sindh

No TCEB/Registrar/2-3/2015
June 15, 2016

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 Sindh Carbon Energy Limited Pakistan Mine of 4.0 MTPA at Block VI Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.

Ejaz Ahmed Khan
Managing Director
Thar Coal & Energy Board

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



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 Carbon Energy Limited for Determination of Feasibility Stage Tariff for SCEL's Mine of 4 Mtpa at Block VI Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated June 26, 2015. The coal tariff determination relates to the specific mine lease of Block VI 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. Tariff Sought

The Petitioner has submitted a request for determination of levelized tariff of USD 72.85 per tonne for development & operations of 4 Mtpa mining capacity. The petitioned Project Cost for 4 Mtpa is USD 843.21 Million incurred over a period of 32 years starting from the year 2017 of which the first four years (up to 2020) is the mine development phase and from 2021 the mine is expected to come in to full production of 4 Mtpa. The details of the petitioned costs are provided in Tables 1 to 3 here below:

Table 01 – Petitioned Project Tariff for 4 Mtpa Mining Capacity

Project Tariff for 4 Mtpa	Year 1 – 10	Year 11 – 29	Year 1 – 29
Production Payment Tariff Components	22.80	18.64	20.08
Capacity Payment Tariff Components	57.97	38.09	44.95
Tariff (Average)	**80.77**	**56.73**	**65.02**

All amounts in USD per Tonne

Table 02 – Petitioned Capacity Payment Tariff for 4 Mtpa Mining Capacity

Capacity Payment Tariff Components for 4 Mtpa	Year 1 – 10	Year 11 – 29	Year 1 – 29
Fixed O&M	4.52	3.90	4.11
Insurance	2.31	2.31	2.31
Cost of Working Capital	1.73	1.51	1.59
Debt Service	19.02	-	6.56
Return on Equity	20.05	20.05	20.05
Return on Equity During Construction	10.33	10.33	10.33
Capacity Payment Tariff Components (Average)	**57.97**	**38.09**	**44.95**

All amounts in USD per Tonne

Table 03 – Petitioned Project Cost for Development of 4 Mtpa Mining Capacity

Petitioned Project Cost for 4 Mtpa	Amount
EPC Cost	684.59
Non EPC Cost	28.92
Project Development Cost	17.44
Insurance During Construction Cost	14.44
Financing Fees and Charges.	52.49
Interest During Construction	45.32
Total Project Cost	**843.21**

All amounts in USD Million

1.2. 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 84.00 per Litre
ii.	PKR to USD Exchange Rate Parity	PKR 104.94 per USD
iii.	GBP to USD Exchange Rate Parity	GBP 1.60 per USD
iv.	EUR to USD Exchange Rate Parity	EUR 1.14 per USD
v.	Cost of Foreign Financing	LIBOR + 4.50%
vi.	Cost of Local Financing	KIBOR + 3.50%
vii.	LIBOR Assumption	0.62%
viii.	KIBOR Assumption	6.62%
ix.	Debt to Equity Ratio	70:30
x.	Debt Repayment Period	10 Years
xi.	Equity IRR	20.00%
xii.	Mining Technology	Truck & Shovel with conveyor
xiii.	Construction Period for Development of 4 Mtpa Capacity	48 Months
xiv.	Overburden Removal for the development of 4 Mtpa Capacity	99 Million BCM
xv.	Average Slope Angle of the Mine [COMMENT]	29° (Degrees)
xvi.	Average Stripping Ratio in Mining Area	8.21
xvii.	Average Rate of Dewatering	81 Cusecs

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. SUSTAINABILITY OF MINING CAPACITY OF 4 MTPA

SCEL's Tariff Petition is pursuant to a detailed Feasibility Study for 5 Mtpa capacity of lignite mining. This study was approved by Sindh Coal Authority. The present petition is expected to conform to the parameters and performance indices outlined in the Feasibility Study. A change from 5 Mpta to 4 Mpta at this stage is presumably triggered by downstream utilisation of coal in the power generation facility. The 2*300 MW generation facility is expected to trigger a requirement for 4 Mtpa of coal.

The Board has considered the explanation offered by the Petitioner and agrees with the general concept of synchronising mine production with demands of downstream industry. However, economies of scale would certainly play a dominant role in the final mine capacity configuration. This is a Feasibility Stage petition for tariff and is liable to be further fine tuned with firm demands of the downstream industry. The Petitioner in subsequent presentations has outlined plans for enhanced mining capacity and a significantly enhanced downstream demand for the mined coal. However, at this stage the plans are not firmed up and the Petitioner seeks a Feasibility Stage tariff based upon an initial capacity of 4 Mtpa.

Optimizing a business plan is directly related to the size of a mine and technology used in the project, which depends upon the market demand. Coal market in Pakistan is still developing towards maturity and as we progress sufficient data will be available that will help establish baseline

parameters for determining optimised mine capacities for future benchmarking. The advantages of exploiting indigenous coal resources must ensure the aspects of energy security along with significant cost advantages to the downstream power generation industry.

In tandem with the strategic requirements of energy autarky it must be noted that a sub-optimal mining capacity resulting in relatively higher costs of coal will impact the subsequent electricity tariff resulting in a decreasing merit order for dispatch of generated electricity. This is a risk element inherent with sub-optimal mining capacities. For purposes of this and future determinations, the above stated guiding principles will remain the cornerstone of the Board's policy.

2.2. TARIFF CONCESSION PERIOD

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. The Feasibility Stage Petition has apparently constrained itself with the limitations of the remaining period of the mining lease and hence presented a tariff regime for 29 years only.. Notwithstanding, the Power Purchase Agreement of the power generation facilities and the subsequent Coal Supply Agreement will be for a 30 year term.

The Petitioner is advised that the subsequent stage tariff petition, i.e Contract Stage Tariff should address and correct this anomaly and that the term of the coal tariff petition should be adjusted for 30 years. The lease terms do permit an extension beyond the initial 30 year period.

2.3. CONSTRUCTION PERIOD FOR MINE DEVELOPMENT

The Petition estimates that it will achieve full 4 Mtpa production in the 5th year. The mine development plan envisages reaching 3 Mtpa capacity in the year 2020 and the target production capacity of 4 Mtpa in the year 2021. However, for purposes of coal tariff determination the Petitioner is seeking a commercial tariff a year prior to its reaching the full production capacity i.e. in the 4th year and at a time when it would have achieved lignite mining capacity of only 3 Mtpa.

It is observed that the project will only be achieving full production in 2021 and hence the COD year of the mine, after satisfactory demonstration of 4 Mtpa is expected to be in the year 2021. In the absence of reasonable details pertaining to progressive mining capacities over the development period and up to 2021, the tariff configuration and its applicable year of effectiveness would be reasonably assumed to be 2021, as against a seemingly erroneous assumption of the petitioner that 2020 may be the potential year for proven COD. Furthermore, under a contractual arrangement for mine development the achievement and test run production of the designed capacity of 4 Mtpa is a necessary requirement for validation of an important milestone viz Commercial Operations Date and the Tariff concession period will be effective only after the achievement of COD.

The Board considers this an anomaly in the Petitioners assumption which needs to be rectified and corrected in due course. However, as the present Petition pertains to a Feasibility Stage Tariff the computation of the tariff is arbitrarily based upon the presentation of the production plan of the Petitioner which in any case would need to be harmonised and structured in conformity with industry practice, i.e. the COD of the mine will be considered to be achieved only after full demonstration of continued production target of 4 Mtpa.

2.4. NON EPC COSTS

The Petitioner submits Non EPC Cost equal to USD 46.36 Million for development of 4 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 & Site Management, Corporate Costs (Head Office Costs) and Community Support, and;
(b) Project Development Costs.

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

Table 04 – Petitioned Non EPC Cost for Development of 4 Mtpa Capacity

Land Purchase and Relocation Costs		14,959,776
Other Infrastructure		1,994,637
Project and Site Management Costs		6,981,229
Corporate Costs		1,994,637
Community Support		2,991,954
	Sub Total Non-EPC Costs	**28,922,233**
Project Development Costs		
Project Development Costs Foreign Component		**17,439,761**
Project Development Costs Local Component		-
Total Non-EPC Costs		**46,361,994**

All amounts in USD Million

The claimed 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 it is observed that failing further details, Community Support costs are assumed to be incurred under the Company's CSR obligations and 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.

2.5. ESTIMATES OF OVERBURDEN VOLUMES

The Petitioner has submitted that the total overburden volume of 851 Mbcm and 96.76 Mbcm of interburden would be required to be removed from mining area over a period of 28 years of mining operation and 4 years of mine development period. They have further submitted that 112 Mtons of lignite would be recovered from the mining area over a period of 28 years of full production mining operation and 3.5 Mtons of lignite would be recovered before COD.

The Petitioner has developed a block model for block-VI, in the feasibility study, for resource estimation and classification. Total coal resource, as per their model, is estimated as 1,434.8 Mtons. This model has been verified by TCTDC and it is revealed that the total coal resource of block-VI is 1,428.9 Mtons, which shows a good agreement with the block model results of the petitioner.

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The model validation, for quality parameters, such as moisture, ash, volatile matter, fixed carbon, sulphur content and GCV, was also conducted by TCTDC and some errors in the calculations were found. The petitioner is advised to re-calculate the quality parameters and validate the results through swath-plot comparison or any other credible technique.

As per Feasibility Study (FS), total waste volume of 961.1 Mbcm is required to be removed from the mining area for the development of 5 Mtpa capacity mine over a period of 25 years of mining operation. Where as, 112.6 Mtons of lignite would be recovered as a result of above mining operation. Over all stripping ratio is calculated as 8.5.

As per Revised Implementation Plan (RIP), total waste volume of 947.8 Mbcm is required to be removed, from 4 mtpa capacity mine, to recover 115.5 Mtons of lignite over a period of 32 years of mining operations, including development period of 4 years. Over all stripping ratio is evaluated as 8.21.

Comparative study of FS and RIP shows that the lower stripping ratio in RIP will have cost effective impact on the project.

Total lignite production of 115.5 Mtons is in line with the planned production target, over a life of the mine. However, the waste stripping volumes could not be verified from the information provided by the petitioner, hence, they are strongly advised to prepare accurate 3D pit shell files which confirm the waste volumes at various stages of mining operation.

2.5.1. The Designed Slope Angle

The petitioner has analysed various slope angles for stability analysis of high walls using SLIDE and PHASE-2 software. Material properties were determined from laboratory and field tests. The test results and generalized lithology of drill hole SCE-34 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 slope angle of 29 degrees is the optimum safe slope angle for high walls having the safety factor of 1.3.

Derivation of suitable rock mass strength input parameters was based on the laboratory testing and logging of four drill holes only. More test work is required to improve the confidence level. It is therefore, advised to the petitioner to drill more geotechnical holes and conduct more tests at design stage. It is further advised to the petitioner that slope behaviour monitoring programme should be initiated at implementation stage.

2.6. 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 05 – Petitioned Variable O&M costs in the Tariff for for 4 Mtpa Capacity

	Year 1 – 10 (Average	Year 11-29 (Average)	Year 1 – 29 (Average)
Spares / Consumables	18.10	15.15	16.16
Asset Replacement	4.70	3.5	3.91
Variable O&M	**22.80**	**18.64**	**20.08**

All amounts in USD / Ton

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

Table 06 – Petitioned Fixed O&M for Operations of 4 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11 – 29 (Average)	Year 1 – 29 (Average)
Overheads / Direct Labour Manpower	4.52	3.90	4.11

All amounts in USD / Ton

The Petitioned costs for Fixed O&M are not exactly accurate as there is an error in its computation in the Financial Model. While computing fixed cost component of the tariff, the model assumes a production value of 4 Mtpa for the first year whereas the Production Plan outputs 3 Mtpa lignite yield in the first year. This, when corrected will result in an approximate increase of USD 2 per ton of production in the petitioned levelized tariff. This error is pointed out for the Petitioner to adjust corrections in the future financial model of the Project. For the moment the impact of adjustments in permissible wages etc. and the resultant component of fixed costs is highlighted in the table below.

Table 7 – Determined Fixed O&M for Operations of 4 Mtpa Capacity

	Year 1 – 10 (Average)	Year 11 – 29 (Average)	Year 1 – 29 (Average)
Overheads / Direct Labour Manpower	2.70	2.22	2.40

All amounts in USD / Ton

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.

Table 8 - Machinery Operating Cost over Tariff Concession Period - (USD '000)

Equipment brought into service	Petitioned	Rationalized
Hydraulic Shovels (22m3)	272,000	129,948
Trucks (110m3)	678,671	481,159
Hydraulic Backhoe (12m3)	23,039	8,250
Trucks (60m3)	109,089	67,046

Equipment brought into service	Petitioned	Rationalized
Wheel Loader 300kW	22,793	21,570
Dozer 400kW	60,739	56,469
Grader 180kW	16,209	14,902
Light vehicles	19,974	17,793
Lighting sets	8,965	8,146
Coal Crusher	10,553	10,553
Overland Conveyor Coal	41,056	41,056
Water Truck 20kl	8,474	7,691
Vehicle Workshop & Fuel Storage	-	-
Fork Lift	517	498
Man Transporter	677	675
Mobile Crane	2,011	1,786
Ambulance	249	230
Fire Fighting Truck	283	263
Dewatering pumps	79,235	79,235
Dewatering Drill	24,636	22,854
OB Crusher	86,107	55,378
OB Conveyor	43,053	144,961
OB Spreader	43,053	15,592
Diesel Generator 4 MW	50,153	44,202
Pipe Layer	14,496	14,496
Small Items and Miscellaneous	215,861	177,119

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. 84/litre is rationalised to Rs. 72/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 O&M.

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Table 9 – Determined Variable O&M component in the Tariff for for 4 Mtpa Capacity

	Year 1 – 10 (Average	Year 11-29 (Average)	Year 1 – 29 (Average)
Spares / Consumables	15.88	11.99	13.31
Asset Replacement	3.71	3.08	3.27
Variable O&M	**19.59**	**15.07**	**16.58**

All amounts in USD / Ton

2.7. EPC Costs

EPC cost of USD 684.59 Million for the development of 4 Mtpa capacity mine has been requested by the petitioner, which is further bifurcated into two cost components as given below:

Table 10 – Petitioned EPC Cost for the Development of 4 Mtpa Capacity

EPC Cost	Amount
EPC Foreign Cost	372.36
EPC Local Cost	312.23
Total EPC Cost	**684.59**

All amounts in USD Million

The EPC foreign cost component of USD 372.36 Million relates to procurement of equipment and development of facilities for use during mine development, as tabulated here below.

Table 11 – Petitioned EPC Foreign Cost Component for the Development of 4 Mtpa Capacity

EPC Foreign Cost	Amount
Equipment	289.41
Facilities	82.95
Total Offshore EPC Cost	**372.36**

All amounts in USD Million

The Petitioner submits that the EPC Local cost amounts to USD 312.23 Million that pertains to the operating cost for the development of mine to the desired capacity over a period of 48 months.

Overburden removal cost is composed of operating cost of equipment, overburden removal by contractors, labour, security and miscellaneous expenditure during the development period.

The submitted Capital Costs for Machinery & Equipment at the Feasibility Stage are premised upon estimates for machinery utilization in very broad terms. The inventory of equipment which is proposed for procurement and subsequent replacement is a gross overestimation and needs rationalisation that is reflective of efficient deployment of resources. The following table highlights

the inventory difference between proposed inventory of equipment and the rationalised determination of inventory for major machineries.

Table 12 - Machinery Deployed as Rationalized & Determined

Equipment brought into service	Petitioned	Rationalized
Hydraulic Shovels (22m3)	22	12
Trucks (110m3)	94	59
Hydraulic Backhoe (12m3)	8	3
Trucks (60m3)	21	15
Wheel Loader 300kW	11	11
Dozer 400kW	27	27
Grader 180kW	13	13
Grader 180kW	60	60
Light vehicles	120	120
Lighting sets	6	6
Coal Crusher	1	1
Overland Conveyor Coal	3	3
Water Truck 20kl	3	3
Vehicle Workshop & Fuel Storage	3	3
Fork Lift	9	9
Mobile Crane	2	2
Ambulance	3	3
Fire Fighting Truck	2	2
Fire Fighting Truck	145	145
Dewatering pumps	3	3
Dewatering Drill	4	4
OB Crusher	1	1
OB Conveyors	1	1
OB Spreader	6	6
Pipe Layer	1	1

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Based upon rationalisation of equipment procurement and deployment, the following table outlines the determined costs for Foreign (Offshore) Cost Component of the EPC Costs.

Table 13 – Determined EPC Foreign Cost Component for the Development of 4 Mtpa Capacity

EPC Foreign Cost	Amount
Equipment	210,541
Facilities	82.951
Total Offshore EPC Cost	**293,492**

All amounts in USD Million

The total EPC Costs as assessed by the Board are outlined in Table 17, herebelow:

Table 14 – Petitioned EPC Cost for the Development of 4 Mtpa Capacity

EPC Cost	Amount
EPC Foreign Cost	293,492
EPC Local Cost	243,440
Total EPC Cost	**536,932**

All amounts in USD Million

2.8. MISCELLANEOUS

2.8.1. TERMS OF DEBT FINANCING

The Project is proposed to be structured with a Debt:Equity ratio of 70:30. Debt financing is petitioned to be secured through a mix of local and foreign sources of financing. Local Financing is estimated at 10% of Project Cost and Foreign Financing is benchmarked at 60% of Project Cost.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.

The petitioned terms of debt are generally consistent with the yardsticks established for infrastructure projects in Pakistan.

2.8.2. 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 16th March, 2016.

2.8.3. Insurance during Construction

The Petition benchmarks Insurance During Construction 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.

2.8.4. Financing & LC Charges

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

Table 15 – 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%.

2.8.5. 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 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.

2.8.6. 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 + 2.00%.

Table 16 – Petitioned Working Capital for Development of 4 Mtpa Capacity

Payables	30 Days
Receivables — Operational	30 Days
Coal Inventory — Production Payments	15 Days
Spares Inventory	360 Days
Diesel Inventory	21 Days

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 be reasonable and the same is being permitted to the Petitioner.

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 and subject to the above notation regarding Working Capital requirements for Spares (180 days instead of 360 days).

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 Sindh Carbon Energy Limited (SCEL) for Determination of Reference Feasibility Stage Tariff for SCEL's Mine of 4 Mtpa at Block VI Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated June 26, 2015. The coal tariff determination relates to the specific mine lease of Block VI 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 72.85 per tonne for development & operations of 4 Mtpa mining capacity..

Pursuant to Rule 10 of the Thar Coal Tariff Determination Rules 2014, Sindh Carbon Energy Limited is allowed to charge the following ex mine mouth tariff:

Table I – Determined Project Tariff

Project Tariff	Year 1 – 10 - Average	Year 11 – 29 - Average	Year 1 – 29 - Average
Total Production Payment Tariff	24.85	18.35	20.59
Total Capacity Payment Tariff Components	42.07	25.34	31.11
Project Tariff	**66.91**	**43.69**	**51.7**
Levelized Tariff			**60.23**

All amounts in USD per Tonne

Table II – Determined Production Payment Tariff

Production Payment Tariff	Year 1 – 10 - Average	Year 11 – 29 - Average	Year 1 – 10 - Average
Variable O&M – Inclusive of Asset Replacement & Fuel	**19.83**	**15.07**	**16.71**
Royalty	**5.02**	**3.28**	**3.88**
Total Production Payment Tariff Components	**24.85**	**18.35**	**20.59**

All amounts in USD per Tonne

Table III – Determined Capacity Payment Tariff

Capacity Payment Tariff	Year 1 – 12	Year 13 – 30	Year 1 – 30
Fixed O&M – Foreign	**4.56**	**3.80**	**4.07**
Insurance	**1.87**	**1.81**	**1.83**
Cost of Working Capital	**0.90**	**0.77**	**0.81**
Debt Principal Repayment	**12.16**	**0.00**	**4.19**
Debt Interest Payment	**3.62**	**0.00**	**1.25**
Equity Returns	**18.96**	**18.96**	**18.96**
Total Capacity Payment Tariff Components	**42.07**	**25.34**	**31.11**

All amounts in USD per Tonne

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Table IV – Assessed Project Cost for Development of 4 Mtpa Mining Capacity

Project Cost	
EPC Cost	536,932,569
Non EPC Cost	28,922,233
Project Development Cost	17,439,761
Insurance During Construction	11,263,020
Financing Fee & Charges	41,866,866
Interest During Construction	36,135,641
Total Project Cost	**672,560,090**

All amounts in USD Million

i. The reference tariff is computed on the basis of net capacity of 4 Mtpa

ii. The above tariff is applicable for a period of 29 years on BOO basis commencing from Commercial Operations Date of the 4 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 100.94 per USD, diesel price of PKR 84.00 per Litre, project cost of USD 679.133 Million for development of 4 Mtpa capacity. Debt to Equity structure has been permitted at 70:30, with 10% local financing and 60% 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 4 Mtpa capacity is 48 months from achievement of financial close. This is considered excessively long however, at the Feasibility Stage the Board is not enforcing specific limitations with respect to the actual construction period. The Petitioner is nonetheless strongly advised to restrict the construction period to three years.

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 Islamkot, 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.

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 offtaker 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

$\text{Fixed O\&M}_{\text{Adj}}$	is the revised Fixed O&M component applicable for the relevant quarter
$\text{O\&M}_{\text{Ref}}$	is the Reference O&M Tariff Component
CPI_{Adj}	is the revised CPI for the month prior to the month in which indexation is applicable, issued by PBS
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

$\text{Power Tariff}_{\text{Adj}}$	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
$\text{Power Tariff}_{\text{Ref}}$	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_{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

b. Variable O&M

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

i. *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);

ii. *x%* of the Variable O&M shall be indexed to the Global Crude Benchmark (Brent), as notified by NASDAQ;

iii. *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

iv. *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.

v. *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.

$$\text{O\&M}_{\text{Adj}} = \text{O\&M}_{\text{Ref}} \times \left[v\% \times \frac{\text{CPI}_{\text{Adj}}}{\text{CPI}_{\text{Ref}}} + w\% \times \frac{\text{D}_{\text{Adj}}}{\text{D}_{\text{Ref}}} + x\% \times \frac{\text{C}_{\text{Adj}}}{\text{C}_{\text{Ref}}} + y\% \times \frac{\text{T}_{\text{Adj}}}{\text{T}_{\text{Ref}}} + z\% \times \frac{\text{ME}_{\text{Adj}}}{\text{ME}_{\text{Ref}}}\right] \times \left[a\% \times \frac{\text{FX}_{\text{Adj}}}{\text{FX}_{\text{Ref}}}\right]$$

Where

$\text{O\&M}_{\text{Adj}}$	is the revised Variable O&M component applicable for the relevant quarter
$\text{O\&M}_{\text{Ref}}$	is the Reference Variable O&M Tariff Component
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
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

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.

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

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

$KIBOR_{Ref}$	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.

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

Where

$\text{Insurance Cost}_{Adj}$	is the revised Insurance Cost component applicable for the relevant quarter
$\text{Insurance Cost}_{Ref}$	is the Reference insurance Cost Tariff Component
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

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.

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

Where

$\text{Equity Payments}_{Adj}$	is the revised Equity Payments (RoE) component applicable for the relevant quarter
$\text{Equity Payments}_{Ref}$	is the Reference Equity Payments Tariff Component

$\text{FX USD}_{\text{Adj}}$	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
$\text{FX USD}_{\text{Ref}}$	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

$\text{Debt Principal Payments}_{\text{Adj}}$	is the revised Debt Principal Payments component applicable for the relevant biannual period
$\text{Debt Principal Payments}_{\text{Ref}}$	is the Reference Debt Principal Payments Tariff Component
$\text{FX USD}_{\text{Adj}}$	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
$\text{FX USD}_{\text{Ref}}$	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

$\text{Interest (Local)}_{Adj}$	is the revised Interest (Local) component of the Tariff applicable for the relevant biannual period
$\text{Interest (Local)}_{Ref}$	is the Reference Interest (Local) Tariff Component
KIBOR_{Adj}	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_{Ref}	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.

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

Where

$\text{Interest (Foreign)}_{Adj}$	is the revised Interest (Foreign) component of the Tariff applicable for the relevant biannual period
$\text{Interest (Foreign)}_{Ref}$	is the Reference Interest (Foreign) Tariff Component
LIBOR_{Adj}	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_{Ref}	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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$\text{FX USD}_{\text{Adj}}$	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
$\text{FX USD}_{\text{Ref}}$	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,

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

$\text{Asset Replacement}_{x}$ is the Asset Replacement Component of x^{th} year of operations

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

$\text{US CPI}_{(\text{Ref})}$ 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

$\text{PKR/USD}_{(\text{rev})}$ 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

$\text{PKR/USD}_{(\text{Ref})}$ 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

$\text{RMB/USD}_{(\text{rev})}$ 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

$\text{RMB/USD}_{(\text{rev})}$ 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,

$\text{Royalty}_{(\text{rev})}$ 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 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

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

Where,

Power Cost – By $\text{Grid}_{(rev)}$ 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

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

Grid Power $\text{Rate}_{(Ref)}$ 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

ANNEXURE - A

ANNUAL PROFILE FOR COAL PRICE OF 4 MTPA CAPACITY MINE OF THAR BLOCK - VI

Year	Variable O&M	Royalty	Production Payment	Fixed O&M	Insurance	Working Capital Cost	Equity Returns	ROEDC	Debt Service	Capacity Payment	USD per Tonne
2020	29.11	6.76	35.87	7.44	2.42	1.14	12.16	6.80	24.32	54.27	90.15
2021	34.47	6.38	40.85	4.59	1.81	1.30	12.16	6.80	17.56	44.21	85.06
2022	16.59	4.84	21.43	4.59	1.81	0.84	12.16	6.80	16.88	43.08	64.51
2023	15.32	4.68	20.00	4.59	1.81	0.85	12.16	6.80	16.20	42.40	62.40
2024	13.87	4.51	18.37	4.59	1.81	0.85	12.16	6.80	15.52	41.72	60.09
2025	17.42	4.74	22.16	4.59	1.81	0.84	12.16	6.80	14.83	41.03	63.19
2026	20.58	4.87	25.46	3.80	1.81	0.81	12.16	6.80	14.15	39.54	64.99
2027	15.42	4.40	19.82	3.80	1.81	0.82	12.16	6.80	13.47	38.87	58.69
2028	15.57	4.35	19.92	3.80	1.81	0.77	12.16	6.80	12.79	38.13	58.06
2029	19.93	4.65	24.58	3.80	1.81	0.75	12.16	6.80	12.11	37.44	62.01
2030	14.68	3.25	17.93	3.80	1.81	0.77	12.16	6.80	-	25.34	43.27
2031	20.02	3.68	23.70	3.80	1.81	0.75	12.16	6.80	-	25.32	49.02
2032	14.83	3.26	18.09	3.80	1.81	0.77	12.16	6.80	-	25.34	43.43
2033	14.55	3.23	17.78	3.80	1.81	0.77	12.16	6.80	-	25.34	43.13
2034	16.40	3.38	19.79	3.80	1.81	0.76	12.16	6.80	-	25.34	45.12
2035	14.45	3.23	17.68	3.80	1.81	0.77	12.16	6.80	-	25.34	43.02
2036	15.51	3.31	18.83	3.80	1.81	0.77	12.16	6.80	-	25.34	44.17
2037	14.09	3.20	17.29	3.80	1.81	0.77	12.16	6.80	-	25.35	42.63
2038	13.92	3.18	17.10	3.80	1.81	0.77	12.16	6.80	-	25.35	42.45
2039	14.26	3.21	17.47	3.80	1.81	0.77	12.16	6.80	-	25.35	42.82
2040	16.79	3.42	20.20	3.80	1.81	0.76	12.16	6.80	-	25.34	45.54
2041	19.15	3.61	22.76	3.80	1.81	0.76	12.16	6.80	-	25.33	48.09
2042	18.54	3.56	22.10	3.80	1.81	0.76	12.16	6.80	-	25.33	47.43
2043	13.10	3.12	16.22	3.80	1.81	0.78	12.16	6.80	-	25.35	41.57
2044	12.29	3.05	15.34	3.80	1.81	0.78	12.16	6.80	-	25.35	40.69
2045	13.10	3.12	16.22	3.80	1.81	0.78	12.16	6.80	-	25.35	41.57
2046	12.01	3.03	15.04	3.80	1.81	0.78	12.16	6.80	-	25.35	40.40
2047	12.35	3.06	15.40	3.80	1.81	0.78	12.16	6.80	-	25.35	40.76
2048	16.34	3.38	19.72	3.80	1.81	0.77	12.16	6.80	-	25.34	45.06

Levelized Tariff

1 - 10	13.62	3.39	17.00	3.12	1.24	0.61	7.92	4.43	10.82	28.14	45.14
11 - 29	13.70	2.93	16.63	3.38	1.61	0.68	10.79	6.03	0.00	22.49	39.12
1 - 29	18.90	4.52	23.41	4.42	1.86	0.87	12.08	6.76	10.82	36.81	60.23

All Amount in USD per Tonne