



Thar Coal & Energy Board

Government of Sindh

No. TCEB/Registrar/2-1/2014/FC-Phase.II /9148
Dated: 29th December, 2022

To,

The Secretary
Energy Department
Government of Sindh
Karachi

Subject:- Decision of TCEB in the Matter of Financial Close Stage Tariff for Sindh Engro Coal Mining Company (SECMC) Mine of 7.6 Mtpa Phase-II at Block-II, Thar Coalfield, District Tharparkar

The 24th meeting of Thar Coal & Energy Board was held on 29th December, 2022 at 11.00 am under the Chairmanship of Hon'ble Chairman TCEB/Chief Minister. Worthy Minister for Energy and Secretary Energy, Government of Sindh also attended the same among other members.

2. The Board has unanimously approved the subject Determination Order on SECMC petition as an Agenda Item No.4 and in this connection I am directed to enclose herewith the subject Determination of Thar Coal & Energy Board (24 pages) in Case No. TCEB/Registrar/2-1/2014/FC-Phase.II dated 29th December, 2022.

3. Therefore, the Determination/Decision 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.

4. It may please be noted that only "Coal Tariff Determination Order" of Thar Coal & Energy Board at page-12 onwards along with (Annexure) needs to be notified in the Official Gazette (Extra Ordinary).

(Mansoor Rajput)
Registrar TCEB

C.c to:

- i. Principal Secretary to Chief Minister, Chief Minister Secretariat, Karachi.
- ii. DS(Staff) to Chief Secretary Sindh, Karachi.
- iii. PS to Minister for Energy, Government of Sindh, Karachi.
- iv. ES to Managing Director TCEB, Government of Sindh, Karachi



Thar Coal & Energy Board
Government of Sindh

No. TCEB/Registrar/2-1/2014/FC-Phase.II
November 15, 2022

**DETERMINATION OF THAR COAL & ENERGY BOARD
IN THE MATTER OF REFERENCE FINANCIAL CLOSE
STAGE TARIFF FOR EXPANSION OF OPEN CAST
LIGNITE MINE FROM CAPACITY OF 3.8 MTPA TO 7.6
MTPA BY SINDH ENGRO COAL MINING COMPANY AT
BLOCK II THAR COALFIELDS, DISTRICT
THARPARKAR, SINDH, PAKISTAN**





Thar Coal & Energy Board Government of Sindh

No. TCEB/Registrar/2-1/2014/FC-Phase.II
November 15, 2022

**Determination of Reference Financial Close Stage Tariff for the
Expansion of Open Cast Lignite Mine from Capacity of 3.8
MTPA to 7.6 MTPA by Sindh Engro Coal Mining Company at
Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan**

Thar Coal Tariff Determination Committee

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

Dr Fahad Irfan Siddiqui
Member

Mr Ammar Habib Khan
Member

Mr Khadim Hussain Channa
Managing Director -TCEB





Thar Coal & Energy Board Government of Sindh

No.TCEB/Registrar/2-1/2014/FC-Phase.II
December 29th 2022

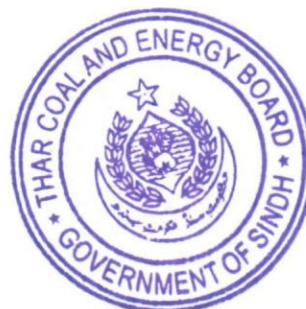
In pursuance of the Rule 10(5) of the Thar Coal Tariff Determination Rules, 2014, it is certified that the Thar Coal & Energy Board, on the recommendation of the Thar Coal Tariff Determination Committee, has approved the Determination of Financial Close Stage Tariff for Expansion of Open Cast Lignite Mine from Capacity of 3.8 MTPA to 7.6 MTPA for Sindh Engro Coal Mining Company at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.




Khadim Hussain Channa
Managing Director
Thar Coal & Energy Board

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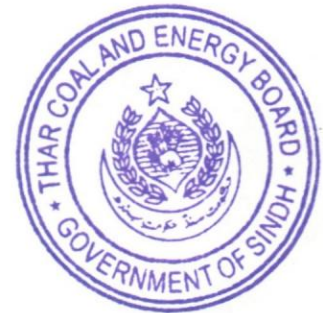


Thar Coal & Energy Board

Government of Sindh

List of Acronyms used in Determination Order

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
FC	Financial Close
GCV	Gross Calorific Value
GoS	Government of Sindh
GoP	Government of Pakistan
HSE	Health, Safety & Environment
IA	Implementation Agreement
IB	Inter-burden (waste rocks)
ICB	International Competitive Bidding
ICC	In-pit Crushing & Conveying
IDC	Interest During Construction
IRR	Internal Rate of Return
KIBOR	Karachi Inter-Bank Offer Rate
LC	Letter of Credit
LDs	Liquidated Damages
LHV	Lower Heating Value
LIBOR	London Inter-Bank Offer Rate
MJ / Kg	Mega Joules per Kilogram
MSF	Mine Service Facilities
MTPA	Million Tonnes Per Annum
MW	Megawatt
MT	Million Tonnes
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
OB	Overburden (waste rocks)
OGRA	Oil & Gas Regulatory Authority
PKR	Pakistani Rupee
PPA	Power Purchase Agreement
RCOD	Required Commercial Operations Date
RMB	Chinese Renminbi
RoE	Return on Equity
RoEDC	Return on Equity During Construction
SBLC	Stand By Letter of Credit
SBP	State Bank of Pakistan
SCOD	Scheduled Commercial Operations Date
SECMC	Sindh Engro Coal Mining Company
SEPA	Sindh Environmental Protection Agency
TCEB	Thar Coal & Energy Board
TT & OD	Telegraphic Transfer & On Demand
USD	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 and in accordance with Section 5(m) of Thar Coal & Energy Board Act, 2011 is the coal-pricing agency. This determination is conducted in accordance with the authority vested with TCEB and pertains to the Petition of Sindh Engro Coal Mining Company ('SECMC' or 'Company') for Determination of Reference Financial Close Stage Tariff for Expansion of Open Cast Lignite Mine from Capacity of 3.8 MTPA to 7.6 MTPA at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan, dated June 26, 2020. The coal tariff determination relates to the specific mine lease of Block II Thar Coalfields. The Petition has been assessed and reviewed in accordance with the parameters and guidelines established under the Thar Coal Tariff Determination Rules, 2014 dated November 27, 2014, as notified by Government of Sindh. The coal tariff, so determined shall form the basis of fuel cost for downstream power generation to be determined by NEPRA.

TARIFF SOUGHT BY PETITIONER

The Petitioner has submitted a request for determination of levelized tariff of USD 43.74 per Tonne for Expansion of Open Cast Lignite Mine from Capacity of 3.8 MTPA to 7.6 MTPA mining capacity. The Company has achieved Financial close for Phase II mine dated December 31, 2019. After submission of FC stage petition and during evaluation process the petitioner has submitted revised excavation plan which has been discussed in detail in Section 14(A). The mine expansion cost submitted for reaching up-to 7.6 MTPA capacity over a period of 33 months (Expiring on September 2022) is USD 214.07 million. The details of the project cost and petitioned tariff is provided in Tables I to IV here below:

Table I – Petitioned Project Cost for Development of 7.6 MTPA Mining Capacity

Petitioned Project Cost for 7.6 MTPA	Amount
EPC Cost	130.37
Non-EPC Cost	58.18
Insurance Cost	1.30
Financing Fee	6.42
Interest During Construction	39.90
Income from Phase I Pre-COD Sale	(22.11)
Total Project Cost	214.07

All amounts in USD Million

Table II – Petitioned Project Tariff for 7.6 MTPA Mining Capacity

Project Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Total Production Payment Tariff Components	15.38	15.18	15.41
Total Capacity Payment Tariff Components	31.10	21.73	28.34
Total Project Tariff	46.48	36.91	43.74

All amounts in USD per Tonne

Table III – Petitioned Production Payment Tariff for 7.6 MTPA Mining Capacity

Production Payment Tariff Components	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Fuel Cost	4.99	5.80	5.20
Variable O&M - Tyres	1.16	1.38	1.22
Variable O&M - Spares/Consumables	2.88	3.24	2.97
Asset Replacement Cost	3.11	2.18	2.97
Royalty	3.24	2.58	3.05
Total Production Payment Tariff Components	15.38	15.18	15.41

All amounts in USD per Tonne





Thar Coal & Energy Board

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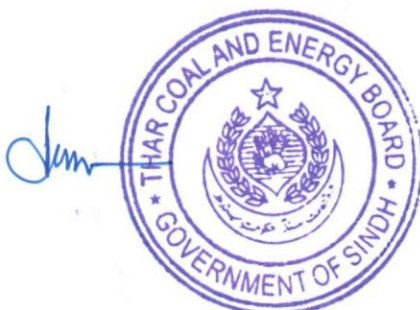
Table IV – Petitioned Capacity Payment Tariff for 7.6 MTPA Mining Capacity

Capacity Payment Tariff Components	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Fixed O & M - Foreign	5.33	6.40	5.61
Fixed O & M - Local	3.51	3.07	3.41
Insurance	0.89	0.89	0.89
Power Cost - By Solar (14%)	0.06	0.06	0.06
Power Cost - By Diesel (86%)	2.19	2.19	2.19
Cost of Working Capital	0.82	0.82	0.82
Principal Debt Repayment	6.17		4.14
Interest Payment	3.83		2.91
ROE	5.56	5.56	5.56
ROEDC	2.74	2.74	2.74
Total Capacity Payment Tariff Components	31.10	21.73	28.34

All amounts in USD per Tonne

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 127.22 per Litre |
| ii. PKR to USD Exchange Rate Parity | PKR 155.35 per USD |
| iii. RMB to USD Exchange Rate Parity | RMB 6.977 per USD |
| iv. US CPI | 256.97 |
| v. Local CPI | 130.45 |
| vi. Cost of Local Financing – Sovereign Guarantee | 6-month KIBOR + 1.75% |
| vii. Cost of Local Financing – Market Base | 6-month KIBOR + 2.50% |
| viii. 1-month KIBOR Assumption | 13.68% |
| ix. 6-Month KIBOR Assumption | 13.49% |
| x. Debt to Equity Ratio | 75:25 |
| xi. Debt Repayment Period | 10 Years |
| xii. Equity IRR | 20.00% |
| xiii. Mining Technology | Trucks (60t & 100t) & Shovel (7m ³ & 15m ³) |
| xiv. Construction Period | 33 Months |
| xv. Overburden Removal Volume (During Construction) | 51.5 million BCM |
| xvi. Average overall Slope Angle of the Mine | 24° (Degrees) |
| xvii. Average Rate of Dewatering | 78,590 m ³ /d |



[Signature]

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MATERIAL ASPECTS OF THE PETITION - ANALYSIS & DECISIONS

The following is a summary of the salient aspects of the 7.6 MTPA Financial Close Stage Tariff Petition:

1. COMBINED / COMPOSITE TARIFF.

The TCEB is of the view that the mine developed under Phase I and the expansion thereafter of the same Pit into Phase II cannot have two sets of tariff after achievement of COD of Phase II expansion, or September 30th, 2022, the final date allowed for COD, whichever is earlier. In view of the above decision, effective October 1st, 2022 the mine would be treated as one Project and accordingly the operations and maintenance, asset replacements, and other expenses would be treated as of one mine, and reflected in one tariff. However, TCEB is cognizant of the fact that Phase I, and Phase II has different set of lenders, and their Debt Repayment streams are different. To facilitate, and to avoid any doubt, these two sets of repayment streams are reflected separately in levelized tariff table appended as Annexure A at the end of this tariff order.

Subsequently any further expansion in the same Pit would have the similar treatment upon achieving the COD.

2. DEBT STRUCTURE - SOVEREIGN & NON-SOVEREIGN DEBT

Initially, Government of Pakistan (GoP), on the request of Government of Sindh (GoS) allowed SECMC to secure loan from local market, based on the Sovereign Guarantee (SG) for the development of 6.5 MTPA mine in Block II. Based on the guarantee, the Petitioner was allowed to draw local loan up to PKR 52 billion. The Company has utilized up to PKR 31 billion for the development of Phase I, and requested that the balance of PKR 21 billion to be utilized for Phase II, which refers to mine expansion. In addition, they had also requested to allow an additional loan of PKR 3.82 billion at a higher spread of 75 basis points (bps) over the benchmark rate due to the risk profile of the project, and non-availability of Sovereign Guarantee based on petitioned Project Cost of USD 214 million as mentioned in Table I.

The board reviewed the project cost petitioned in detail (Please refer from Section 3 to 14) and determined the following numbers as Project Cost:

Table V - Summary of Petitioned Vs Determined Cost for Incremental Costs from 3.8 MTPA to 7.6 MTPA:

Project Cost Heads	Petitioned	Adjustments	Determined
EPC Cost	130.37	(17.34)	113.03
Non-EPC Cost	58.18	(12.21)	45.91
Insurance Cost	1.30	(0.17)	1.13
Financing Fee	6.42	(2.87)	3.55
Interest During Construction	39.90	(13.16)	26.74
Income from Phase I Pre-COD Sale	(22.11)	0.00	(22.11)
Total Project Cost	214.07	(45.75)	168.32

All amounts in USD million

Based on the allowed project cost the company doesn't require additional loan over and above the balance available under the Sovereign Guarantee.



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Determination of the Board
7.6 MTPA Financial Close Stage Tariff – SECMC Thar Block II
Case No TCEB/Registrar/2-1/2014/FC-Phase.II



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3. ACTUALIZED PRE-COD SALE PROCEEDS FROM THE PHASE I MINE

At the time of the Phase II Contract Stage Tariff petition, as per the SECMC excavation plan, the Petitioner will excavate and sell approximately 1.45 million tonnes of the Phase I coal prior to the Commercial Operations Date, and will generate USD 56.38 million (based on first year Phase I FC stage tariff) pre-CoD revenue which can be as a source of funding for the expansion of the mine during Phase II.

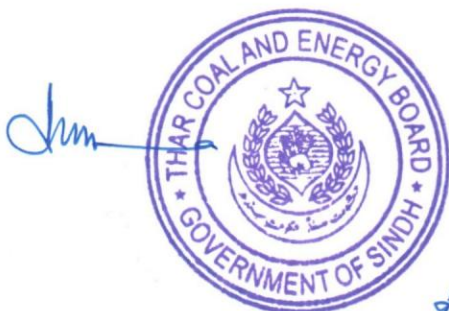
The Petitioner via Phase II FC stage petition has notified that it has excavated approx. 1.25 million tonnes of coal from the mine, but it has only been able to sell 348,684 tonnes (equivalent to 0.35 million tonnes) to the off-taker for electricity generation, prior to commercial operations, which generated PKR 3,434.08 million (which is equivalent to USD 22.10 million net of transportation charges of USD 494,858 @ USD/PKR exchange rate of 155.35) of pre-COD sale revenue.

The Petitioner has informed in the petition that to comply with the coal quality requirements of the IPP it was essential to reach seam CL27 which is the main coal seam in Thar Block II.

To reach this seam, extraction of coal from the upper seams had begun as early as June 2018 and seam CL27 was reached in April 2019. Due to spontaneous combustion nature of Thar lignite, the petitioner was unable to store the coal for eleven months till they reached the main coal seam CL27. The petitioner further informed that the unsold coal is dumped alongside the overburden to avoid combustion. Moreover, the petitioner explained the difference between coal extracted and quantity sold vide explanatory note dated December 12, 2021, which is reproduced as follows:

"Thar Coal has low shelf life and a tendency to spontaneously combust as a result of which it is not possible to store coal produced from upper seams for blending purposes until seams of better quality were reached. Out of the 1.25 million tonne of coal produced, the IPP procured of 0.35 million tonne of coal which met its quality criteria. Out of the remaining coal, shelf life permitting, the Petitioner augmented its inventory requirement by ~0.11 million tonne while the remaining coal had to be dumped alongside overburden to avoid it combusting. However, to ensure that on-spec resource is not wasted (~0.25 Mt), the Petitioner dumped this part of the coal in a manner that it could later be reclaimed during operations to further augment inventory requirements. Costs associated with such rehandling of coal will be petitioned as part of O&M actualization at the MYT Stage Tariff Petition."

In the light of the above discussion, and as per 'General conditions' of earlier TCEB tariff determinations, the requested Pre-COD sale is allowed to SECMC and has formed part of this tariff determination working for reduction of the development cost of Phase II. However, the remaining financial impact of the above past and future actions to be taken by the petitioner could not be ascertained right now, so the financial impact (if any) of the ~0.25 Mt dumped coal, to be reclaimed later, and approximately 0.11 million tonnes of coal which is used to augment the inventory would be adjusted in upcoming tariffs.





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4. UNCONFIRMED SALES TO LUCKY ELECTRIC POWER COMPANY LIMITED (LEPCL)

It has been brought to the knowledge of the TCEB through different sources, including but not limited to newspapers, and social media that SECMC has also sold coal to LEPCL.

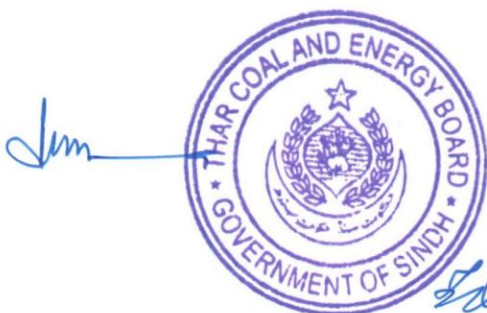
In this regard an official letter was written to SECMC with reference number TCEB/Registrar/2-1/2014/COD-Phase.I/7083 dated November 17, 2021, to confirm this news, however the reply given by SECMC vide their letter reference number SECMC 2437-11-2021 dated November 19, 2021, was vague, and not satisfactory. In absence of relevant details, and facts any decision in this regard would be premature. We strongly urge SECMC to unveil the details along with relevant supporting documents, so that TCEB can make an informed decision in this regard.

5. DEBT TO EQUITY RATIO

The Petitioner justifies additional equity through the following paragraphs from Para I to V:

- I. *"The Petitioner submitted that the total cost required for the construction of Phase II Mine Expansion is USD 214.07 million (USD Two Hundred and Fourteen Million only). Based on such cost and the TCEB's recommendation to maintain a 75:25 debt to equity ratio, the Petitioner arranged for PKR 26,120,480,804 Pakistani Rupees (Twenty-Six Billion One Hundred and Twenty Million Four Hundred and Eighty Thousand Four Hundred and Four only) debt from the local market and the remainder funds from equity.*
- II. *The debt facilities arranged for the construction of the Phase II Mine expansion are denominated in Pakistani Rupees and such funds were arranged and Phase II Financial Close was achieved to provide cover for funding of the Phase II Mine Expansion at an average exchange rate of USD/ PKR rate of PKR 169. Please note that at such time, the USD/ PKR exchange rate was PKR 155.35.*
- III. *However, in light of recent devaluations of the Pakistani Rupee against the US Dollar, and the fact that since the financing agreements for Phase II Mine Expansion have already been executed and the Phase II Financial Close has been achieved, it is no longer possible for the Petitioner to arrange additional funds for devaluation beyond PKR 169.*
- IV. *To address the matter, it is submitted that multiple precedents are available in the practices adopted by the power sector regulator, NEPRA, which allows flexibility to the sponsors of IPPs to inject equity up to a maximum of thirty percent (30%), while determining most tariffs at 75:25. Further, a precedent in the TCEB's practices and determinations is also present where it has allowed a 70:30 debt to equity ratio as part of its determination in the matter of 'SINDH CARBON ENERGY LIMITED (BLOCK VI)'.*
- V. **Based on above, the Petitioner submitted to the TCEB to allow the Petitioner to inject additional equity in the event that devaluation results in requirement of funding beyond the arranged debt financing for the Phase II Mine Expansion, up to a cap of thirty percent (30%) of the project cost being contributed as equity. "**

The Project cost allowed by TCEB (Table V) for Phase II mine expansion is USD 168.32 million and the loan available under sovereign guarantee and equity as per the allowed ratio covers the determined project cost. In view of the same, the original debt equity ratio of 75:25 shall be maintained as per earlier directives.





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Table VI – Summary of Sovereign Guarantee Loan:

Description	Unit	Amount
Project Cost petitioned by SECMC	USD Mn	214.07
Project Cost Determined by TCEB	USD Mn	168.32
Debt requirement (75% of Project Cost)	USD Mn	126.24
Debt requirement (75% of Project Cost)	PKR Mn	20,198
Limit available for sovereign Guarantee (SG) backed loan	PKR Mn	21,000
Remaining available limit of SG loan	PKR Mn	802

6. UPFRONT EQUITY INJECTION

TCEB in its earlier tariff determination allowed SECMC to utilize upfront equity up to a maximum of 25% for Phase II mine development cost. In this tariff determination, SECMC stated that it has negotiated with the lender an upfront equity injection of 35% which SECMC is able to further negotiate and will positively be reduce to a maximum of 30% and requesting the TCEB to allow the same upfront equity in-line with the requirement of Phase II lenders.

In view of the reasons explained above under section 1,2 & 5 of this tariff determination order, there is no need for increase in upfront equity injection more than the allowed percentage of 25% as the project cost is being reduced, and there exists cushion within the sovereign guarantee to cover debt raised for expansion of the mine during Phase II.

7. ROLLOVER OF COST OF COAL HANDLING SYSTEM (CHS) FROM THE SCOPE OF PHASE I MINE

Initially TCEB via Phase II Contract stage tariff has approved CHS cost of USD 11.10 million for Phase I and USD 10.57 million for Phase II mine expansion. The petitioner in its Phase I COD stage tariff Petition submitted that it has limited the scope of CHS for Phase I mine on bare minimum requirement. As a result, the Petitioner requested for procurement, supply and installation of 2 x stacker reclaimers, conveyor belt, 1 x 2500 TPH crusher, its loading system, wind fence and associated equipment. The total cost of this system will be USD 21.67 million on top of USD 17.2 million already spend on CHS in Phase I. The system cost is in-line with approved cost of USD 10.57 million for Phase II and requested to allow rollover cost of USD 11.10 million from Phase I for the installation of planned CHS.

As per available information, three crushers, having the capacities of 2500 t/h, 1200 t/h and 600 t/h, are already installed at Coal Handling System at Block-II mine. 2500 t/h capacity crusher is going to be connected through conveyor belt with another stockpile having the storage capacity 85000 t. Two Stacker/Re-claimers, each having the capacity of 2500 t/h, will also be installed. Two silos will be constructed for loading trucks, and they will be connected with stockpile through conveyor. 2500 t/h capacity crusher is sufficient enough for 7.6 Mt/y coal, whereas two small crushers (1200 t/h and 600 t/h) may be used as back-up. With reference to above TCEB purview a total overall cost of USD 24.99 million is deem sufficient for installation of CHS in which cost of USD 17.2 million has already been allowed to SECMC via Phase I via COD tariff determination and an additional cost of USD 7.79 million for CHS finalization work is decided for phase II FC stage determination.

8. SWB COST IN NON-EPC COSTS

The petitioner requested that for the purposes of the Phase II Mine Expansion, it has undertaken additional scope whereby all major construction will be carried out by the





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petitioner's team, including construction of the CHS, roads, mine service facilities, colony, etc. Due to the additional scope to be performed in-house, critical manpower is required to undertake the Phase II Mine Expansion. For this purpose, the Petitioner will require to deploy additional manpower for supervision, the Health Safety & Environment (HSE) and construction hence, requesting for additional cost of USD 1.5 million in respect of the SWB for Phase II Mine Expansion.

After due evaluation of manpower requirement for Phase II mine expansion, TCEB is upholding its earlier decision of not allowing any additional SWB cost to Petitioner as part of non-EPC cost.

9. UNCAPPING OF COST HEADS IN NON- EPC COSTS

The Petitioner has requested the TCEB that in respect of non-EPC costs, it may be clarified that the capping is at the overall cost head level rather than at individual cost/ subhead level.

In this regard TCEB clarifies that the capping is at both levels i.e., capping of overall cost and at individual cost/subhead level as well and no reappropriation is allowed among individual heads, except as allowed specifically in the determination.

Table VII – Project Execution Expenses for 7.6 MTPA Mining Capacity

Non-EPC Cost	USD-M
Capital Items	26.3
Coal Handling System	7.79
Dust Protection Barrier	3.06
Power Supply from 500 kV line	6.13
Development of Additional Disposal Site for Dewatering	-
Additional Buildings (Office Extension + Dormitory)	2.54
Additional Workshop/Warehouse	0.41
Additional Dewatering	1.66
Roads	3.94
Mobile Equipment Machinery	0.47
Additional Software/Hardware	0.31
Security	3.34
Capital Items	2.50
Operating Expenses	0.84
Salaries, Wager & Benefits	-
SWB, Rota travel, Dining and catering	-
Operating Expenses	9.26
Site Running Expenses	0.41
Office Running Expenses	0.30
Travel	2.87
Dewatering Opex	3.51
Training	1.61
Media Management & Communications	0.57
Consultancy & Studies	2.31
RWE	0.48
Plant Co.	0.35
Mining Consultant - I (Dr. Marcos)	0.12
Mining Consultant - II (Dr. Ludwig)	0.13
Hydrogeology Consultant (Dr. Thomas)	0.11
EMP Consultants	0.33
HSE Consultancy	0.79
Legal & Professional Charges	0.76
Relocation Costs	2.29
Relocation Costs (Compensation to PAPs)	-
Mitigation Wells	2.29
Subtotal without PDC	44.3
Project Development Cost	1.59
Total	45.9

Shm



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10. ONE PERCENT (1%) IRR PENALTY WAIVER

Petitioner has requested to waive-off the 1% reduction of IRR penalty imposed by TCEB via its contract stage tariff determination, if it fails to achieve COD of Phase II mine within 33 months started from the Phase II Financial Close date. Since, off-takers of additional coal to be produced from the Phase II Mine are independent companies, hence the petitioner has no control on the timeline of their projects, or their ability to achieve financial close. Despite being in a position to declare financial close in 2018, the Petitioner was unable to do so until such time that its lenders were satisfied that each of the coal off-takers in a position to declare financial close.

The matter was discussed in detail at contract, and review stage tariff determinations. TCEB maintains its position of 1% reduction in IRR as penalty if Phase II will not achieve its COD on or before September 2022. No further Capex and Opex will be allowed after September 30th, 2022, due to delay in COD. The same will be treated as a business and operational risk to be borne by the petitioner

11. INCREASE IN OWNER'S COST OF OPERATIONS & MAINTENANCE

The Petitioner tries to justify increase in Owner's cost of O&M through the following submission:

"The Petitioner is referring TCEB's Phase I contract stage tariff determination, in which TCEB has allowed increase of Local O&M cost during the operational phase for expansion of the Mine to 6.5 MTPA "whereas after due analysis and discussion, TCEB via Phase II contract stage tariff determination disallowed the same escalation in O&M cost. Hence, petitioner is requesting to allow the similar escalation in O&M cost as determined by TCEB via its Phase I contract stage tariff determination."

TCEB maintains its previous stance and finds no justification for increase in the O&M cost.

12. POWER GENERATION MIX IN THE O&M OF PHASE II MINE

At the time of Phase II contract stage tariff, the petitioner planned an energy mix of 80% & 20% from national grid and from own sources (i.e., diesel genset or solar or both), respectively. However, the relevant agencies and entities failed to commence supply of power from the grid to the Block II for its mining facilities to-date, and power supply agencies are still working on technical feasibility for stable and dedicated line to the mine. Hence, petitioner submitted before TCEB that, until such time the power is available from the grid to the mine, it is requested to power the mining facilities from the solar power system, and diesel gensets at the rate of PKR 9.25/kWh and US cents 33/KWh, respectively.

Based on the above submission, TCEB is of the view that the company should gear up their efforts to obtain a dedicated, and stable power connection from the grid. Meanwhile, TCEB also puts on record its concern that why a cost-effective alternate power system was missed by the company at planning stage, while incurring significant costs on technical studies, and project development. The proposed alternate mechanism of power is not cost effective, is horrendously expensive, and accordingly increases the tariff for the ultimate customer. The proposed energy mix powered by diesel generators and solar energy further deteriorates the situation, given high reliance on diesel generators. Diesel generators are always used as stand-by alternative, and should not be deemed as a permanent sustainable solution.





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TCEB recommends that the petitioner should come up with alternate cost-effective power solutions with a more appropriate and lower cost energy mix within a period of up to 1 year of this determination, or upcoming tariff petition, whichever is earlier, otherwise the same adjustment will be taken care of during indexation.

Considering various factors, and the present solar tariff allowed and applicable in the region, TCEB will allow a PKR 6.1731/kWh tariff for the solar component of energy mix, **and PKR 45 /kWh for the diesel component** up to a period of 1 year of this determination, or the date of any upcoming tariff petition, whichever is earlier.

13. OVERHEAD CHARGES:

SECMC via its FC stage tariff petitioned requested for overheads charges for OB removal, Coal excavation and Coal handling at the rate of USD 0.3437 per BCM, USD 0.6461 per tonnes and USD 1.67 million per annum, respectively.

During the evaluation process, TCTDC requested the petitioner to provide details and substantiate this cost over and above allowed fixed and variable overheads. However, the petitioner failed to provide satisfactory details, and justifications regarding these overhead charges, and the same has been disallowed by the TCEB.

14. MINING TECHNOLOGY AND WASTE VOLUME

1. Revised Excavation Schedule for Phase II

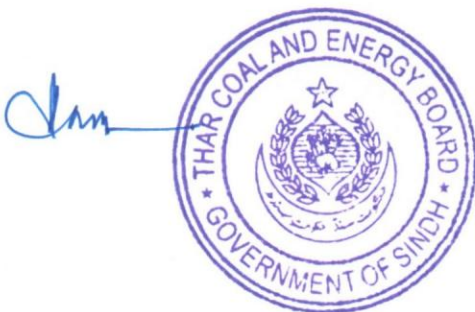
SECMC submitted a revised year wise schedule of waste (OB and IB) volume and coal tonnage which was verified by TCTDC through 3-D pit files for Phase I and Phase II. Table VIII presents the summary of waste (OB + IB) volume and coal tonnage for Phase I (3.8 Mtpa) and Phase II (7.6 Mtpa).

2. Mining Technology

In Phase-II, SECMC will deploy 15 m³ bucket size hydraulic excavators and 100-tonne capacity trucks from 2024 for the excavation and transportation of waste material in sub-recent and Bara formations, while 7 m³ bucket size hydraulic excavators and 60-tonne capacity trucks will be used in Phase-II for the excavation and transportation of dune sand and coal. COD of Phase-II is scheduled in September 2022, after which, both the Phases will be combined practically. Therefore, both the Phases are combined in the determination of FC stage tariff of Phase-II from the year 2023.

TCTDC has calculated the requirement of excavators and trucks for Phase-II as given as follows:

- 03 hydraulic excavators of 7 m³ bucket size and 95 dump trucks of 60-tonne capacity for the development period of Phase-II.
- 35 hydraulic excavators of 7 m³ bucket size and 686 dump trucks of 60-tonne capacity for mining period of Phase-I & II.
- 18 Hydraulic excavators of 15 m³ bucket size and 136 dump trucks of 100-tonne capacity for waste removal of sub-recent and Bara formations from 2024 for Phase II.





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Comparison of SECMC requirement with TCTDC calculations of machinery for Phase-II is given at Table IX.

3. Dewatering of Ground Water

The consultants (KPMG) have reported that 29 water wells are installed in Block-II mine, out of which 5 are non-operational. In each well 40 litres/sec capacity submersible pump is installed. SECMC have submitted that dewatering was started in April 2017 and total working hours of all the pumps installed in water wells from April 2017 to July 2019 are 496,510 hours and total volume of dewatering is calculated as 69,511,400 cubic meters.

Table VIII – Verified Revised Excavation Schedules

Material	Phase I			Phase II			Phase I + Phase II
	Development period	Mining period	Sub Total	Development period	Mining period	Sub Total	Total
OB+IB (MBCM)	112	92	204	51.5	1480	1531.5	1735.5
Coal (MT)	1.12	13	14.12	0.64	225.56	226.2	240.32
Overall S/R	7.13						

Table IX - Comparison of Mining Machinery in Phase-II

Machinery	SECMC Requirement			TCTDC Calculations		
	Development period	Mining period	Total	Development period	Mining period	Total
7 m ³ Excavator	Nil	46	46	03	32	35
15 m ³ Excavator	Nil	13	13	Nil	18	18
Truck, 60 tonnes	100	602	702	95	591	686
Truck, 100 tonnes	Nil	165	165	Nil	136	136





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COAL TARIFF DETERMINATION ORDER

No. TCEB/Registrar/2-1/2014/FC-Phase.II: This determination is conducted in accordance with the authority vested with Thar Coal & Energy Board and pertains to the Petition dated June 26, 2020, of Sindh Engro Coal Mining Company for Determination of Reference Financial Close Stage Tariff for SECMC's Mine at Block II Thar Coalfields, District Tharparkar, Sindh, Pakistan. The Petition is assessed and reviewed in accordance with the parameters and guidelines established under the Thar Coal Tariff Determination Rules, 2014.

The Petitioner has submitted a request for determination of levelized tariff of USD 43.74 per Tonne for development & operations of 7.6 MTPA mining capacity.

The determination is based upon an initial production of 3.8 MTPA lignite, which is ramped up to 7.6 MTPA as per the mine expansion plan, submitted by the Petitioner.

Pursuant to Rule 10 of the Thar Coal Tariff Determination Rules 2014, Sindh Engro Coal Mining Company is allowed to charge the following ex mine mouth tariff for the production of 7.6 MTPA:

Table X – Determined 7.6 MTPA Tariff

Project Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Total Production Payment Tariff Components	16.24	14.12	15.77
Total Capacity Payment Tariff Components	27.30	19.38	25.06
Total Project Tariff	43.54	33.50	40.84

All amounts in USD per Tonne

Table XI – Production Payment Component 7.6 MTPA

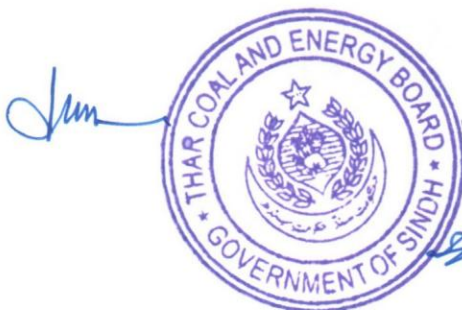
Production Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Fuel Cost	7.32	6.83	7.26
Variable O&M - Tyres	0.55	0.49	0.54
Spares/Consumables	2.44	2.34	2.43
Asset Replacement	2.89	2.12	2.69
Royalty	3.04	2.34	2.85
Total Production Payment Tariff Components	16.24	14.12	15.77

All amounts in USD per Tonne

Table XII –Capacity Payment Component 7.6 MTPA

Capacity Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Fixed O & M - Foreign	2.68	3.32	2.78
Fixed O & M - Local	3.24	3.76	3.31
Insurance	0.82	0.72	0.80
Power Cost	1.38	1.70	1.42
Working Capital	4.15	3.51	4.03
Principal Repayment	5.00		3.47
Interest Payment	2.86		2.20
ROE	5.08	4.55	5.01
ROEDC	2.09	1.84	2.06
Total Capacity Payment Tariff Components	27.30	19.38	25.06

All amounts in USD per Tonne



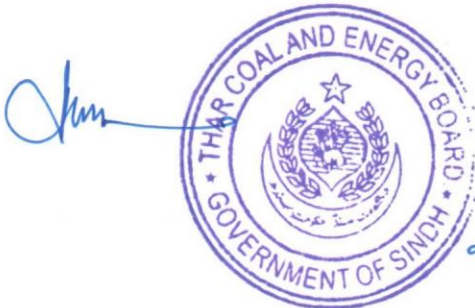


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GENERAL CONDITIONS

- i. The above tariff is applicable for a period of 30 years on BOO basis commencing from Commercial Operations Date or October 1st, 2022, whichever is earlier of the 7.6 MTPA mine.
- ii. The basis of this determination is a Debt-to-Equity ratio of 75:25. Equity quantum in excess of 25% will be treated as commercial debt to the project at the prevailing rates but not to exceed KIBOR plus 1.75%.
- iii. Tariff is configured on pro-rata drawdowns of debt and equity.
- iv. Pre-COD sale of lignite in Phase II will be priced at the full first year tariff of coal as per this Determination. The proceeds of this sale will be utilized to finance the capital for expansion of Phase II mine.
- v. The proposed power mix through diesel generator and solar is allowed up to a period of 1 year or date of any upcoming tariff petition, whichever is earlier.
- vi. Working Capital facility and the resultant cost is permitted for a maximum of 30 days of receivables on production payment tariff, 30 days of coal inventory, 21 days of diesel /RFO inventory, 6 months of spares inventory. The financing cost of the working capital facility is permitted at a maximum of 1 Month KIBOR + 2.00%. Reference 1 Month KIBOR embedded in the tariff determination is 15.52%.
- vii. Project Tariff is based on a reference exchange rate of PKR 221.2 per USD and a diesel price of PKR 238.03 per litre.
- viii. The detailed cost components of tariff are tabulated in Annexure-A appended at the end of this Order.



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Reference Tariff Indexations

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

i. Fuel Cost

$$\text{Fuel Cost}_{(\text{rev})} = \text{Fuel Cost}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{238.03}$$

Where,

Fuel Cost_(rev) is the revised Fuel Cost Component

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

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

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

ii. Variable O&M

$$\text{Variable O\&M}_{(\text{rev})} = \text{Variable O\&M}_x \times \frac{\text{US CPI}_{(\text{rev})}}{298.01} \times \frac{\text{PKR/USD}_{(\text{rev})}}{221.2} \times \frac{7.13}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

Variable O&M_(rev) is the revised Variable O&M Component

Variable O&M_x is the Variable O&M Component of x^{th} year of operations

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

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

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

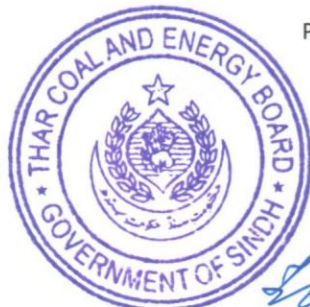
Frequency of indexation shall be quarterly

iii. Asset Replacement

$$\text{Asset Replacement}_{(\text{rev})} = \text{Asset Replacement}_x \times \frac{\text{US CPI}_{(\text{rev})}}{298.01} \times \frac{\text{PKR/USD}_{(\text{rev})}}{221.20} \times \frac{7.13}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

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Asset Replacement_(rev) is the revised Asset Replacement Component

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

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

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

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

Frequency of indexation shall be quarterly

iv. Royalty

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

Where,

Royalty_(rev) is the revised Royalty Component

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

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

Frequency of Indexation shall be as and when notified by GoS

v. Fixed O&M – Local

$$\text{Fixed O\&M – Local}_{(rev)} = \text{Fixed O\&M – Local}_x \times \frac{\text{Local CPI}_{(rev)}}{190.08}$$

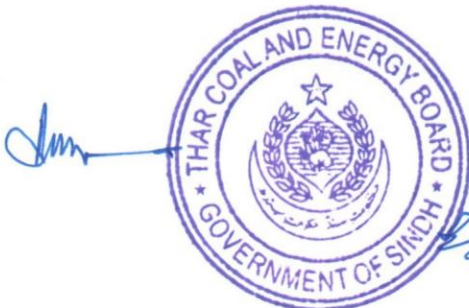
Where,

Fixed O&M – Local_(rev) is the revised Fixed O&M – Local Component

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

Local CPI_(rev) is the latest is Consumer Price Index of Pakistan as notified by the Pakistan Bureau of Statistics

Frequency of Indexation shall be quarterly





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vi. Fixed O&M – Foreign

$$\text{Fixed O\&M Foreign}_{(\text{rev})} = \text{Fixed O\&M Foreign}_x \times \frac{\text{US CPI}_{(\text{rev})}}{298.01} \times \frac{\text{PKR/USD}_{(\text{rev})}}{221.20} \times \frac{7.13}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

Fixed O&M – Foreign_(rev) is the revised Variable O&M Component

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

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

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

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

Frequency of indexation shall be quarterly

vii. Power Cost – By Diesel

$$\text{Power Cost – By Diesel}_{(\text{rev})} = \text{Power Cost – By Diesel}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{238.03} \times \frac{\% \text{ of Diesel}_{(\text{rev})}}{86\%}$$

Where,

Power Cost – By Diesel_(rev) is the revised Power Cost – By Diesel Component

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

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

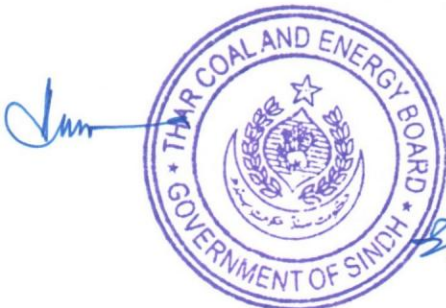
% of Diesel_(rev) is the percentage of power generated by Diesel in x^{th} year of operations

Frequency of indexation shall be as and when notified by OGRA

viii. Cost of Working Capital

$$\text{WC}_{(\text{rev})} = \text{WC}_x \times \left(a_x \frac{\text{Prod Pmt}_{(\text{rev})}}{\text{Prod Pmt}_x} + b_x \frac{\text{Coal}_{(\text{rev})}}{\text{Coal}_x} + c_x \frac{\text{Diesel}_{(\text{rev})}}{238.03} + d_x \frac{\text{US CPI}_{(\text{rev})} \times \text{PKR/USD}_{(\text{rev})} \times 7.13}{298.01 \times 221.20 \times \text{RMB/USD}_{(\text{rev})}} \right) \times \frac{\text{KIBOR}_{(\text{rev})} + 2.00\%}{15.52\%}$$

Where,



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

Cost of WC_x is the Cost of Working Capital in x^{th} year of operations

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

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

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

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

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

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

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

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

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

Frequency of Indexation shall be monthly

ix. Interest Payments

$$\text{Interest} - \text{Local}_{(rev)} = \text{Interest} - \text{Local}_x \times \frac{\text{KIBOR}_{(rev)} + 1.75\%}{15.52\%}$$

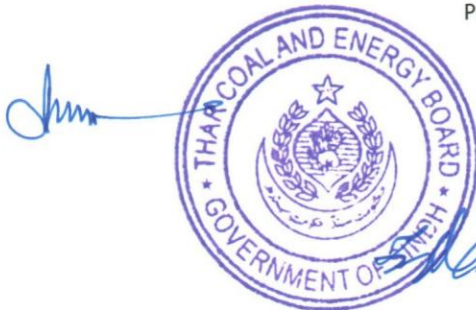
Where,

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

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

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

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





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x. Equity Returns

$$\text{Equity Returns}_{(\text{rev})} = \text{Equity Returns}_x \times \frac{\text{PKR/USD}_{(\text{rev})}}{221.20}$$

Where,

Equity Returns_(rev) is the revised Equity Returns Component

Equity Returns_x is the Equity Returns component determined by TCEB for xth period of operations

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

Frequency of Indexation shall quarterly

xi. Cost of Transportation

$$\text{Cost of Transportation}_{(\text{rev})} = \text{Cost of Transportation}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{238.03}$$

Where,

Cost of Transportation_(rev) is the revised Cost of Transportation applicable on tariff

Cost of Transportation_x is the Cost of Transportation applicable on tariff as determined by TCEB for xth period of operations

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

Frequency of Indexation shall be as notified by OGRA

xii. Heat Content Adjustment

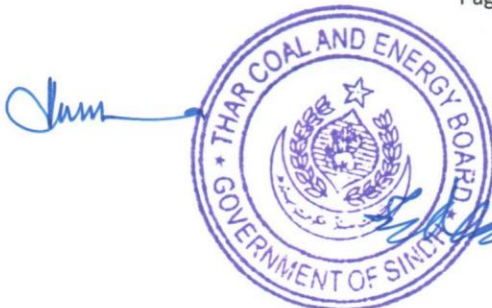
$$\text{Adjusted Prod Pmt}_{(\text{rev})} = \text{Prod Pmt}_x \times \frac{\text{Heating Value}_{(\text{ref})}}{\text{Heating Value}_{(\text{rev})}}$$

Where

Adjusted Prod Pmt_(rev) is the Production Payment Price adjusted for heating value (LHV)

Indexed Prod Pmt_x is the reference Production Payment Price in xth year of operations

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





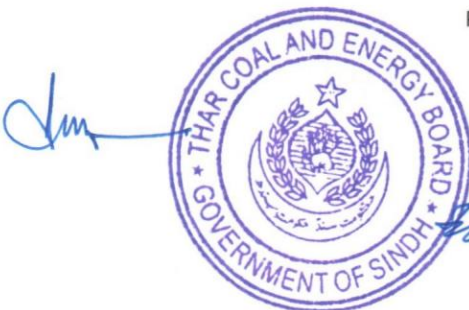
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Heating Value_(rev) is the actual average heating value (LHV) during the relevant quarter of x^{th} of operations subject to a minimum heating value (LHV) permitted for Year 1 – 8 of 11.0175 MJ / Kg and for Year 9 – 3 of 11.31975 MJ / Kg

Indexation shall be computed annually.

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ANNEXURE A – TARIFF TABLE FC STAGE 7.6 MTPA MINE

Yearly Profile for Coal Price of 7.6Mt/a Mine Capacity in (USD/ton)																	
PRODUCTION (VARIABLE) PAYMENTS					CAPACITY (FIXED) PAYMENTS												
Year	Fuel Cost	Variable Cost	Asset Replacement	Royalty	Fixed O&M	Insurance	Power Cost	Working Capital	Principal - Phase I	Interest - Phase I	Principal - Phase II	Interest - Phase II	ROE - Phase I	ROEDC - Phase I	ROE - Phase II	ROEDC - Phase II	Total
1	6.05	2.42	2.89	3.09	6.10	0.82	1.38	3.67	4.48	3.74	0.49	2.03	3.97	1.71	1.11	0.38	44.32
2	7.28	2.97	2.89	3.24	5.84	0.82	1.38	4.17	4.91	3.31	0.58	1.94	3.97	1.71	1.11	0.38	46.51
3	7.47	3.04	2.89	3.27	5.86	0.82	1.38	4.25	5.39	2.83	0.68	1.83	3.97	1.71	1.11	0.38	46.88
4	7.47	3.04	2.89	3.27	5.86	0.82	1.38	4.25	5.93	2.29	0.81	1.71	3.97	1.71	1.11	0.38	46.88
5	7.47	3.06	2.89	3.27	5.87	0.82	1.38	4.26	6.54	1.68	0.96	1.56	3.97	1.71	1.11	0.38	46.93
6	7.47	3.06	2.89	3.27	5.87	0.82	1.38	4.26	7.23	0.99	1.13	1.39	3.97	1.71	1.11	0.38	46.93
7	7.47	3.06	2.89	2.96	5.83	0.82	1.38	4.19	3.90	0.21	1.34	1.18	3.97	1.71	1.11	0.38	42.41
8	7.47	3.06	2.89	2.66	5.98	0.82	1.38	4.14	0.00	0.00	1.59	0.93	3.97	1.71	1.11	0.38	38.09
9	7.54	3.08	2.89	2.66	5.97	0.82	1.38	4.16	0.00	0.00	1.88	0.64	3.97	1.71	1.11	0.38	38.20
10	7.54	3.08	2.89	2.67	5.99	0.82	1.38	4.16	0.00	0.00	2.22	0.30	3.97	1.71	1.11	0.38	38.22
11	7.51	3.08	2.44	2.43	5.94	0.82	1.38	4.00	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	34.76
12	7.48	3.07	2.44	2.42	5.95	0.82	1.38	3.99	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	34.73
13	7.72	3.16	2.44	2.46	6.02	0.82	1.38	4.09	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.26
14	7.72	3.16	2.44	2.46	6.02	0.82	1.38	4.09	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.27
15	7.72	3.16	2.44	2.46	6.04	0.82	1.38	4.09	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.28
16	7.72	3.21	2.44	2.47	6.07	0.82	1.38	4.11	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.39
17	7.72	3.21	2.44	2.47	6.08	0.82	1.38	4.11	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.40
18	7.72	3.21	2.44	2.47	6.09	0.82	1.38	4.11	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.41
19	7.72	3.21	2.44	2.47	6.10	0.82	1.38	4.11	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.42
20	7.78	3.23	2.44	2.48	6.12	0.82	1.38	4.13	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.56
21	7.78	3.23	2.44	2.48	6.13	0.82	1.38	4.14	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.58
22	7.78	3.23	2.44	2.48	6.15	0.82	1.38	4.14	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.59
23	7.78	3.23	2.44	2.48	6.16	0.82	1.38	4.14	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	35.60
24	7.46	3.11	2.44	2.44	6.11	0.82	1.38	4.01	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	34.94
25	5.76	2.41	2.44	2.19	5.86	0.82	1.38	3.31	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	31.35
26	5.17	2.19	2.44	2.10	5.77	0.82	1.38	3.08	0.00	0.00	0.00	0.00	3.97	1.71	1.11	0.38	30.12
27	3.92	1.67	1.38	1.46	6.77	0.19	1.72	1.90	0.00	0.00	0.00	0.00	0.00	0.00	1.39	0.48	20.86
28	4.67	2.00	2.07	1.96	9.89	0.28	2.58	1.80	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.71	28.04
29	3.69	1.56	0.00	1.65	9.76	0.28	2.58	1.28	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.71	23.59
30	5.71	2.35	0.00	2.92	18.52	0.54	4.99	1.48	0.00	0.00	0.00	0.00	0.00	0.00	4.02	1.38	41.92
Levelized Tariff																	40.84