SECMC
Sindh Engro Coal Mining Company

Tariff Petition

SUBMITTED BEFORE

Thar Coal And Energy Board

BY

Sindh Engro Coal Mining Company Limited

FOR DETERMINATION OF

Contract Stage Tariff

IN RESPECT OF

Expansion Of Open Cast Lignite Mine From Capacity Of 7.6 Mt/a to 11.2 Mt/a

LOCATED AT

Thar Block-II, District Tharparkar, Sindh, Pakistan

DATED

February 24th, 2023

Sindh Engro Coal Mining Company Limited

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1 INTRODUCTION

1.1 PETITIONER DETAILS

SINDH ENGRO COAL MINING COMPANY (the **Petitioner**)

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PETITIONER'S REPRESENTATIVE'S DETAILS

(a) AMIR IQBAL, Chief Executive Officer.
(b) MUHAMMAD MUDDASIR, Chief Financial Officer.

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1.2 List Of Abbreviations

BCM	Bankable Cubic Meters
COVID-19	Corona Virus Disease
CPEC	China Pakistan Economic Corridor
CSA	Coal Supply Agreement(s)
EPC	Engineering, Procurement & Construction
GoP	Government Of Pakistan
HSE	Health, Safety & Environment
IRR	Internal Rate of Return
KIBOR	Karachi Interbank Offer Rate
KWH	Kilo Watt Hour
LIBOR	London Interbank Offer Rate
Mt/a	Million Tons Per Annum
MW	Mega Watts
MJ/Kg	Mega Jules per Kilogram
NEPRA	National Electric Power Regulatory Authority
O&M	Operations & Maintenance
OB	Overburden
PKR	Pakistani Rupees
SCA	Sindh Coal Authority
SWB	Salaries, Wages & Benefits
SBP	State Bank of Pakistan

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USD	UNITED STATES DOLLAR
TCEB	THAR COAL ENERGY BOARD

Note:

It is submitted before TCEB that all Project Cost and Coal Tariff numbers contained in this Tariff Petition are based on and taken from the Financial Model, as submitted together with this Tariff Petition. All numbers have been rounded off to the nearest decimal places.

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1.3 DEFINITIONS

Unless otherwise defined herein or if the context otherwise requires, all capitalized terms used in this petition shall have the meanings assigned to them hereunder:

Annexure means an annexure of this Tariff Petition.

Bankable Feasibility Study or **BFS** has the meaning given to in Section 2.1 below.

CHS means coal handling system installed by the Petitioner.

Coal/Lignite means the lignite reserves found in Thar Block-II with a reference heating value as defined in Section 2.3.

Coal Purchaser means LEPCL.

Coal Supply Agreement means the coal supply agreement executed by the Petitioner with the Coal Purchaser for the sale of Coal/ Lignite (as amended, modified, supplemented and/or novated from time to time).

Commercial Operations Date or **COD** shall bear the meaning ascribed to the term 'Commercial Operations Date' in the GOS IA.

Financial Model means the financial model submitted to the TCEB by the Petitioner together with this Tariff Petition, as attached hereto at **SCHEDULE 4 (FINANCIAL MODEL)**.

GoS means the Government of Sindh.

GoS Implementation Agreement(s) (GoS IA) means the implementation agreement dated 17 August 2015 between the Petitioner and the GOS for the implementation of the Project, as amended from time to time.

IDC means interest during construction.

Law or **Laws** means any applicable statute, ordinance, rule, decree, notices, requirement, national, provincial or local legislation, statutes, ordinances and other laws and regulations including Mines Act 1923, Mines Act 1954, Sindh Mining Concession Rules 2002, labor laws, health, safety, environment laws, bye- laws, rules, orders, decrees, judicial decisions, delegated legislation, directives, guidelines (to the extent mandatory) policies or code of GoS/GoP or any Public Sector Entity or Relevant Authority or agency, whether federal, provincial, municipal, local or other government subdivision of Pakistan, or of any legally constituted Relevant Authority, as amended from time to time.

LEPCL means LUCKY ELECTRIC POWER COMPANY LIMITED, being an entity that has entered into a coal supply agreement with the Petitioner for the purchase of Coal from the Phase III Mine.

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LEPCL Power Project means the coal fired power plant with a capacity of six hundred and sixty (660) MW located in Port Qasim, Sindh

Mining Facility or **Mine** means the open cast Coal/ Lignite mine conceptualized, established and operated by the Petitioner at Thar Block-II and associated mine surface facilities, mine infrastructure, lignite stock yard, interconnections, outside dump, inside dump, surface and mine drainage system, floods prevention dams, dust suppression system and any other system required for a safe, credible, sustainable efficient and most cost-effective operations and maintenance of the Mining Facility.

Operations & Maintenance (O&M) means removal, transfer and dumping of Overburden/Interburden, production, loading and dispatch of lignite, construction and maintenance of ramps, benches, and mine service roads, construction and maintenance of surface water prevention dams, installation, maintenance and operations of surface drainage system, installation, operations and maintenance of all other temporary and permanent works required for safe, sustainable and operations of mine and production of lignite.

Overburden (OB) means the top soil / all materials above the coal which are required to be removed to expose the coal seams and allow extraction of the coal as per the mine production plan.

Petitioner means Sindh Engro Coal Mining Company Limited.

Phase I Commercial Operations Stage Tariff Petition means the tariff petition filed by the Petitioner before TCEB dated October 10, 2019, for determination by TCEB of the '*Commercial Operations Stage Tariff*' (as defined therein) for the Phase I Mine.

Phase I Contract Stage Tariff Determination means the Determination No. TCEB/Registrar/2-1/2014 of TCEB dated June 5, 2015, as subsequently reviewed and determined in Phase I Contract Stage Tariff Review Determination.

Phase II Contract Stage Tariff Determination means the Determination No. No. TCEB/Registrar/2-1/2014 of TCEB dated September 25, 2018.

Phase II Commercial Operations Stage Tariff Petition means the tariff petition filed by the Petitioner before TCEB dated February 01, 2023, for determination by TCEB of the "Commercial Operations Stage Tariff (as defined therein) for the Phase II Mine.

Phase II O&M means the operations and maintenance of the Phase II Mine.

Phase II O&M Operator means the operator appointed by the Petitioner for the operations and maintenance of the Phase II Mine.

Phase III Financial Close means the occurrence of financial close for Phase III

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Mine Expansion so as to result in the Mining Facility being the Phase III Mine.

Phase III Mine COD Stage Tariff Petition means the petition to be submitted by the Petitioner to the TCEB upon COD of Phase III Mine.

Phase I Mine means the Mine having a capacity of 3.8 Mt/a.

Phase II Mine means the enhanced/expanded capacity of the Mine having a capacity of 7.6 Mt/a, which is additional 3.8 Mt/a beyond Phase I Mine.

Phase III Mine means the enhanced/expanded capacity of the Mine having a capacity of 11.2 Mt/a.

Phase III Mine Expansion means the expansion of the Mine from Mine capacity Phase II Mine to Phase III Mine.

Project means Open Cast Lignite Mine in Thar Block-II with a total capacity of 7.6 Mt/a i.e. Phase I Mine (3.8 Mt/a) and Phase II Mine (extended to 7.6 Mt/a), which the Petitioner intends to further expand to 11.2 Mt/a in phase III, i.e. the Phase III Mine.

Project Cost means the total cost to be incurred by the Petitioner for the Phase III Mine Expansion.

Public Sector Entity means (a) The GoP, the GoS, any subdivision of either, or any local governmental authority with jurisdiction over the Petitioner, the Project, or any part thereof, (b) any department, authority, instrumentality, agency, or judicial body of the GoP, the GoS or any such local governmental authority, (c) courts and tribunals in Pakistan, and (d) any commission or regulatory agency or body having jurisdiction over the Petitioner, the Project or any part thereof.

Relevant Authority(ies) means the department, authority, agency or other relevant entity from which consent is to be obtained and any authority, body or other person having jurisdiction under the Laws of Pakistan with respect to the Project.

Section means a section of this Tariff Petition.

Tariff Petition means this contract stage tariff petition for Phase III Mine Expansion.

Tariff Rules or **Rules** means The Coal Tariff Determination Rules, 2014.

TCEB Act means the Thar Coal and Energy Board Act, 2011.

Thar Rail Link Project means the railway line(s) being constructed by Pakistan Railway which shall connect the coal mines in the Thar region to existing rail network as approved by the GoP and GoS.

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1.4 INTRODUCTION, APPLICABLE LAW & POLICY

Under the Thar Coal & Energy Board Act 2011 ("**TCEB Act**"), TCEB has been set up, *inter alia*, as a one window facilitator in matters relating to coal mining projects being established/ operated in the region of Thar, Sindh, Pakistan. Pursuant to section 5 of the TCEB Act, TCEB has been mandated to determine the tariff of coal extracted from Thar, Sindh, Pakistan subject to the compliance with the guidelines, in accordance with the provisions of the TCEB Act, laid down by GoS. In addition to the aforesaid, TCEB is also responsible for determining the process and procedures for reviewing tariff and recommending tariff adjustments.

In accordance with the requirements of the relevant laws of Pakistan (including, without limitation, the TCEB Act and rules and regulations made thereunder), the Petitioner hereby submits this Tariff Petition for determination by the TCEB, for the Petitioner's Mining Facility located at Thar Block – II, the same being the Phase III Mine having a capacity of 11.2 Mt/a.

This Tariff Petition is being filed under part III (*Tariff Determination Procedure*) of the Thar Coal Tariff Determination Rules, 2014 ("**Tariff Rules**"). This Tariff Petition and the matters contained herein have been prepared based on the guidelines presented in part IV (*Standards and Guidelines*) of the Tariff Rules and the Economic Coordination Committee's approved incentive package for the Project. Further, any other information required to be filed is included in and/or with this Tariff Petition.

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2 GROUNDS AND FACTS FORMING BASIS OF TARIFF PETITION

a) Pakistan has been blessed with the world's seventh largest lignite reserves of around 186 billion tonnes. The largest reserves are in the Tharparkar District in the province of Sindh, Pakistan where 95% of total lignite (175 billion tonnes) has been discovered/ expected to be mined ("**Thar Coal**"). The extension of entire lignite bearing area is about 9100 km². Despite having such a vast amount of energy resource, Pakistan has been plagued with the power crisis arising out of a suboptimal fuel mix with an over reliance on Imported fuels; expensive electricity; and a demand and supply gap exceeding 5000-7000 MW at its peak. As a result, it was critical to harness the enormous potential of Thar Coal to alleviate the energy crisis in Pakistan and ensure energy security for Pakistan. This fact was also recognized in the CPEC Energy Planning Report as well that states:

   i. "*The development potential (of Thar Coal) is huge. Even if in the future the development scale of Thar Coal Field is expanded to 100 million tons, it is sufficient to supply the fuel demand of Pakistan for several centuries*"

b) It is in recognition of the aforesaid potential of Thar Coal that the Petitioner was incorporated as a joint venture between the GoS, ENGRO ENERGY LIMITED (*formerly Engro Powergen Limited*), THAL LIMITED, HUB POWER COMPANY, HABIB BANK LIMITED, CHINA MACHINERY ENGINEERING CORPORATION and HUOLINHE OPEN PIT COAL (HK) INVESTMENT CO., and was established to construct, develop, own and operate the Mining Facility in District Tharparkar, Sindh, Pakistan.

c) In the initial phase of the Project, the Phase I Mine was developed to fuel a power plant as a proof of concept and become an example for future expansion and investment. The Phase I Mine achieved commercial operations in July 2019 and has since demonstrated strong operational performance by successfully meeting 100% firm order(s) placed by Engro Powergen Thar Private Limited and has been a valuable commodity for Pakistan, not only saving the national exchequer's precious foreign exchange but also providing a hedge against the price volatility of imported coal, particularly during the period affected by COVID-19 pandemic. Moreover, despite the COVID-19 pandemic and the resulting difficulties, the Petitioner achieved its COD for its Phase II Mine on 1st October 2022.

d) It is submitted that as the Mine expands, the Coal/ Lignite offers the potential to be not only the cheapest source of thermal energy in Pakistan, but also the most reliable. The Mine, currently with 7.6 Mt/a capacity, may be expanded in further phases to enhance the associated power generation capacity from Block II until it reaches its optimum capacity. This shall result in a lower Coal tariff. Hence, it shall lower the cost of the power produced from the Mine. At optimum Mine capacity, it shall offer one of the cheapest sources for base load.

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e) In furtherance of its objectives of, *inter alia*, providing one of the cheapest sources of fuel from thermal energy to Pakistan, the Petitioner intends to undertake Phase III Mine Expansion. Therefore, the Petitioner hereby files this Tariff Petition under rule 4(4)(a)(iii) of the Tariff Rules.

f) The development of the Mine and associated power plants in Thar has also provided unprecedented opportunities to the locals residing in Thar. It is submitted that over 3,500 locals have been directly employed as a result of these projects. In addition, the Thar region has also witnessed an investment by the said projects in the fields of healthcare, education, and infrastructure.

g) Petitioner has entered into coal supply agreement with LEPCL for the LEPCL Power Project, whereby the Petitioner intends on supplying Coal/Lignite to LEPCL from its Phase III Mine. Since the Phase II Mine has achieved its COD on October 1, 2022, Petitioner now intends to undertake the Phase III Mine Expansion. LEPCL Power Project has already been commissioned and is operating on imported coal since Q1 2022. It is pertinent to highlight here that the earlier the Petitioner completes the Phase III Mine Expansion, the sooner LEPCL can move to Coal/ Lignite preventing the need to use imported coal, in turn facilitating the current forex deprived economy of Pakistan.

h) This Petition has been prepared based on the assumptions and macros set out in the Phase II Commercial Operations Stage Tariff Petition.

The Petitioner, therefore, requests that TCEB to kindly issue a Contract Stage Tariff which caters to the Phase III Mine Expansion at the earliest.

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2.1 BUSINESS PLAN

As outlined above, the Petitioner intends to expand the capacity of the mine to 11.2 Mt/a, to cater to the requirements of its Coal Purchaser. The Bankable Feasibility Study has been approved by the SCA through its letter dated 06/06/2017.

The Phase III Mine Expansion will entail removal of an overburden volume of approximately 19.75 M BCM.

For the purpose of off-take/sale of additional Coal/Lignite resulting from the Phase III Mine Expansion, the Petitioner has entered into a Coal Supply Agreement, for the supply of 3.6 Mt/a Coal for a term of thirty (30) years to LEPCL. LEPCL shall utilize the Coal/Lignite supplied from the Phase III Mine, following completion of the Phase III Mine Expansion.

The Petitioner intends to declare commercial operation date for the Phase III Mine, within eighteen (18) months from the date the Petitioner achieves Phase III Financial Close.

2.2 SELECTION OF TECHNOLOGY

Optimum suitability of technology has been intricately considered during the selection of equipment for coal mining. The Petitioner has undertaken detailed calculations for the lead time of equipment, combined synergies of all equipment and overall impact on the overall tariff. The Petitioner has considered characteristics of stripping materials, space constraints and investment, and it is determined that coal mining and waste removal shall be carried out using hydraulic excavator and dump truck for loading and transportation.

In line with the earlier recommendations of TCEB, the Petitioner has reassessed the future equipment deployment plan and has evaluated that it shall to the extent possible, replace the existing equipment with larger class equipment i.e., replace the existing 60-tonne trucks with trucks of 90 tonne capacity and 6.5m^3 shovels with shovels of 12 m^3 capacity as part of its asset replacement plan. In this regard, the Petitioner has already procured 12 dump trucks of 90 tones along with 5 excavators with bucket capacity of 12m^3 for removal of sub-recent formation.

The Phase III Mine Expansion is being undertaken on a fast-track basis and lead times of larger class of equipment i.e., 12m^3 excavators and 90 tonne dump trucks, is more than twelve (12) months, which will adversely impact the overall Project timelines and delay the eventual reduction of coal price along with the overall tariff. Therefore, the Petitioner has carried out a detailed evaluation and identified 70-ton class dump trucks and 6.5 m^3 shovels to be optimal with respect to pricing and lead times, hence in the interest of prudency, the Petitioner intends to procure 93 dump trucks of 70-tonnes along with 6 shovels of 6.5m^3 for the Phase III Mine Expansion. The auxiliary equipment has also been assessed according to the main mining equipment.

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The Petitioner shall replace the equipment used for Phase III Mine Expansion with equipment of a larger class i.e., trucks of 90 tonnne capacity and shovels of 12 m^3 capacity as part of its future asset replacement plan for the removal of recent/sub-recent formation wherever deemed operationally feasible.

2.3 COAL QUALITY

Reference heating value for the Phase III Mine is 11.61 MJ/Kg. However, as per the BFS approved by SCA, the average heating value for the Project is 10.86 MJ/Kg. Moreover, as per the coal supply agreements entered into by the Petitioner with all its off-takers, the Petitioner has to supply the coal within a heating value range of 10.312 to 12.771 MJ/Kg. This range is linked with power plant design, as boiler can only operate within these limits. To meet the energy requirement of the power plants, additional coal tonnage has to be supplied in case of less heating value than 11.6 MJ/Kg. It has been stipulated in the coal supply agreements that 11.6 MJ/Kg is the Reference Heating Value for coal quantities and the tonnage of coal shall be adjusted as per actual heating value supplied.

$$Q_{adj} = Q_0 * HV_{Ref} / HV_A$$

Where:

Q_{adj}	= **Adjusted Quantity** of coal at the Actual heating value; and
Q_0	= Coal quantity at Reference Heating Value
HV_{Ref}	= the Reference Heating Value of 11.6 MJ/kg
HV_A	= the Actual Heating Value of Coal supplied during the day, month, year or any other period (as applicable) as long as it falls within acceptable range as defined in Section 4, 9 and Schedule G

Adjustment in Quantity Supplied:

As per the JORC certified Block Model by 3rd party for Thar Block II and the BFS, the heating value of coal varies across the mine across different periods and areas. The Mine will be required to supply the equivalent amount of energy to all its off-takers based on actual heating value of coal being extracted during such month. Hence, at times where the heating value of coal drops below reference heating value of 11.61 MJ/Kg, excess coal beyond 11.2 Mt/a will need to be supplied to match the heating content requirement of the power plants and vice versa. Any additional quantity beyond 11.2 Mt/a (to existing off-takers) will be sold at a variable price, in accordance Chapter 2 of the Thar Coal Pricing Framework read with Rule 11 of Tariff Rules.

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3 PROJECT COST ANALYSIS

The total Project Cost for Phase III Mine Expansion has been estimated at USD 104.97 Million. The Project Cost is based on a firm EPC contract for OB removal along with other costs the break-up of which is set out below:

Project Cost Head	USD Mn
EPC	69.18
Non-EPC	21.75
Insurance	0.93
Financing & LC Charges	3.15
Interest During Construction (IDC)	9.96
Total	**104.97**

3.1 EQUIPMENT, PROCUREMENT AND CONSTRUCTION FOR THE PROJECT

The EPC cost of the Project will be USD 69.18 million. This includes procurement, construction, and OB removal costs. The cost structure is highlighted in the below table.

Cost Components	EPC Model (M USD)
Procurement and Engineering	27.38
OB removal	22.91
Diesel Procurement	18.88
TOTAL COST	**69.18**

The Petitioner has opted to engage the same EPC contractor for the Phase III Mine Expansion as the one previously engaged for Phase II Mine, after carefully considering the following:

- The Petitioner has given certain warranties and undertakings to its existing lenders of Phase I Mine and Phase II Mine, regarding the operational risks that can be assumed/undertaken with respect to Mine operations. The said warranties limit the risks the Petitioner can take with respect to the Mine operations. If the Petitioner engages multiple contractor(s) for undertaking construction and/or operation works in the same Mine, the Petitioner shall not be able to identify any potential violation(s) that may occur during Phase III Mine Expansion, which shall have an adverse impact on the bankability of the current operations of Phase I Mine & Phase II Mine.

- Engaging a separate EPC contractor for Phase III Mine Expansion may also result in a situation where the existing Phase II O&M Operator raises a valid change order request on the basis that its operational efficiencies may reduce or be adversely

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impacted as the same Mine would be divided into separate zones; as a result the Petitioner would not be in a position to legally deny such a request. This will result in an incremental cost impact on both Phase II O&M and the Phase III Mine Expansion.

- Having two different contractors operating on the Mine would result in duplication of resources such as assembly warehouses, settlement facilities, workshops etc., in the Mine. The aforesaid duplication would hike up the production cost unnecessarily, which will eventually translate into a higher coal tariff.

In light of the above considerations, the Petitioner has approached the existing contractor and negotiated a better/ favorable price for Phase III Mine Expansion by considering the economies of scale synergies that the contractor shall be able to avail, which has led to the OB removal cost for the Phase III Mine Expansion being significantly lower than the OB removal cost for the Phase I Mine and Phase II Mine respectively.

Equipment will be procured by the contractor at cost USD 27.38 million, which is also in line with the market estimates received by the Petitioner.

As per TCEB guidance in all existing and future contracts, the diesel will be procured directly by the Petitioner as opposed to being part of the contractor's scope of work. In this regard, the requirement of diesel has been based by the Petitioner on mine expansion design and haulage distances, which in turn is based on technical studies and engineering estimates. The Petitioner estimates that USD 18.88 million worth of diesel will be required, which will be actualized on consumption basis. Any positive or negative variation in the consumption from the estimate shall be adjusted and reflected in the commercial operation stage tariff and Petitioner reserves its rights accordingly.

<u>3.2 Non-EPC</u>

The Petitioner estimates that it shall incur USD 21.75 million in lieu of Non-EPC Costs i.e., for the activities that will need to be carried outside the scope of the EPC for execution of the Phase III Mine Expansion. Main costs are summarized below:

	Cost USD M
Capital Items (railways and colony)	11.90
Security	2.81
Project Development Costs	2.81
SWB	1.13
Operating Expenses	0.99
Consultancy and Studies	2.11
TOTAL COST	**21.75**

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3.2.1. CAPITAL COSTS

Capital items includes construction of a colony for approximately 600 additional workers and drivers required for the Phase III Mine Expansion. Since the Coal/Lignite from the Phase III Mine Expansion must be delivered to the LEPCL Power Project, the Petitioner intends to use the Thar Rail Link Project for the said delivery. We understand that the GoS and GoP have reached a principal understanding on the expeditious construction and implementation of the Thar Rail Link Project, to connect Thar to the Pakistan railway network.

In this regard, the Petitioner shall be responsible for loading the cargo trains and to connect the Petitioner's CHS to the Thar Rail Link Project, connectivity infrastructure including transfer tower, conveyors, unloading station(s), and systems for electrical control, dust suppression and firefighting will be required. The cost is based on the assumptions that the Thar Rail Link Project will: (a) terminate 300 meters from the Petitioner's CHS stockyard; and (b) be constructed by COD of Phase III Mine. In case the assumptions change, the Petitioner reserves the right to claim the amended cost in its Phase III COD Stage Tariff Petition. Furthermore, if the Thar Rail Link Project is delayed, LEPCL shall be responsible to collect the Coal/Lignite from the Mine and transport the same through road networks to LEPCL Power Project. In such a case, the Petitioner will have to make alternate, safe and suitable arrangements for management of trucks being used by LEPCL for transportation of Coal/Lignite. The Petitioner reserves the right to petition such additional expenditure with the TCEB in its Phase III COD Stage Tariff Petition . Moreover, if the Thar Rail Link Project does not materialize/get completed during the construction of the Phase III Mine Expansion, the Petitioner reserves the right to roll over the aforementioned costs in the operations stage.

It is also important to note that the aforementioned connectivity infrastructure will facilitate in achieving greater operational efficiency.

The aforementioned capital cost is also based on the fact that Petitioner has already established 2500 tons per hour CHS as part of its Phase II COD Stage Tariff Petition and the assumption that TCEB has already approved the same in its determination for the Phase II Mine COD stage tariff.

3.2.2. SECURITY COSTS

In 2022, a couple of unfortunate incidents took place in Pakistan which threatened the safety and security of Chinese nationals and as a result, multiple CPEC projects had been impacted. The Chinese government had also raised concerns for the security of its nationals and issued restrictions/directions for safe movement within Pakistan. As a result, the Petitioner will have to further increase its security measures for the Phase III Mine related activities, which in turn will increase the cost of security to be incurred by the Petitioner.

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3.2.3. PROJECT DEVELOPMENT COSTS

Project development cost accounts for feasibilities and studies undertaken or to be undertaken prior to construction of the Phase III Mine. The Petitioner will seek to true up any costs incurred in this regard in the Phase III COD Stage Tariff Petition.

3.2.4. SWB, OPERATING AND CONSULTANCY STUDIES COSTS

SWB and operating costs will increase in Phase III Mine due to the additional manpower and the overall scope for Phase III Mine. Further, the Petitioner may engage consultants to undertake a due diligence of the existing financing documents following which the said financing documents shall be amended. The Petitioner will seek to true up all costs incurred in this regard, in the Phase III COD Stage Tariff Petition.

3.3 INSURANCE

Insurance cost is calculated to be USD 0.93 Million, with the cost being equivalent to 1.35% of equipment and OB removal costs for Phase III Mine Expansion.

3.4 FINANCIAL COST

Financial charges are calculated to be USD 3.15 Million, with the cost being equivalent to 4% of the loan to be availed under local finance facilities. Moreover, considering the prevailing macroeconomic climate, contractors and suppliers are requesting for LC confirmations and LC confirmation charges in such macroeconomic climate are very high. The Petitioner, therefore, submits that in case it has to bear any such charges then it shall claim the same as pass-through in the Phase III COD Stage Tariff Petition.

3.5 INTEREST DURING CONSTRUCTION ("IDC")

Total IDC for the Project has been calculated to be USD 9.96 million. This has been calculated on the basis of the following assumptions:

- Debt: Equity (including Pre-COD) ratio has been assumed at 75%:25%
- Construction period of 18 months post Financial Close for Phase III Mine Expansion
- Interest rate of KIBOR + 2.5% on local debt secured for Phase III Mine Expansion.

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3.6 Capital Structure

3.6.1 Utilization of Pre-Cod Sales

Petitioner has made pre-COD sales to LEPCL and Thar Energy Limited to the tune of ~PKR 4.5 Billion till COD of Phase II Mine (number to be firmed up at the time of Phase III Mine COD Stage Tariff Petition). To reduce the tariff, the Petitioner seeks to utilize these pre-COD sale proceeds to reduce its equity injection requirement for Phase III Mine Expansion, as any utilization of pre-COD sales will be cost free i.e., no interest or return on equity will be accumulated on it. As stipulated in the table below, any further equity injection, being the differential between the project cost requirement and the aggregate of debt and pre-COD sales, will require 18% dollarized IRR return.

In the previous phases where pre-COD sales had been used to net off project costs, loan and equity ratio was divided into a 75:25 split. However, the current treatment will benefit the consumers more as the entirety of pre-COD sales will reduce the requirement for additional equity injection, which at 18% dollarized return would be a more expensive funding source. While from the sponsors' standpoint, this is unfavorable as the sponsors will be undertaking significantly increased financial and commercial risk while foregoing the return they could have earned if pre-COD sales had been used to offset the Project Cost instead of reducing equity injection requirement.

The Petitioner further intends to increase the pre-COD revenues by selling any remaining coal available over and above the existing mine capacity, to other customers apart from the coal purchasers of the Phase I Mine and the Phase II Mine; as per past practice the same shall be done using the first year tariff of this Tariff Petition. If Petitioner makes any further pre-COD sale during the Phase III Mine Expansion, the additional amount shall be utilized (net off any costs incurred to remove lignite) to further reduce the equity requirement and Petitioner reserves its rights accordingly.

As such, the Tariff has been designed on a Debt: Equity Ratio of 75:25 with the following structure:

	Ratio	**Amount**	**Rate Assumption**
Debt	75%	USD 78.73 M	KIBOR + 2.5%
Pre-COD (Phase-II) (to be converted in USD)		PKR 4.5 B	0%
Balancing New equity injection = Project cost – debt – pre-cod revenue		USD 6.54 M	18% dollarized IRR
	100%	USD 104.97 M	

The Petitioner intends to arrange PKR based loan for the project which will be indexed

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at prevailing USD/PKR exchange rate at the time of the Phase III COD Stage Tariff Petition and the actual loan amount in PKR will be petitioned accordingly.

3.6.2 Return For Existing Shareholders

It is pertinent to mention that in the current economic environment projecting the PKR based cost of the project is a real challenge. The lenders will also be mindful of this fact and will request the current shareholders to provide coverage for project shortfall and/or guarantee, since the intention of the project is to minimize equity as far as possible the shareholders will have to restrict dividend payouts of the already completed Phases of the mine, this will continue till the time project receives a final COD tariff. As the sponsors are not getting any returns from the project and in fact risking the returns already allowed in previous Phases, therefore, to ensure returns of previous phases are secured it is requested that ROEDC at 18% be allowed for 10% of the project cost for a period 18 months from Financial Close. This is to mention that such mechanism will attract further future investment in Thar Coal Mining.

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4 Tariff Summary

4.1 Key Tariff Assumptions and Basis

This Tariff Petition has been calculated based on a cost-plus mechanism with guaranteed USD based return for equity holders, cost pass through of debt servicing and operational costs pass through in line with the Tariff Rules.

To calculating levelized tariff, a discount rate of 10% has been used and implemented. The Tariff Petition has been calculated based on fiscal incentives as approved by GoP with the understanding that any subsequent changes will be processed as a pass through by TCEB.

The following assumptions have been used for calculation under this Tariff Petition:

a) 18% IRR on equity.
b) Zero percent (0%) custom duties and other related tax on import of Coal mining equipment, spares, and machinery, including vehicles for site use.
c) Exemption on withholding tax to shareholders on dividends for initial thirty (30) years.
d) Exemption on withholding tax on procurement of goods, services, and contracts during Project construction and operations.
e) Exemption for thirty years on other levies, including Special Federal Excise Duty, Federal Excise Duty, WPPF, and WWF.
f) In addition to the aforesaid incentives, thar coal mining projects have been granted same incentives, concessions, protections, and security package as that available to IPPs developed pursuant to Policy for Power Generation Projects 2002 (as amended from time to time) including but not limited to exemption from corporate tax, minimum turnover tax, etc.
g) All other fiscal benefits as given to Special Economic Zones will be applicable to Thar Block-II mining projects in the Special Economic Zone of Thar.
h) Circular debt resulting in increased working capital requirements; and
i) Timelines for establishment of letter of credit (LC) if extended beyond normal timelines (as is the case these days), then any additional cost exposures such as demurrages, delay charges shall be claimed by the Petitioner.

Phase III Mine has been designed to meet the demand for a 660MW coal based power project. The demand for Coal/Lignite shall be finalized by the Coal Purchaser at the commercial operations date of Phase III Mine and the Coal tariff shall be adjusted accordingly. In the event, the Coal Purchaser increases its demand beyond 3.6Mt/a then the Petitioner may require additional capex/cost which shall be sought to be adjusted in the Phase III COD Stage Tariff Petition.

4.2 Contractor Cost (Fixed and Variable)

As explained in Phase II COD Stage Tariff Petition, the Petitioner conducted an internationally competitive bidding process in 2020/21, wherein many bidders submitted their proposal. However, only five contractors were shortlisted based on the technical criteria of the Petitioner. Of those five contractors, only three submitted their commercial proposals while the remaining two declined to proceed further citing

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different challenges with respect to country risks. Subsequently the Petitioner, after evaluation of commercial proposals and associated negotiations, issued a letter of intent to the lowest bidder, one of the largest coal producing companies of China. Later, the Petitioner held detailed negotiations with them leading to initialing of draft O&M agreements.

However when the Petitioner formally invited the lowest bidder to sign the O&M agreements, the lowest bidder, citing the rapidly deteriorating security and uncertain political and security situation in Pakistan (recent attacks on Chinese nationals in Pakistan including the Karachi university bombing in April/May 2022), increased their bid proposal (the "**Revised Quote**"). Later through a letter attached herewith in Schedule 6, the lowest bidder declined to even honor their revised bid proposal as they were not willing to work in Pakistan given the prevailing security situation and restrictions by Chinese government on mobilization of Chinese personnel in any new project in Pakistan. The Petitioner tried to convince the senior management of the lowest bidder and requested them to reconsider their stance, giving them assurances in relation to the security concerns raised by them (letter attached herewith in Schedule 6). However, they refused to work for the Project. Being prudent, the Petitioner also encashed the bid bond submitted by them as the lowest bidder failed to comply with its bid.

To reduce the operation cost, the Petitioner plans on transitioning from a turnkey model to a contractor miner model from commercial operations of Phase III Mine, whereby the scope of operations will be split between various contractors. To enable this transition, the Petitioner will engage third party experts who will support it in core mining operations (including *inter alia* mine planning, maintenance etc.). As a result of these measures, the overall operating costs will reduce from implementation of the transition, which is also depicted in this Tariff Petition and the Financial Model.

However, the most optimal price of coal production, because of aforementioned exercise, was the cost of Phase II O&M by Phase II Contractor

4.3 Production/Variable Components

The production payment price of under this Tariff Petition consists of the following items:

Component	Levelized Tariff (USD/ton)
Fuel Cost	6.58
Spares/Tyres/Consumables	1.71
Foreign Contractor and Spares	4.92
Asset Replacement Cost	3.19
Royalty	2.60
	18.99

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Fuel Cost

The cost for procurement of diesel is part of the Petitioner's scope and is based on the mine expansion design and hauling distance, which is based on the technical studies and engineering estimates. The Petitioner estimates that USD 6.58 per ton worth of diesel will be required, which will be actualized on consumption basis. Any positive or negative variation in the consumption from the estimate shall sought to be actualized and reflected in the Phase III COD Stage Tariff Petition.

The fuel costs include cost of diesel required for all the equipment utilized for Coal/Lignite extraction and OB removal. The main equipment includes dump trucks & shovels, loaders, dozers, crawlers, auxiliary equipment, emergency and rescue vehicles, buses, and wagons and cars for transportation of the workers and staff to and from the Mine and any other equipment operated on diesel fuel used in mining operations. The fuel cost is based on the diesel price of 238.6 PKR/liter (Diesel rate for Islamkot City, District Mithi, as notified by OGRA on September 30, 2022).

Asset Replacement Cost

To replace the mining equipment when it reaches end of its useful life, an asset replacement reserve will be established for which a reserve component has been built into this Tariff Petition. As stated above, the Petitioner shall, to the extent possible replace the Phase III Mine Expansion equipment with larger class equipment, trucks of 90 tonne capacity and shovels of 12 m^3 capacity as part of its future asset replacement plan for removal of recent/sub-recent formation, as/wherever deemed operationally feasible. As this machinery is capital intensive, the replacement cost in the schedule will be amended accordingly and reflected in the Phase III COD Stage Tariff Petition.

Royalty

Royalty has been assumed as maximum of 7.5% of Coal/Lignite price or PKR 150 per tonne. This is subject to adjustments based on the notified royalty from time to time.

4.4 Transportation

The Petitioner assumes that transportation cost for mine mouth power plant will remain as per Phase II COD Stage Tariff Petition. Furthermore, pursuant to Phase III Mine, the coal will be transported to LEPCL which is a non-mine mouth power plant therefore the cost of transportation will be borne by the coal off-taker.

4.5 TARIFF SNAPSHOT

Cost Component (USD M)	Average (1-10 Years)	Average (11-30 Years)	Levelized (1-30 Years)
PRODUCTION (VARIABLE) PAYMENTS	**USD/Ton**	**USD/Ton**	**USD/Ton**
Fuel Cost	6.58	6.16	6.58
Variable O&M			
- Tyres, Spares & Consumables	1.71	1.71	1.71
- Foreign Contractor - Variable	4.92	4.92	4.92
Asset Replacement Cost	3.09	2.89	3.19
Royalty	2.70	2.17	2.60
	19.00	**17.85**	**18.99**
CAPACITY (FIXED) PAYMENTS			
Fixed O&M			
- Foreign Contractor Cost	2.90	2.90	2.90
- Local	3.13	2.97	3.11
Insurance	0.67	0.67	0.67
Power Cost	1.65	1.55	1.64
Cost of Working Capital	1.28	1.28	1.28
	9.64	**9.37**	**9.61**
DEBT & ROE			
Principal Debt Repayment	2.99	0.00	2.18
Interest Payment	1.95	0.00	1.52
ROE	3.61	2.69	3.47
ROEDC	1.56	1.16	1.50
	10.11	**3.85**	**8.66**
Ex-Mine Coal Price	**38.75**	**31.07**	**37.26**

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4.6 Adjustments at FC

The Petitioner may request adjustment in the Project Cost at the time of Phase III Financial Close due to change in financial assumptions and the Petitioner reserves its rights accordingly. The following components of the Project Cost may be adjusted at the Phase III Financial Close:

Project Cost Component	Required Adjustment
EPC cost	USD/PKR and any other indexation as required; further adjustment may be done at COD
Project Development Cost	Project Cost to be adjusted with actual Project Development Cost
Insurance during construction	Project Cost to be adjusted as per actual insurance cost
Spread on financing	Project Cost to be adjusted as per the spread in firm finalized term sheets
Break-up of loan	Project Cost to be adjusted as per break-up of financing
Financing Costs	Project Cost to be adjusted with financing costs as per lender requirements
Capital Structure	Project Cost to be adjusted based on final financing structure

4.7 Adjustments at COD

At Commercial Operations Date, the Project Cost will be adjusted and trued-up based on following provisions:

a) Adjustments in EPC Cost

EPC contract cost shall be adjusted for the following:

i. Variations in Overburden Volumes

Current Overburden volume assumes 19.75M BCM to reach a Mine capacity of 11.2 Mt/a. The Petitioner will be required to pay for any additional overburden volume required to be removed due to change in slope angles/ Mine design or change in strata. This will be actualized at COD of Phase III Mine and the Petitioner reserves its rights accordingly.

It should be noted that as part of the Phase I Contract Stage Tariff Determination, TCEB allowed the Petitioner a cap of 5% of determined cost for OB removal on account of increased volume and/or blasting requirement. However, based on the Mine site conditions, the actual slope angle and overburden volumes may change.

Therefore, it is submitted that the Petitioner be allowed to actualize OB volume based on studies/ recommendations from reputed third-party consultants.

ii. **Change in Hydro geological assumptions**
The ground water model for the Petitioner's mining block is still under calibration and the actual volumes of ground water are still unclear. However, keeping the Mine dry is of paramount importance and therefore, the Petitioner requests that actual cost be allowed at COD. Petitioner reserves it rights accordingly.

iii. **Blasting Requirement**
EPC contract assumes that there is no blasting required as per the data available. However, in case blasting is required, cost will be adjusted as per actual, and the Petitioner reserves its rights accordingly.

iv. **All local currency related costs adjusted for PKR/USD parity**
All local currency costs will be adjusted based on PKR/USD rate on the date of each payment of debt and equity components.

b) At Commercial Operations Date of Phase III Mine, the Petitioner will submit evidence of any withholding tax/sales tax/infrastructural CESS grossed up in payment to contractors; same will be allowed as an addition to Project Cost including requisite adjustments in IDC.

c) Insurance cost, financing costs and withholding tax on interest income to be actualized as per actual and the Petitioner reserves its right accordingly.

d) Costs incurred for land acquisition In Thar will be actualized based on announcement of award by GoS. Costs of resettlement of villages will be actualized as per the resettlement action plan approved by GoS.

e) At Phase III Mine COD Stage Tariff Petition, the Petitioner will submit details of actual KIBOR rates applicable for each interest payment made to local lenders during Project construction.

f) Increase in Project Costs due to change in law, non-implementation of ECC incentives (as mentioned in Section 3.1 - Key Tariff Assumption and Basis) and other events set out in section 5.10 read with schedule 4 of the GOS Implementation Agreement for the Project shall be treated as pass-through.

g) Royalty payments as notified by GoS.

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h) The Project Cost mentioned in this Tariff Petition is based on a scheduled COD of 18 months. However, the TCEB is requested to true-up Project Cost and related tariff components on account of variation in overburden removal volumes, hydro geological assumptions, and blasting.

i) Variation/Fluctuations in exchange rates.

4.8 Indexations & Adjustments During Operations

The Petitioner expects to complete the Phase III Mine Expansion within 18 months from the date of Phase III Financial Close and as such no indexations have been agreed with the EPC contractor during the project construction period. The only indexation would be USD to PKR conversion at prevailing rate, assuming a base rate of PKR to USD at 228.45. The indexations in the table below shall be factored in/ implemented after COD of Phase III Mine, which shall be further firmed up at the time of financial close stage tariff petition and Phase III COD Stage Tariff Petition.

	Indexations
Fuel Cost	Ex-GST Diesel Price notified by OGRA for Islamkot, Mithi
Variable O&M	
- Foreign Contractor - Variable	USD/PKR
- Spares/ Tyres/Consumables	USD/PKR, USD/RMB, US CPI
- Duties and Taxes	As per actual
Asset Replacement Cost	US CPI, USD/PKR
Royalty	As notified by GoS
Fixed O&M	
- Foreign Contractor Cost	USD/PKR, USD/RMB, US CPI
- Fixed O&M Local	Local CPI
- Duties and Taxes	As per Actual
Insurance	As per Actual
Power Cost - By Solar	Units produced through Solar
Power Cost - By Diesel	Ex-GST Diesel Price notified by OGRA for Islamkot, Mithi
Power Cost – By RFO	RFO price as notified

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Cost of Working Capital	USD/PKR, US CPI, 3-month KIBOR
Principal Debt Repayment	USD/PKR for Foreign Debt, No indexation for LCY Debt
Interest Payment	6 Month Libor and USD/PKR for Foreign Debt 6-month KIBOR for Local Debt
ROE	USD/PKR
ROEDC	USD/PKR

4.9 Restrictions And Delayed Approvals by State Bank Of Pakistan and Currency Devaluation

It is to highlight that the Petitioner is currently facing issues in import of spares and remitting payments under the O&M agreement(s) to the O&M contractor due to significant delays in approval by SBP. It is pertinent to highlight that SBP has not approved any USD payment for the Project since May 2022. Even with spare parts worth USD 4.1 Mn for normal operations & maintenance (nearly 100 trucks not operational at the site awaiting necessary repairs) which have arrived at Karachi Port as of the date of this Tariff Petition, the Petitioner still awaits approval for the LC opening, leading to several additional costs including but not limited to currency devaluation, port charges, storage/demurrage charges, delay payment charges, etc. The current situation has also resulted in the O&M contractor's offshore payments not being remitted since May 2022. Whilst these issues are beyond the Petitioner's control, the Petitioner's mine operations are being adversely affected by such delays and the Petitioner hereby submits that arranging USD for the Project is the responsibility of GoP. To add to the delays in SBP approvals, PKR has significantly devalued which means that while USD amount for remittance will remain same, the actual PKR used shall be significantly more, if the payment had been remitted in a timely manner. The Petitioner hereby requests that any additional costs incurred owing to the same during the construction and operations phase of the Mine be allowed at the time of COD for Phase III Mine and the Multi Year Tariff (**MYT**), for the Project respectively.

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4.10 Power Generation Mix In The O&M Of Phase III Mine

At the time of Phase II Contract Stage Tariff Determination, the power generation source mix was determined based on supply of 80% of the power from the national grid and 20% of power through self-power generation from diesel. There was, however, no stable grid supply. The Petitioner along with TCEB made all reasonable efforts to secure a grid supply and contacted all the relevant stakeholders including but not limited to the GoP, NEPRA, Private Power Infrastructure Board and relevant distribution companies. However, no support was provided to the Petitioner. The Petitioner was, therefore, left with no option but to obtain power using diesel.

In view of the afore-stated circumstances, the Petitioner, on its own initiative, took efforts to arrange supply of cheap and green energy for the Project. It, therefore, entered into an agreement for the provision of 5 MW solar power with a private party, being the contractor, on build, own, operate and transfer (BOOT) mode following a competitive bidding process. BOOT was a cautious call on part of the Petitioner to avoid increase in the overall tariff. In 2019, the Petitioner negotiated and entered a 15-year contract for the supply of approximately 7.65 MkWh to the Project on an annual basis at a fixed ex-GST price of 9.25 PKR/kWh (based on an exchange rate of PKR 120 to USD), without any indexations ("**Solar Power System**"). The Solar Power System has been operational since 2019 and it is pertinent to note, that that the Petitioner has effectively negotiated the agreement for 15 years without any indexations, whereas if the Petitioner followed the industry norm on indexations, the same tariff would have been subject to exchange rate disparity/fluctuations (as such the same would have been around 15 PKR/kWh based on the prevailing exchange rate).

To further optimize the power generation cost, the Petitioner has handed over the diesel-based power generation operations from a Chinese O&M contractor to local contractor through competitive bidding. The Chinese O&M contractor was charging USD 33 cents/kwh for power generation whereas the local contractor, is charging PKR 5/kwh for the operation and maintenance with diesel cost being charged at the prevailing diesel rate with the diesel consumption estimated at 0.3 litre/kwh. This mechanism has resulted in significant savings in terms of power generation which shall be trued up at MYT stage.

Considering the above, the Petitioner now submits that until such time that the power is available and supplied from the grid, the only sources of power available to the Petitioner are from the Solar Power System and diesel gensets. Further, the Petitioner is evaluating options to further optimize the power generation cost for which installation of a small-scale coal fired power plant is being evaluated. However, the lignite boilers for 8-10 mw/h capacity are not readily available in the market. Therefore, designing and constructing such a project will take two to three years from the date of award of contract. Furthermore, owing to the forex issues which have brought the foreign payment and LC establishment to a standstill, there are further challenges in the execution of such an initiative, and this initiative can only commence once such issues are resolved. The Petitioner intends to develop Residual Fuel Oil (**RFO**) based power generation system which shall be available after two years from COD. Until such time,

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Petitioner hereby requests TCEB to allow power generation through diesel and the Solar Power System, as per this Tariff Petition, for the next year three years. Once the cost for RFO based power plants is determined, the Petitioner will petition the same to TCEB under the MYT.

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5. CONCLUSION & DETERMINATION SOUGHT

a) In light of the foregoing submissions contained in this Tariff Petition, together with all Annexures and information referred herein and/or attached hereto, the Petitioner hereby submits before TCEB and requests TCEB to approve and determine the Phase III Contract Stage Tariff as contained herein, together with, as applicable, the indexations, adjustments, escalations, assumptions and other matters set out herein.

b) The Petitioner will be pleased to provide any further information, clarification, and explanation that TCEB may require during its evaluation process.

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6. List Of Supporting Documents/Information

The following documents, have been enclosed, as part of this Tariff Petition, in support of the submissions and matters set out herein:

Schedule 1: Yearly Coal Price Profile

Schedule 2: Repayment Schedule Phase III Local Debt

Schedule 3: Asset Replacement Schedule

Schedule 4: Financial Model

Schedule 5: EPC and Coal Supply Agreements

Schedule 6: Ancillary Documents

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Annexure 1 - Yearly Profile for Coal Price of 11.2Mt/a Mine Capacity in (USD/ton)																
	PRODUCTION (VARIABLE) PAYMENTS						CAPACITY (FIXED) PAYMENTS									
Year	Fuel Cost	Variable O&M - Spares/ Consumables	Variable O&M - Foreign Contractor	Asset Replacement Cost	Royalty	Total Production Payments	Fixed O & M - Foreign Contractor Cost	Fixed O & M - Local	Insurance	Power Cost	Cost of Working Capital	Principal Debt Repayment	Interest Payment	ROE	ROEDC	Total Capacity Payments	Total
1	7.01	1.71	4.92	3.31	3.04	19.99	2.90	3.06	0.67	2.07	1.28	4.09	4.37	3.61	1.56	23.61	43.60
2	6.94	1.71	4.92	3.31	3.03	19.91	2.90	3.06	0.67	2.07	1.28	4.56	3.82	3.61	1.56	23.53	43.45
3	6.79	1.71	4.92	4.95	3.10	21.47	2.90	3.06	0.67	1.55	1.28	5.10	3.20	3.61	1.56	22.93	44.41
4	6.03	1.71	4.92	1.67	2.79	17.12	2.90	3.06	0.67	1.55	1.28	5.72	2.49	3.61	1.56	22.84	39.96
5	6.23	1.71	4.92	2.95	2.58	18.39	2.90	3.42	0.67	1.55	1.28	1.80	1.81	3.61	1.56	18.61	37.00
6	6.16	1.71	4.92	2.95	2.58	18.31	2.90	3.42	0.67	1.55	1.28	2.14	1.47	3.61	1.56	18.61	36.92
7	6.24	1.71	4.92	2.95	2.58	18.40	2.90	3.42	0.67	1.55	1.28	2.54	1.07	3.61	1.56	18.61	37.01
8	6.25	1.71	4.92	2.95	2.44	18.26	2.90	3.06	0.67	1.55	1.28	1.44	0.64	3.61	1.56	16.71	34.97
9	7.02	1.71	4.92	2.95	2.44	19.04	2.90	2.85	0.67	1.55	1.28	1.15	0.41	3.61	1.56	15.98	35.02
10	7.13	1.71	4.92	2.95	2.45	19.16	2.90	2.85	0.67	1.55	1.28	1.37	0.19	3.61	1.56	15.98	35.14
11	7.18	1.71	4.92	2.95	2.37	19.13	2.90	3.32	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.89	34.01
12	7.09	1.71	4.92	2.95	2.37	19.03	2.90	3.32	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.89	33.91
13	7.03	1.71	4.92	4.39	2.47	20.53	2.90	3.32	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.89	35.41
14	6.22	1.71	4.92	3.83	2.37	19.05	2.90	3.32	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.89	33.94
15	7.05	1.71	4.92	4.24	2.46	20.38	2.90	3.32	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.89	35.27
16	6.76	1.71	4.92	3.83	2.37	19.59	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	34.01
17	6.79	1.71	4.92	3.83	2.38	19.62	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	34.04
18	7.11	1.71	4.92	2.86	2.33	18.92	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	33.35
19	6.89	1.71	4.92	3.13	2.33	18.97	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	33.39
20	6.27	1.71	4.92	3.13	2.28	18.31	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	32.73
21	6.12	1.71	4.92	3.13	2.27	18.15	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	32.57
22	6.21	1.71	4.92	3.13	2.28	18.24	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	32.67
23	6.14	1.71	4.92	3.13	2.27	18.17	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	32.59
24	6.14	1.71	4.92	3.28	2.29	18.34	2.90	2.85	0.67	1.55	1.28	0.00	0.00	3.61	1.56	14.42	32.76
25	6.20	1.71	4.92	2.97	1.98	17.78	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.91	0.40	10.57	28.34
26	5.98	1.71	4.92	2.21	1.90	16.72	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.91	0.40	10.57	27.29
27	5.62	1.71	4.92	3.34	1.96	17.55	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.91	0.40	10.57	28.12
28	4.81	1.71	4.92	1.50	1.70	14.63	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.31	0.12	9.68	24.31
29	4.46	1.71	4.92	0.00	1.54	12.62	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.11	0.02	9.38	22.01
30	3.19	1.71	4.92	0.00	1.44	11.25	2.90	2.85	0.67	1.55	1.28	0.00	0.00	0.11	0.02	9.38	20.64
Levelized																	
1-30 Years	**6.58**	**1.71**	**4.92**	**3.19**	**2.60**	**18.99**	**2.90**	**3.11**	**0.67**	**1.64**	**1.28**	**2.18**	**1.52**	**3.47**	**1.50**	**18.27**	**37.26**

Schedule 2: Repayment Schedule Local Debt

Debt Schedule - 11.2Mt/a Mine Capacity - Local Loan

Total Project Cost	USD 104.97 M	**KIBOR**	15.91%
Debt : Equity	75:25:00	**Spread**	2.50%
Total LCY Debt	USD 78.73 M	**Interest Rate**	18.41%

Year	Period	Principal Outstanding (USD M)	Principal Repayment (USD M)	Interest (USD M)	Balance (USD M)	Annuity Installment (USD M)	Principal Repayment (USD/Ton)	Interest (USD/Ton)	Total Debt Payment (USD/Ton)
1	1	78.73	1.50	7.25	77.22	8.75	0.13	0.65	0.78
	2	77.22	1.64	7.11	75.58	8.75	0.15	0.63	0.78
2	3	75.58	1.79	6.96	73.79	8.75	0.16	0.62	0.78
	4	73.79	1.96	6.79	71.83	8.75	0.17	0.61	0.78
3	5	71.83	2.14	6.61	69.69	8.75	0.19	0.59	0.78
	6	69.69	2.34	6.41	67.35	8.75	0.21	0.57	0.78
4	7	67.35	2.55	6.20	64.80	8.75	0.23	0.55	0.78
	8	64.80	2.79	5.97	62.02	8.75	0.25	0.53	0.78
5	9	62.02	3.04	5.71	58.98	8.75	0.27	0.51	0.78
	10	58.98	3.32	5.43	55.65	8.75	0.30	0.48	0.78
6	11	55.65	3.63	5.12	52.03	8.75	0.32	0.46	0.78
	12	52.03	3.96	4.79	48.07	8.75	0.35	0.43	0.78
7	13	48.07	4.33	4.42	43.74	8.75	0.39	0.40	0.78
	14	43.74	4.72	4.03	39.01	8.75	0.42	0.36	0.78
8	15	39.01	5.16	3.59	33.86	8.75	0.46	0.32	0.78
	16	33.86	5.63	3.12	28.22	8.75	0.50	0.28	0.78
9	17	28.22	6.15	2.60	22.07	8.75	0.55	0.23	0.78
	18	22.07	6.72	2.03	15.35	8.75	0.60	0.18	0.78
10	19	15.35	7.34	1.41	8.01	8.75	0.66	0.13	0.78
	20	8.01	8.01	0.74	0.00	8.75	0.72	0.07	0.78

SCHEDULE 3: ASSET REPLACEMENT

Equipment	Life	Cost per Unit (USD M)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Main Mining Equipment:																																
Hydraulic Excavator, Waste - 125t	8	1.60	0.0	0.0	28.8	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	28.8	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	28.8	0.0	0.0	0.0	4.8	0.0	0.0	0.0
Dump Truck, Waste - 60t automatic	4	0.20	0.0	0.2	20.8	1.6	8.2	13.0	0.0	0.2	21.8	1.6	8.6	13.0	0.0	0.2	29.2	3.4	8.6	15.6	0.0	0.2	34.2	4.4	8.6	15.6	3.4	0.2	34.6	4.4	8.6	0.0
Hydraulic Excavator, Waste - 200t	8	4.10	4.1	4.1	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	8.2	4.1	4.1	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	8.2	4.1	4.1	8.2	0.0	0.0	0.0
Mining Truck, Waste - 100t	11	1.58	7.9	15.8	6.3	0.0	1.6	0.0	0.0	3.2	1.6	12.6	12.6	7.9	15.8	6.3	6.3	1.6	0.0	0.0	3.2	1.6	12.6	12.6	7.9	15.8	6.3	6.3	1.6	0.0	0.0	0.0
Hydraulic Excavator, Coal - 125t	8	1.60	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0
Dump Truck, Coal - 60t automatic	4	0.20	9.0	0.2	0.0	0.0	0.0	0.2	9.2	0.6	0.4	0.2	0.4	0.6	9.8	1.0	0.4	0.2	1.0	0.6	10.2	1.4	0.4	0.2	1.0	0.6	10.2	1.4	1.0	1.0	1.4	0.0
Hydraulic Excavator, Prestrip - 125t	8	1.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck, Prestrip - 60t automatic	4	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.2	0.2	0.0	0.0	0.2	3.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auxiliary Equipment:																																
Crawler dozer	4	0.58	0.0	0.0	2.3	0.0	0.0	0.0	1.7	0.0	0.0	2.3	0.0	0.0	0.0	1.7	0.0	0.0	2.3	0.0	0.0	0.0	1.7	0.0	0.0	2.3	0.0	0.0	0.0	1.7	0.0	0.0
Crawler dozer	4	1.10	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0
Wheel Dozer	4	0.83	0.0	0.0	1.7	0.0	0.0	0.0	0.8	0.0	0.0	1.7	0.0	0.0	0.0	0.8	0.0	0.0	1.7	0.0	0.0	0.0	0.8	0.0	0.0	1.7	0.0	0.0	0.0	0.8	0.0	0.0
Sprinkler	4	0.15	0.0	0.0	1.4	0.0	0.0	0.0	0.3	0.0	0.0	1.4	0.0	0.0	0.0	0.3	0.0	0.0	1.4	0.0	0.0	0.0	0.3	0.0	0.0	1.4	0.0	0.0	0.0	0.3	0.0	0.0
Road Leveler	4	0.31	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0
Road Roller	4	0.07	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Commuter bus	4	0.05	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Light truck	4	0.04	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Lubricant truck	4	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Wheel excavator	4	0.20	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Refueling truck	4	0.12	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0
Wheel Front End Loader	4	0.40	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0	0.0
Pick up Car	4	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vigo	4	0.04	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Revo	4	0.04	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
Fortuner	4	0.06	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Fire-fighting truck	4	0.10	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Maintenance Truck	4	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Excavator	4	0.82	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Ambulance	4	0.06	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Crane	4	0.15	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Overhead Crane	4	0.10	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Overhead Crane	4	0.09	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Overhead Crane	4	0.12	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Forklift	4	0.06	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Forklift	4	0.05	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Coal Handling System																																
Semi-Mobile crusher (2,500t / h)	15	11.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belt Conveyor (L=2100 m)	15	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belt Conveyor (L=2x800 m/04 years)	15	6.00	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0
Bucket wheel stacker-reclaimer (2,500 t/h)	15	0.27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coal Quality Laboratory	10	1.06	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Auxiliary equipments for Coal conveying and storage system(increased)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dewatering																																
Stainless steel submersible	10	0.15	0.0	0.0	0.0	3.5	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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pumps（132KW ）																																
steel pipe with coating plastic DN150	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic DN630 × 9	10	0.00	0.0	0.0	0.0	0.3	1.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.6	0.6	1.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic DN720 × 10	10	0.00	0.0	0.0	0.0	0.5	3.3	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.2	1.1	3.3	0.0	0.0	4.8	0.5	0.0	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic DN920 ×10	10	0.00	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic D325 × 6	10	0.00	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic D219 × 6	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crossing pipe Spiral welded steel pipe D920 × 18, Q235a	10	0.00	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others																																
Replacement of dewatering wells	10	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Additional drilling - m	10	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0	0.0	0.0	0.0	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface drainage	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 37kw	10	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 90kw	10	0.03	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 560kw	10	0.19	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic D219 × 6	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic D529× 8	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
steel pipe with coating plastic DN630 × 8	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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drainage pump 160KW	10	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 4KW	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 15KW	7	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 160KW	7	0.05	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
drainage pump 18.5KW	7	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spiral welded steel pipe D273×6 235a	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Straight seam welding steel pipe D133×4 235a	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Straight seam welding steel pipe D159×6 235a	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other parts	10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control & Communication	10	0.82	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Late increase costs of control & communication	10	0.47	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Distribution	10	0.81	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Late increase costs of power distribution [Mio. $US]	10	2.13	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	2.1	1.1	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	2.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable	10	0.76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Late increase costs of cable [Mio. $US]	10	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Generator & Aux Equipment	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Late increase costs of high voltage switch cabinet [Mio. $US]	10	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Supply	10	0.66	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water pipes	10	8.18	0.0	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ventilation /Dust Suppression	10	0.23	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Maintainance Facility Equipment	10	3.19	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage Building Equipment	10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Storage Equipment	10	0.99	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HVAC and other equipment for colony	10	0.09	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Colony & office utilities	10	0.50	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sewage station	10	0.11	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Infrastructure																																
Infrastructure		12.00	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			33.0	**20.3**	**84.0**	**10.1**	**28.5**	**20.7**	**31.3**	**9.0**	**32.4**	**34.5**	**38.3**	**66.2**	**62.2**	**26.3**	**66.0**	**13.8**	**60.8**	**26.2**	**14.2**	**3.2**	**60.6**	**19.4**	**61.1**	**60.1**	**24.0**	**18.0**	**59.8**	**10.6**	**10.0**	**0.0**

Sindh Engro Coal Mining Company Limited