



Thar Coal & Energy Board
Government of Sindh

No. TCEB/Registrar/2-2/2015
December 10, 2019

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





Thar Coal & Energy Board Government of Sindh

No. TCEB/Registrar/2-2/2015
December 10, 2019

Determination of Contract Stage Tariff for Sino Sindh Resources (Private) Limited for Coal Mine of 7.8 MTPA at Block I Thar Coalfields, District Tharparkar, Sindh, Pakistan


Thar Coal Tariff Determination Committee

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

Dr Abdul Ghani Pathan
Member



Mr. Asif Haider Mirza
Member



Mr. Tariq Ali Shah
Member / Presiding Officer





Thar Coal & Energy Board Government of Sindh

No. TCEB/Registrar/2-2/2015
December 31st, 2019

In pursuance of the Rule 10(5) of the Thar Coal Tariff Determination Rules, 2014, it is certified that the Thar Coal & Energy Board, on the recommendation of the Thar Coal Tariff Determination Committee, has approved the Determination of Contract Stage Tariff for Sino Sindh Resources (Private) Limited for Coal Mine of 7.8 MTPA at Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.

Tariq Ali Shah
31.12.2019

Mr. Tariq Ali Shah
Managing Director/Secretary
Thar Coal & Energy Board





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BCM	Bank Cubic Meter
COD	Commercial Operations Date
CPI	Consumer Price Index
CPPAG	Central Power Purchasing Agency (Guarantee) Limited
ECC	Economic Coordination Committee
EPC	Engineering, Procurement & Construction
GCV	Gross Calorific Value
GOP	Government of Pakistan
GoS	Government of Sindh
IDC	Interest During Construction
IRR	Internal Rate of Return
KIBOR	Karachi Inter-Bank Offer Rate
LC	Letter of Credit
LHV	Lower Heating Value
LIBOR	London Inter-Bank Offer Rate
MJ / Kg	Mega Joules per Kilogram
MSF	Mine Service Facilities
MTPA	Million Tons Per Annum
MW	Megawatt
MT	Million Tons
NCV	Net Calorific Value
NEPRA	National Electric Power Regulatory Authority
O&M	Operations & Maintenance
OGRA	Oil & Gas Regulatory Authority
PKR	Pakistani Rupee
RMB	Chinese Renminbi
RoE	Return on Equity
RoEDC	Return on Equity During Construction
SCA	Sindh Coal Authority
SSRL	Sino Sindh Resources (Private) Limited
TCEB	Thar Coal & Energy Board
TCTDC	Thar Coal Tariff Determination Committee
TT & OD	Telegraphic Transfer & On Demand
US	United States
USD	United States Dollar





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The Thar Coal & Energy Board, as per the respective notifications of the Government of Sindh and Government of Pakistan is the coal-pricing agency, in accordance with Section 5(m) of Thar Coal & Energy Board Act, 2011. This determination is conducted in accordance with the authority vested with TCEB and pertains to the petition dated July 02, 2019 of Sino Sindh Resources (Private) Limited ("SSRL" or the "Petitioner") for Determination of Contract Stage Tariff for SSRL's Coal Mine of 7.8 MPTA at Block I Thar Coalfields, District Tharparkar, Sindh, Pakistan. The coal tariff determination relates to the specific mine lease of Block I Thar Coalfields, discussed further (below). The petition has been assessed and reviewed in accordance with the parameters and guidelines established under the Thar Coal Tariff Determination Rules, 2014 dated November 27, 2014 as notified by Government of Sindh. The coal tariff, so determined, shall form the basis of fuel cost for downstream power generation to be determined by NEPRA.

1. TARIFF SOUGHT BY PETITIONER

The Petitioner has submitted a request for determination of levelized tariff of USD 50.625 per Ton (subsequently tariff of USD 51.2786 per Ton on November 1st, 2019) for development & operations of 7.8 MTPA mining capacity. The details of the petitioned tariffs and costs are provided in Tables I to IV here below:

Table I – Petitioned Project Tariff for 7.8 MTPA Mining Capacity

Project Tariff	Year 1 – 10 Average	Year 11 – 20 Average	Year 21 - 30 Average	Year 1 – 30 Levelized
Total Production Payment Tariff Components	19.084	15.920	13.229	18.037
Total Capacity Payment Tariff Components	38.004	22.122	22.088	32.589
Total Project Tariff	57.088	38.043	35.317	50.625

All amounts in USD per Ton

Table II – Petitioned Production Payment Tariff for 7.8 MTPA Mining Capacity

Production Payment Tariff Components	Year 1 – 10 Average	Year 11 – 20 Average	Year 21 - 30 Average
Variable O&M – Foreign (Spares and Consumables)	3.0636	2.8121	2.7567
Variable O&M – Foreign (Tyres)	1.0726	0.8984	0.8686
Variable O&M – Foreign (Lubricants)	0.9899	0.8739	0.7734
Variable O&M – Local (Fuel (Diesel))	6.2648	5.3941	4.6507
Variable O&M – Local (Power (Belts, Crushers, Production Equip))	0.4155	0.4155	0.4155
Asset Replacement	3.2951	2.8722	1.3004
Royalty	3.9829	2.6541	2.4640
Total Production Payment Tariff Components	19.0844	15.9203	13.2294

All amounts in USD per Ton

Table III – Petitioned Capacity Payment Tariff for 7.8 MTPA Mining Capacity

Capacity Payment Tariff Components	Year 1 – 10 Average	Year 11 – 20 Average	Year 21 - 30 Average
Fixed O&M – Foreign (Dewatering OpEx (Spares, Tyres, Lubricants))	0.1816	0.1876	0.2248
Fixed O&M – Foreign (MSF OpEx (Spares, Tyres, Lubricants))	0.3644	0.3644	0.3644
Fixed O&M – Foreign (Other OpEx)	6.0550	5.7606	5.6585
Fixed O&M – Local (Fuel (Dewatering and MSF))	0.2120	0.2120	0.2120
Fixed O&M – Local (Power (Dewatering and MSF))	1.0558	1.0750	1.1923
Fixed O&M – Local (Other OpEx)	2.6834	2.5170	2.4872
Insurance	0.8020	0.8020	0.8020
Interest on Working Capital	1.3226	0.9152	0.8580





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Capacity Payment Tariff Components	Year 1 – 10 Average	Year 11 – 20 Average	Year 21 - 30 Average
Debt Principal Repayment	11.3225		
Debt Interest Payment	3.7162		
Return on Equity	7.5803	7.5803	7.5803
Return on Equity During Construction	2.7083	2.7083	2.7083
Total Capacity Payment Tariff Components	38.0040	22.1224	22.0878

All amounts in USD per Ton

Table IV – Petitioned Project Cost for Development of 7.8 MTPA Mining Capacity

Petitioned Project Cost for 7.8 MTPA	Amount
EPC Cost	896.49
Non-EPC Cost	118.81
Insurance Cost	6.21
Financing Fee, LC Charges, sinosure Fees etc.	61.60
Interest During Construction	94.42
Total Project Cost	1177.54

All amounts in USD Million

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 106.60 per Litre
ii.	Price of Furnace oil	PKR 62,279 per Ton
iii.	PKR to USD Exchange Rate Parity	PKR 139.00 per USD
iv.	RMB to USD Exchange Rate Parity	RMB 6.71 per USD
v.	Cost of Foreign Financing	6-month LIBOR + 3.00%
vi.	6-month LIBOR Assumption	2.74%
vii.	1-month KIBOR Assumption	10.68%
viii.	Debt to Equity Ratio	75:25
ix.	Debt Repayment Period	10 Years
x.	Equity IRR	20.00%*
xi.	Mining Technology	Trucks(60t) & Shovel(7m ³)
xii.	Construction Period	36 Months
xiii.	Overburden Removal Volume (During Construction)	180.6 Million BCM
xiv.	Average Slope Angle of the Mine	24° (Degrees)
xv.	Average Rate of Dewatering	142520m ³ /d

* The 20% Equity IRR is based on the assumption that SSRL will achieve financial close (i.e., the execution of financing documents that evidence sufficient financing for the project and the satisfaction of all conditions precedent under such financing documents for the initial availability of funds) before 31st December 2019.

The company has submitted a revised financial model on November 1st, 2019 wherein they have changed / updated the following key assumptions:

i.	Price of Diesel	PKR 129.35 per Litre
ii.	Price of Furnace oil	PKR 76285.00 per Ton
iii.	PKR to USD Exchange Rate Parity	PKR 156.65 per USD
iv.	RMB to USD Exchange Rate Parity	RMB 6.71 per USD





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v.	6-month LIBOR Assumption	2.05%
vi.	1-month KIBOR Assumption	13.81%

The TCTDC has used the changed / revised assumptions in determining the tariff.

2. PUBLIC HEARING

Notice for Public hearing was issued vide advertisements in reputed national and local newspapers. Advertisements appeared in Daily Dawn on October 2, 2019; in Daily Jang on October 6, 2019, Daily Awami Awaz (Sindhi) on October 5, 2019, Daily Times on October 2, 2019 and in The Daily Mail on October 01, 2019. Public hearing was held on 1st November 2019 at 10.00 am at Marriott Hotel, Karachi. Mr. Zhang Xing from SSRL presented salient features of the coal mining facility being developed at Thar Coal block-1 and briefed the audience about financial aspects of the project. Later, Mr. Zhang Zhihao from SSRL presented the technical part before the audience of Public hearing. Both presentations may be accessed by public on official website of TCEB, (www.sindhcoal.gos.pk).

During question hour session, public was invited to raise their queries and one of the participants from audience, expressed his concern to SSRL team that, dewatering volume could not be constant as claimed in their presentation, rather it would vary, specially, when other mining companies started their operations in other blocks. He asked SSRL team to elaborate in the matter. Replying to the query, SSRL team explained that special study and research was conducted on all aquifers and they have prepared their dewatering plan accordingly. They admitted and stated that dewatering volume may vary, but that would have insignificant impact on overall plan.

Another participant from audience raised a question that company needed to acquire large area of land for mining and other facilities. As land acquisition was a time taking activity and as per our laws, construction work could not be started until entire dislocated population was paid for the land acquisition. So, he enquired, how company would manage to achieve COD within 36 months. He asked if in case, land acquisition was delayed for any reason and there might be certain relocations in the project area, so could the company manage both land acquisition and relocation in that given period of 36 months.

Responding to the query, SSRL team told the audience that land acquisition had been started in year 2016 and acquired land comprised both public and private land. Private land was about 1800 acres in required mining area, out of which 958 acres had already been acquired and compensation amount had been paid in full. Remaining private land acquisition is in final process and would be completed in near future. In addition to that there was about 6200 acres government land and they had completed all the formalities and matter was pending with Government. Regarding resettlement of affected population, SSRL member briefed that there were two villages that would be affected by the mining activities, and company would follow Resettlement Framework issued by Government of Sindh and would devise their plan accordingly.

MATERIAL ASPECTS OF THE PETITION - ANALYSIS & DECISIONS

Subsequent to the award of the Feasibility Stage Tariff, the Petitioner is seeking a contract stage tariff for a coal mine capacity of 7.8 MTPA.





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The following is a summary of the salient aspects of the 7.8 MTPA contract stage tariff petition:

3. MINING TECHNOLOGY AND WASTE VOLUME:

3.1 GEOLOGICAL MODEL

SSRL has submitted a new Geological Model, that has increased the overburden volume from 1839 Mbcm (at feasibility stage) to 1942 Mbcm (at contract stage) for 33 years of mining operation (3 years development + 30 years coal extraction) at Block-I. Hence the quantity of mining equipment has increased, resulting in higher Capex and Opex. Changes resulted due to new geological model have not been approved by the competent authority i.e. Sindh Coal Authority (SCA). Data required to verify the geological model was provided partially.

3.2 MINING TECHNOLOGY

SSRL has petitioned 106 shovels (7 m^3) and 2149 trucks (60 ton) for overburden removal and 6 shovels (7 m^3), 12 shovels (2 m^3) and 220 trucks (60 ton) for coal extraction during 33 years of mining operation. In previous determination (Revised feasibility stage tariff) SSRL was allowed 89 shovels (7 m^3) and 1761 trucks (60 ton) for both overburden removal and coal extraction during 33 years of mining operation.

Based on the updated performance evaluation, TCTDC has re-assessed the hardware requirement for 7.8 MTPA capacity mine at Block-I as under:

Density of dune sand = 1.8 t/m^3

Shovel utilization time = 6000 hours/year

Truck utilization time = 5000 hours/year

Life of truck = 4 years

Overburden Removal for 33 years of mining operation

Shovel (7 m^3) = 71 Nos

Truck (60 ton) = 1260 Nos

Mining (coal extraction) for 31 years of mining operation

Shovel (7 m^3) = 6 Nos

Shovel (2 m^3) = 7 Nos

Truck (60 ton) = 144 Nos

NOTE OF CONCERN:

In the feasibility stage tariff order TCEB advised SSRL to exercise prudence and reasonableness in determination of overall cost including re-assessing the mining technology configuration, which has not been done so far. Presently the sector is carrying





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forward the same small-scale equipment configuration that may have been applicable for lower annual productions. However, a production of 7.8 MTPA justifies scaling up equipment sizing to obtain higher production efficiencies and subsequently lower overall cost per ton of mined coal. Disregarding the above comments, the petitioner has still opted for lower capital costs (in terms of smaller sized equipment) resulting in higher operational costs and lower performance efficiencies. This hurts the economy in terms of higher coal prices - it is unsustainable and untenable.

The Tariff Determination committee does not agree with this sub-optimal configuration of machinery deployment that opts for lower initial capital burden on the project and results in higher operating costs and as a result a higher tariff.

Keeping in view the development needs of Thar Coal, the Petitioner is allowed to move forward with its (sub-optimal) choice of small-scale machinery and equipment during the development stage of the project. However, it is required to present a detailed plan for phased improvement and transition to optimal adaptation of more efficient large sized excavation, transportation and material handling equipment that offers improvements in cost of coal exploitation resulting in over-all reduction in tariff. The Petitioner is required to present specific computations and plans for upscaling of equipment deployment within one year of this determination with implementation provisions of deployment of more efficient mining technologies at the time of retiring the 1st batch of 7 m³ shovels.

Through this "Note" the Tariff Determination Committee advises TCEB to initiate similar implementable options for all, present and future mining activities at Thar. Appropriate changes to the Thar Coal Tariff Determination Rules, 2014 may be incorporated, if necessary, so that developers are obligated to select more efficient mining technologies.

4. DEWATERING PLAN

The petition provides that the average dewatering rate is calculated to be 142520 m³/day. Such figure has been based on the Hydro-Geological Study conducted in 2014.

SSRL is required to submit a detailed annual working plan and schedule of ground water production, its usage in the power plant and mine site and the disposal of surplus water. SSRL is also required to get the approval of dewatering plan from relevant authorities including but not limited to Sindh Environmental Protection Agency and the Forest Department within six months of the date of this tariff.

5. FINANCING STRUCTURE

The Feasibility Stage Tariff was based upon a debt / equity ratio of 75:25. The Petitioner states that the project shall be funded through 100% foreign finance. The Petitioner has submitted a copy of a term sheet from April 2019 between SSRL and China Development Bank, Shanghai Branch. Cost of debt is assumed to be at a spread of 300 basis points over 6-month LIBOR, which is the benchmark rate for debt denominated in USD. LIBOR is assumed to be 2.06 percent for the tariff, which is going to be actualized on upcoming different stages.





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SSRL further provides that as the debt would be fully secured by a sinosure guarantee, a coverage premium of 5.5 percent of the total debt is also being considered. Total cost of debt is assessed to be 5.06 percent for determination of the tariff. SSRL provides in the petition that at the time of financial close, the actual cost of debt may differ, depending on changes in LIBOR, and the final spread that has been negotiated with lenders.

A maximum cap of 25% equity is established under this Determination. Any additional (approved) capital injections shall be treated as Project Debt on Terms and Conditions to be established in accordance with approved debt terms.

The TCTDC strongly recommends that SSRL should negotiate the spread downward substantially commensurate to its strong sponsor, quality of credit, financials, securitization structure and other credit enhancement features including sinosure and GOS Implementation Agreement.

In addition, the company may also negotiate the loan repayment mechanism from half yearly payments to quarterly repayments and instead of payments in arrears to payments in advance to reduce the interest expense on the project which will ultimately reduce the leveled tariff. Commitment fee should also be renegotiated with the lenders in a manner that the change would be based on committed quarterly undrawn balance, rather than in a manner it is been proposed in submitted financial model.

TCTDC is expecting finalization of the open items in the term sheet marked as 'To Be Decided (TBD)', in SSRL facility agreement and related financing documents, which the company is negotiating with their banks at Financial Close stage.

We have not been provided sinosure policy documents or any drafts thereof. We note that the Petitioner has requested an up-front cost of 5.5% as Sinosure fee. The Petitioner has not justified why this fee is to be paid upfront. Instead, this fee should be directly proportionate to the risk that the guarantor is assuming. Accordingly, we have allowed a Sinosure fee of 5.5% on the outstanding debt but this amount assumed to be incurred proportionate to the debt drawdown. This fee is subject to adjustment and verification at the FC and COD stage. A copy of the sinosure policy (along with a certified copy in English in case the policy is not in the English language) will be provided. The Sinosure fee shall not exceed 5.5% of the outstanding (Chinese lenders) debt and interest at any point in time.

It is advisable that SSRL should hire one of the reputable top four/big four audit firms in Pakistan for the preparation and finalization of annual audit report of company in 2019 and onwards.

6. PROJECT DEVELOPMENT COSTS

All project development costs shall be as per actual, with a maximum cap of USD 9 Million, and subject to submission of appropriate supporting evidence. It is further clarified that only the following items will be permitted as a project development cost:

- Consultancies
- Lease & Guarantee
- Legal (Hong Kong, China, Karachi and Site)
- Survey & Tests





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- Environmental Costs
- Cost for tariff petition

7. RE-ROUTING EXPENSES:

The petition provides that according to the site investigation, the location of SSRL mine passes through three major infrastructure facilities, which are engineered to be re-routed. As per the petition, the costs provided are currently estimations and not actual costs. The actual costs for two types of re-routing (i.e. transmission line re-route (HESCO) & existing pipeline re-route) shall be decided by the government authorities after bidding procedure.

The re-routing expenses (except transmission line re-route) proposed in the petition had not been proposed or covered in the Feasibility Stage Tariff. The Petitioner has not explained why such costs were not identified in the feasibility study. Such costs are on the higher side and have not been substantiated by SSRL. In view thereof, all re-routing expenses (if required) shall be as per actual, with a maximum cap of USD 6 Million, in each case subject to submission of supporting evidence (including satisfactory evidence that such rerouting is actually required).

8. LAND ACQUISITION AND REHABILITATION COSTS:

The Petitioner provides that the total area of the land to be acquired is estimated at 40.47 square kilometres (10,000.34 acres), with the acquisition to cost an estimated USD 2,500 per acre or a price fixed by the Government of Sindh. This shall bring the total cost of acquisition of land to approximately USD 25 million.

Similarly, the cost of resettling the existing 1200 households in the project area is estimated to cost USD 42 million (USD 35,000 resettlement cost per household). As per the Petitioner's own estimation, the combined Land Acquisition and Rehabilitation Costs amounts to an estimated approximately USD 67 million.

TCEB had directed in the Feasibility Stage Tariff that the land purchase and re-location costs shall be controlled and actualized subsequent to the specific transaction in more detail. The proposed Land Acquisition and Rehabilitation Costs are on the higher side and have not been substantiated by SSRL. In view thereof, all such costs shall be as per actual, with a maximum cap of USD 50 Million, subject to submission of satisfactory supporting evidence.

9. RETURNS ON EQUITY (ROE):

TCEB had provided in the Feasibility Stage Tariff that the equity returns allowed to become a part of the tariff shall be such that SSRL is able to realise a 20.00% IRR (Return) on its (equity) investment in line with the directions of the Economic Coordination Committee of the Cabinet (ECC) dated October 15, 2010.

SSRL shall be allowed 20% IRR provided that it achieves financial close by 31st December 2019. In the event SSRL fails to achieve financial close by 31st December 2019 and achieve its financial close at any date subsequent to precedent date but not later than 31st December 2020 SSRL shall be allowed IRR of 18%.





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10. EPC COSTS:

As per the petition submitted by SSRL, the EPC costs petitioned include all excavation equipment, civil works, auxiliary machinery, installation, erection and commissioning of equipment, construction of buildings, overburden removal and implementation of the approved resettlement plan. The Petitioner has stated the total EPC Cost is based on a turnkey contract that has been negotiated with the EPC contractors and is calculated to be USD 896.49 million.

The Petitioner has submitted the copies of the executed contracts. After perusal of the same and in line with our observations explained in Section 3.1 and 3.2, EPC costs of USD 565.48 million are allowed to the Petitioner. These costs are subject to adjustment and verification at the COD stage on the basis of provision of appropriate evidence and supporting documents.

The TCTDC understands that the coal mining EPC contract is yet to be effected at financial close of project (as precedent condition stated in the EPC contract) hence TCTDC recommends that SSRL should furnish following document on or before finalization and execution of EPC Contract:

- Schedule 2: Power Purchase agreement,
- Schedule 17: EIA Report & Approvals
- Schedule 22: Final Documentation of Contractor and,
- Other related documents that are yet to be finalized.

11. NON-EPC COSTS:

The Petition claims non-EPC costs of USD 118.81 million. These estimated costs are reduced, after due considerations of their rationale and market benchmarks, to a maximum of USD 91.23 million and subject to verification and adjustment at COD stage.

12. ESCALATIONS SOUGHT IN THE FINANCIAL MODEL:

The detail list of escalation sought in the financial model is given in Annexure – B. However, the same is being assessed based on mining and geological model submitted along with our observation as explained in Sections 3.1 and 3.2 above.





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COAL TARIFF DETERMINATION ORDER

Ref. No – TCEB/Registration/2-2/2015: This determination is conducted in accordance with the authority vested with Thar Coal Energy Board and pertains to the petition dated July 02, 2019 of Sino Sindh Resources (Private) Limited for Determination of Contract-Stage Tariff for SSRL's Coal Mine of 7.8 MTPA at Block I 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 "Rules").

The Petitioner has submitted a request for determination of levelized tariff of USD 50.625 per Ton for development & operations of 7.8 MTPA mining capacity.

Pursuant to Rule 10 of the Thar Coal Tariff Determination Rules 2014, Sino Sindh Resources (Private) Limited is allowed to charge the following ex mine mouth tariff for the production of 7.8 MTPA:

Table I – Determined 7.8 MTPA Tariff

Project Tariff	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Total Production Payment Tariff Components	15.4848	11.1698	14.4726
Total Capacity Payment Tariff Components	24.7067	14.8932	21.3695
Total Project Tariff	40.1915	26.0630	35.8421

All amounts in USD per Ton

Table II – Production Payment Component 7.8 MTPA

Production Payment Tariff	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Variable O&M – Foreign (Spares and Consumables)	1.932	1.600	1.837
Variable O&M – Foreign (Tyres)	0.939	0.732	0.901
Variable O&M – Foreign (Lubricants)	0.892	0.705	0.850
Variable O&M – Local (Fuel (Diesel))	5.975	4.603	5.687
Variable O&M – Local (Power (Belts, Crushers, Production Equip))	0.452	0.452	0.452
Asset Replacement	2.491	1.260	2.244
Royalty	2.804	1.818	2.501
Total Production Payment Tariff Components	15.485	11.170	14.473

All amounts in USD per Ton

Table III – Capacity Payment Component

Capacity Payment Tariff	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Fixed O&M – Foreign (Dewatering OpEx (Spares, Tyres, Lubricants))	0.1812	0.1812	0.1812
Fixed O&M – Foreign (MSF OpEx (Spares, Tyres, Lubricants))	0.3630	0.3630	0.3630
Fixed O&M – Foreign (Other OpEx)	4.3455	4.0876	4.2994
Fixed O&M – Local (Fuel (Dewatering and MSF))	0.1950	0.1950	0.1950
Fixed O&M – Local (Power (Dewatering and MSF))	1.0787	1.0787	1.0787
Fixed O&M – Local (Other OpEx)	2.3364	2.1209	2.2912
Insurance	0.5077	0.5077	0.5077
Interest on Working Capital	0.4286	0.3098	0.3933





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Capacity Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Debt Principal Repayment	7.2048		4.5203
Debt Interest Payment	2.0167		1.4904
Return on Equity	4.8235	4.8235	4.8235
Return on Equity During Construction	1.2257	1.2257	1.2257
Total Capacity Payment Tariff Components	24.7067	14.8932	21.3695

All amounts in USD per Ton

Table IV –Project Cost for Development of 7.8 MTPA Mining Capacity

Project Cost for 7.8 MTPA	Amount
EPC Cost	565.48
Non-EPC Cost	91.23
Insurance Cost	3.93
Financing Fee, LC Charges, sinosure Fees etc.	38.74
Interest During Construction	49.92
Total Project Cost	749.300

All amounts in USD Million

GENERAL CONDITIONS

- i. The contract stage tariff is computed on the basis of net capacity production of 7.8 MTPA for thirty (30) years.
- ii. The above tariff is applicable for a period of 30 years on BOO basis commencing from Commercial Operations Date of the 7.8 MTPA coal mine. The Commercial Operations Date shall be achieved no later than September 30th, 2022.
- iii. SSRL shall be allowed 20% IRR provided that it achieves financial close by 31st December 2019. If it achieves financial close after 31st December 2019 it will be allowed an IRR of 18% (as per the policy) and the tariff will accordingly be revised.
- iv. The Petitioner shall change its statutory auditors from its existing auditors to any of the big four (4) firms from the financial year 2019 and onwards.
- v. 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 LIBOR plus 3% per annum.
- vi. If required, SSRL can draw upfront initial equity drawdowns up to a maximum of 25% of total equity, followed by pro-rata drawdowns of debt and equity.
- vii. Petitioner may negotiate the arrangement and commitment fee on the undrawn portion of the debt instead of existing mechanism proposed in its financial model.
- viii. In the absence of 'sinosure Policy' document, the Petitioner is allowed the fee pari-passu / proportionate to the debt drawdown, which is in line with risk assumed by the guarantor. The Petitioner is directed to submit the Sinosure Policy document along with next tariff petition.





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- ix. Debt servicing shall be paid during the first 10 years.
- x. Pre-COD sale of lignite will be priced at the full first year tariff of coal as per this Determination. The proceeds of this sale will be utilized to finance project costs.
- xi. The Petitioner shall be instructed to submit the executed and certified to be true copies of the Power Purchase Agreement between Thar Coal Block-1 Power Generation Company (Private) Limited (the "IPP") and CPPAG, the Implementation Agreement between SSRL and GOS, the Implementation Agreement between the IPP and GOP, coal supply agreement between the IPP and SSRL, EIA Report & Approvals, and final documents and all other pending agreements that needed to be furnished at FC stage.
- xii. The TCTDC advises that the petitioner submit the payment proof related to expenses incurred under development and resettlement cost.
- xiii. The TCTDC advises to finalize TBD (To Be Decided) term in facility agreement and related financing Documents at the time of financial close.
- xiv. Short term working capital facilities for inventories of coal, lubricants, diesel, RFO, spares and consumables, and the resultant cost is permitted; provided that the financing cost of the working capital facility shall not exceed a maximum of 1 Month KIBOR + 2%.
- xv. Project Tariff is based on a reference exchange rate of PKR 156.65 per USD, diesel price of PKR 129.35 per Litre.
- xvi. Construction period for the development of 7.8 MTPA mine is till September 30th, 2022. In case of delay in achieving the Commercial Operations Date, cost overruns beyond the abovementioned date (including interest during construction and return on equity during construction) will not be allowed, and it will be assumed as it being completed at the stipulated time period.
- xvii. The Petitioner is entitled to adjustment of costs in accordance with the adjustments listed in detail below under 'TARIFF ADJUSTMENTS & ESCALATIONS' section of this determination and also indexations in accordance with the mechanisms laid down under the 'TARIFF INDEXATIONS' section of this document.
- xviii. All equipment provided under the EPC Contract will be new and unused.
- xix. The detailed cost components of tariff are tabulated in Annexure-A appended to the end of this Order.

TARIFF ADJUSTMENTS & ESCALATIONS

The contract stage tariff shall be subject to the following indexations and escalations only at COD.

- i. Cumulative adjustment in EPC relating to waste removal (including overburden & interburden) strata up to upward variation of 5% of the estimated volumes, subject to provision of sufficient documentary evidence and technical review conducted by a reputable third party having no conflict of interest and relevant experience, acceptable to the TCEB. Any volumes in excess of this would not be allowed for adjustment.





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- ii. The impact of dewatering (if any) on EPC is capped to a maximum upward variation equal to 5% of estimated volumes, subject to provision of sufficient documentary evidence and technical review conducted by a reputable third party having no conflict of interest and relevant experience, acceptable to the TCEB. Any volume in excess of this would not be allowed for adjustment.
- iii. Adjustment in cost of electric power would be allowed upto an upward variation of 5% of estimated kwhs, subject to provision of sufficient documentary evidence and technical review conducted by a reputable third party having no conflict of interest and relevant experience, acceptable to the TCEB. Any consumption in excess of this would not be allowed for adjustment.
- iv. Adjustment in Non-EPC Cost for Land Acquisition & Rehabilitation to be adjusted to actual incurred till commencement of commercial operations for the Non-EPC component thereof, and at actual incurred for the O&M component thereof, subject to provision of sufficient documentary evidence and technical review conducted by a reputable third party having no conflict of interest and relevant experience, acceptable to the TCEB.
- v. Insurance cost during the construction and operations shall be adjusted to actual incurred subject to a maximum of 0.7% of EPC Cost and allowed on submission of documentary and payment evidence, whereas adjustment of Sinosure fee shall be as per actual with maximum of 5.5% of the outstanding (Chinese lenders) principal and interest amount during the construction period.
- vi. Equity Returns shall be allowed to be adjusted on the basis of the drawdown profile, which is permitted to be on a prorata basis subsequent to maximum upfront equity drawdown of 25%, during a construction period of up till September 30th, 2022 for the development of 7.8 MTPA mining capacity.

Tariff Indexations

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

i. Fuel Cost

$$\text{Fuel Cost}_{(\text{rev})} = \text{Fuel Cost}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{129.35}$$

Where,

Fuel Cost_(rev) is the revised total Fuel Cost Component

Fuel Cost_x is the total Fuel Cost of xth 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)





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

ii. Variable O&M

$$\text{Variable O\&M}_{(\text{rev})} = \text{Variable O\&M}_x \times \frac{\text{US CPI}_{(\text{rev})}}{257.346} \times \frac{\text{PKR/USD}_{(\text{rev})}}{156.65} \times \frac{6.71}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

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

Variable O&M_x is the Variable O&M Component of xth 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

$$\text{Asset Replacement}_{(\text{rev})} = \text{Asset Replacement}_x \times \frac{\text{US CPI}_{(\text{rev})}}{257.346} \times \frac{\text{PKR/USD}_{(\text{rev})}}{156.65} \times \frac{6.71}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

Asset Replacement_(rev) is the revised Asset Replacement Component

Asset Replacement_x is the Asset Replacement Component of xth 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





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

Where,

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

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

Royalty is the minimum of 7.5% of Total cost of Coal (excluding Royalty) 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

$$\text{Fixed O\&M – Local}_{(\text{rev})} = \text{Fixed O\&M – Local}_x \times \frac{\text{Local CPI}_{(\text{rev})}}{130.90}$$

Where,

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

$\text{Fixed O\&M – Local}_x$ is the Fixed O&M – Local Component in x^{th} year of operations

$\text{Local CPI}_{(\text{rev})}$ is the latest is Consumer Price Index of Pakistan as notified by the Pakistan Bureau of Statistics on base of 2015-16 = 100

Frequency of Indexation shall be quarterly

vi. Fixed O&M – Foreign

$$\text{Fixed O\&M Foreign}_{(\text{rev})} = \text{Fixed O\&M Foreign}_x \times \frac{\text{US CPI}_{(\text{rev})}}{257.346} \times \frac{\text{PKR/USD}_{(\text{rev})}}{156.65} \times \frac{6.71}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

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

$\text{Fixed O\&M – Foreign}_x$ is the Fixed O&M Component of x^{th} year of operations

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

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





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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 RFO

$$\text{Power Cost – By RFO}_{(rev)} = \text{Power Cost – By RFO}_x \times \frac{\text{RFO Price}_{(rev)}}{76,285}$$

Where,

Power Cost – By RFO_(rev) is the revised Power Cost – By RFO

Power Cost – By RFO_x is the Power Cost – RFO in x^{th} year of operations

RFO Price_(rev) is the Delivered RFO Price in terms of PKR per ton notified by Ex-Refinery Byco Price,

Frequency of indexation shall be as and when notified by Byco.

viii. Cost of Working Capital

$$WC_{(rev)} = WC_x \times \left(a_x \frac{\text{Prod Pmt}_{(rev)}}{\text{Prod Pmt}_x} + b_x \frac{\text{Coal}_{(rev)}}{\text{Coal}_x} + c_x \frac{\text{Diesel}_{(rev)}}{129.35} + d_x \frac{\text{US CPI}_{(rev)} \times \text{PKR/USD}_{(rev)} \times 6.71}{257.346 \times 156.65 \times \text{RMB/USD}_{(rev)}} \right) \times \frac{\text{KIBOR}_{(rev)} + 2.00\%}{15.81\%}$$

Where,

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

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

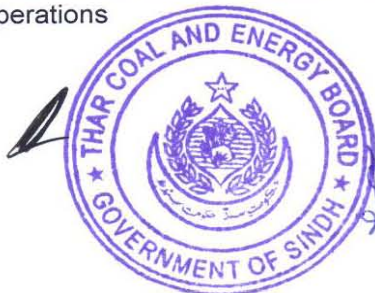
a_x is the proportion of Coal Inventory Cost for 30 days calculated at Production Payment Price to amount of working capital facility in x^{th} year of operations.

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

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

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

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





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$Coal_{(rev)}$ 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 Islamabad, 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

$$\text{Interest} - \text{Local}_{(rev)} = \text{Interest} - \text{Local}_x \times \frac{KIBOR_{(rev)} + 2.00\%}{15.81\%}$$

Where,

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

$\text{Interest} - \text{Local}_x$ 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

x. Equity Returns

$$\text{Equity Returns}_{(rev)} = \text{Equity Returns}_x \times \frac{PKR/USD_{(rev)}}{156.65}$$

Where,

$\text{Equity Returns}_{(rev)}$ is the revised Equity Returns Component

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

$PKR/USD_{(rev)}$ 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





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xi. Cost of Transportation

$$\text{Cost of Transportation}_{(\text{rev})} = \text{Cost of Transportation}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{129.35}$$

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

Indexation shall be computed annually.





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ANNEXURE A – TARIFF TABLE 7.8 MTPA MINE:

Coal Tariff Table (USD per ton)											
Year	Variable O&M	Fixed O&M	Working Capital Interest	Insurance	Asset Replacement Reserve	Royalty	ROEDC	ROE	Principal	Interest	Tariff
1	11.26	9.15	0.45	0.51	2.85	2.96	1.23	4.82	5.73	3.50	42.45
2	11.41	8.44	0.45	0.51	2.85	2.92	1.23	4.82	6.01	3.21	41.84
3	11.41	9.13	0.46	0.51	2.85	2.97	1.23	4.82	6.31	2.91	42.60
4	9.82	7.99	0.42	0.51	2.45	2.73	1.23	4.82	6.63	2.59	39.20
5	9.82	8.65	0.42	0.51	2.43	2.78	1.23	4.82	6.96	2.26	39.90
6	9.82	8.01	0.42	0.51	2.43	2.74	1.23	4.82	7.31	1.91	39.21
7	9.82	8.64	0.42	0.51	2.25	2.77	1.23	4.82	7.68	1.54	39.68
8	9.82	8.13	0.42	0.51	2.25	2.73	1.23	4.82	8.06	1.16	39.13
9	9.35	8.90	0.42	0.51	2.28	2.75	1.23	4.82	8.47	0.76	39.48
10	9.34	7.94	0.41	0.51	2.28	2.68	1.23	4.82	8.89	0.33	38.43
11	8.83	8.44	0.33	0.51	2.26	1.98	1.23	4.82	-	-	28.39
12	8.83	8.45	0.33	0.51	2.26	1.98	1.23	4.82	-	-	28.41
13	8.83	8.00	0.33	0.51	2.27	1.95	1.23	4.82	-	-	27.93
14	8.83	7.82	0.33	0.51	2.10	1.92	1.23	4.82	-	-	27.55
15	8.83	8.37	0.33	0.51	2.04	1.96	1.23	4.82	-	-	28.08
16	8.83	7.84	0.33	0.51	2.04	1.92	1.23	4.82	-	-	27.50
17	8.83	8.43	0.33	0.51	2.01	1.96	1.23	4.82	-	-	28.11
18	8.83	8.01	0.33	0.51	2.01	1.93	1.23	4.82	-	-	27.66
19	8.83	8.32	0.33	0.51	1.71	1.93	1.23	4.82	-	-	27.67
20	8.83	7.91	0.32	0.51	1.62	1.89	1.23	4.82	-	-	27.13
21	8.54	9.01	0.32	0.51	1.17	1.92	1.23	4.82	-	-	27.53
22	8.54	7.80	0.31	0.51	1.15	1.83	1.23	4.82	-	-	26.18
23	8.54	8.45	0.31	0.51	0.58	1.83	1.23	4.82	-	-	26.27
24	8.54	7.81	0.31	0.51	0.56	1.78	1.23	4.82	-	-	25.56
25	7.56	8.07	0.29	0.51	0.37	1.71	1.23	4.82	-	-	24.56
26	7.56	7.58	0.29	0.51	0.37	1.68	1.23	4.82	-	-	24.03
27	7.56	7.97	0.29	0.51	0.32	1.70	1.23	4.82	-	-	24.41
28	7.56	7.73	0.29	0.51	0.32	1.68	1.23	4.82	-	-	24.14
29	4.61	7.24	0.24	0.51	0.03	1.40	1.23	4.82	-	-	20.09
30	4.55	7.30	0.24	0.51	0.01	1.40	1.23	4.82	-	-	20.05
	9.73	8.41	0.39	0.51	2.24	2.50	1.23	4.82	4.52	1.49	35.84





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ANNEXURE B – ESCALATIONS SOUGHT IN THE FINANCIAL MODEL:

1. Equipment Cost Comparison

S. No.	Name/Description	Feasibility Stage			EPC Stage			Unit Price Differential	Quantity Differential	Total Price Differential
		Unit Price	Quantity	Total	Unit Price	Quantity	Total			
1	Mining and OB equipment's			90.6518			113.5583			22.91
	Hydraulic Excavator 7.0 m ³	1.28	34.00	43.37	1.23	38.00	46.76	(0.04)	4.00	3.39
	Hydraulic Excavator 2.0 m ³			-	0.47	4.00	1.88	0.47	4.00	1.88
	Hydraulic Excavator 1.6 m ³	0.49	4.00	1.97			-	(0.49)	(4.00)	(1.97)
	Dump Truck 60t	0.13	254.00	33.96	0.12	354.00	43.64	(0.01)	100.00	9.69
	Crawler Dozer 320 HP	0.24	8.00	1.89	0.54	16.00	8.68	0.31	8.00	6.78
	Wheel Loader 5.0 m ³			-	0.37	10.00	3.68	0.37	10.00	3.68
	Wheel Loader 3.0 m ³	0.11	24.00	2.62			-	(0.11)	(24.00)	(2.62)
	Hydraulic Rock Breaker			-	0.28	3.00	0.83	0.28	3.00	0.83
	Sprinkling Tanker 50t			-	0.19	8.00	1.51	0.19	8.00	1.51
	Sprinkling Tanker 40t	0.17	8.00	1.38			-	(0.17)	(8.00)	(1.38)
	Grader 220 HP	0.30	4.00	1.22	0.27	6.00	1.65	(0.03)	2.00	0.43
	Road Roller 20t	0.17	2.00	0.35	0.16	2.00	0.31	(0.02)	-	(0.03)
	Hydraulic Excavator 1.1 m ³	0.38	2.00	0.77	0.19	2.00	0.39	(0.19)	-	(0.38)
	Fuel Tanker	0.06	8.00	0.51	0.07	10.00	0.74	0.01	2.00	0.23
	Grease Vehicle	0.46	3.00	1.37	0.41	4.00	1.64	(0.04)	1.00	0.28
	Slope Stability Monitoring System	1.26	1.00	1.26	1.84	1.00	1.84	0.58	-	0.58
2	Coal Handling			16.19			15.95			(0.23)
	Crusher System	2.71	1.00	2.71	4.72	1.00	4.72	2.01	-	2.01
	stacker and reclaimers	6.63	1.00	6.63	2.40	2.00	4.80	(4.23)	1.00	(1.83)





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S. No.	Name/Description	Feasibility Stage			EPC Stage			Unit Price Differential	Quantity Differential	Total Price Differential
		Unit Price	Quantity	Total	Unit Price	Quantity	Total			
	stacker and reclaimers(backup)	6.63	1.00	6.63	2.40	1.00	2.40	(4.23)	-	(4.23)
	Wheel loader 5.0m ³			-	0.37	4.00	1.47	0.37	4.00	1.47
	Crawler dozer 320Hp			-	0.54	4.00	2.17	0.54	4.00	2.17
	Coal lithotypes laboratory and Chemical laboratory	0.22	1.00	0.22	0.39	1.00	0.39	0.17	-	0.17
3	Conveyor Belt			6.59			15.00			8.41
	Conveyor Belt	6.59	1.00	6.59	15.00	1.00	15.00	8.41	-	8.41
4	Dewatering and Drainage			37.02			25.77			(11.25)
	Dewatering submersible pumps	0.01	56.00	0.80	0.11	50.00	5.29	0.09	(6.00)	4.49
	Dewatering submersible pumps(backup)	0.01	28.00	0.40	0.11	23.00	2.43	0.09	(5.00)	2.03
	Pumps (mining field)	0.03	6.00	0.16	0.32	3.00	0.97	0.30	(3.00)	0.81
	Pumps (Rainstorm)	0.07	2.00	0.13	0.41	3.00	1.22	0.34	1.00	1.09
	Pumps (working bench)			-	0.01	8.00	0.07	0.01	8.00	0.07
	Dewatering hole and Water drainage pipeline	10.57	1.00	10.57	13.87	1.00	13.87	3.30	-	3.30
	Auxiliary Equipment			-	0.28	1.00	0.28	0.28	1.00	0.28
	Disposal pipeline pumps	0.07	6.00	0.39	0.27	6.00	1.62	0.20	-	1.23
	Disposal pipeline pumps (Backup)	0.07	3.00	0.20			-	(0.07)	(3.00)	(0.20)
	Pumps (Flood protection levee)			-	0.01	3.00	0.02	0.01	3.00	0.02
	Submersible Sand Pumps	0.02	3.00	0.07			-	(0.02)	(3.00)	(0.07)
	Efflux Device and Pipeline	24.30	1.00	24.30			-	(24.30)	(1.00)	(24.30)
5	Communication System & Control System			8.19			9.77			1.58
	Communication System	0.60	1.00	0.60	7.69	1.00	7.69	7.08	-	7.08
	Control System	7.59	1.00	7.59	2.08	1.00	2.08	(5.50)	-	(5.50)





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S. No.	Name/Description	Feasibility Stage			EPC Stage			Unit Price Differential	Quantity Differential	Total Price Differential
		Unit Price	Quantity	Total	Unit Price	Quantity	Total			
6	Power Supply			30.56			35.24			4.68
	RFO generator	20.49	1.00	20.49	20.21	1.00	20.21	(0.28)	-	(0.28)
	Power Distribution System	10.07	1.00	10.07	15.03	1.00	15.03	4.96	-	4.96
7	Water Supply and Drainage			6.47			4.18			(2.30)
	Water treatment system	2.94	1.00	2.94	2.43	1.00	2.43	(0.50)	-	(0.50)
	Sewage treatment system			-	1.60	1.00	1.60	1.60	1.00	1.60
	Oil sewage drainage system			-	0.14	1.00	0.14	0.14	1.00	0.14
	Water Supply System	1.53	1.00	1.53			-	(1.53)	(1.00)	(1.53)
	Pipeline Net	2.00	1.00	2.00			-	(2.00)	(1.00)	(2.00)
8	Workshop and Warehouse			5.94			8.73			2.79
	Workshop & Warehouse Vehicles	4.38	1.00	4.38	7.22	1.00	7.22	2.83	-	2.83
	Gas station & Oil depot			-	1.51	1.00	1.51	1.51	1.00	1.51
	Workshop Equipment	1.56	1.00	1.56			-	(1.56)	(1.00)	(1.56)
9	Site Vehicles			6.01			5.82			(0.18)
	Site Vehicles	6.01	1.00	6.01	5.82	1.00	5.82	(0.18)	-	(0.18)
10	Office Equipment's			5.69			13.82			8.13
	Air conditioning and ventilation/ Ventilation system	5.55	1.00	5.55	12.89	1.00	12.89	7.34	-	7.34
	Lighting			-	0.61	1.00	0.61	0.61	1.00	0.61
	Kitchen Appliance	0.14	1.00	0.14	0.32	1.00	0.32	0.17	-	0.17





Thar Coal & Energy Board

Government of Sindh

2. Capital Cost Comparison

	Feasibility Stage	EPC Stage
Total Project Cost (mUSD)	1073.7	1176.7
EPC Cost (mUSD)	755.7	914.6
OB Cost	307.5	331.4
Civil Works	149.6	181.8
Equipment Procurement & Installation	206.6	249.4
Other EPC Cost (mUSD)	92.1	152.0
Equipment Replacement/Procurement at COD		34.3
Consultancies and Studies	27.3	33.9
Legal and Professional	10.0	10.0
Detailed Design Engineering	11.0	
MSF OPEX	33.8	24.5
Security (mUSD)	9.0	
Insurance (mUSD)		6.3
EPC Contractor OPEX (mUSD)		33.5
Lignite Production Cost (mUSD)		9.4
Transmission Line Re-Route (HESCO) (mUSD)	1.0	
Non-EPC Cost (mUSD)	317.9	212.6
SSRL Operating Expenses (mUSD)	41.4	34.4
Security Cost (mUSD)		9.0
Transmission Line Re-Route (HESCO) (mUSD)		1.0
Existing Pipeline Re-Route (mUSD)		1.8
Existing Roads Re-Route (mUSD)		6.9
Development Costs (mUSD)	26.0	13.1
Land Acquisition & Rehabilitation (mUSD)	87.6	67.0
Commitment Fee (mUSD)	5.0	3.4
Arrangement Fee (mUSD)	4.0	4.4
Interest During Construction (mUSD)	68.9	83.1
Insurance (mUSD)	9.6	
sinosure Fee (mUSD)	75.5	53.1
Income from Pre-COD Sales (mUSD)		-69.3
Royalty to TCEB on Pre-COD Sales (mUSD)		4.8





Thar Coal & Energy Board Government of Sindh

Year	Over Burden Volume (Mm ³)		Annual Production (Mton)		Stripping Ratio		Dewatering Cost (mUSD)		OB Cost (mUSD)		Mining Cost (mUSD)	
	Feasibility Stage	EPC Stage	Feasibility Stage	EPC Stage	Feasibility Stage	EPC Stage	Feasibility Stage	EPC Stage	Feasibility Stage	EPC Stage	Feasibility Stage	EPC Stage
-3	-	-	-	-	-	-	4.93	-	0.15	-	-	-
-2	82.50	90.10	-	-	-	-	9.60	8.31	138.24	155.42	-	-
-1	77.50	90.50	-	2.45	-	-	9.67	8.20	144.91	148.76	-	6.95
1	60.06	68.64	7.80	7.80	7.70	8.80	9.61	8.85	128.01	120.94	14.04	13.50
2	60.06	68.64	7.80	7.80	7.70	8.80	9.59	8.85	118.46	119.53	13.36	10.48
3	60.06	68.64	7.80	7.80	7.70	8.80	9.70	9.29	109.20	119.53	13.65	10.48
4	60.06	68.64	7.80	7.80	7.70	8.80	9.60	9.29	103.33	119.53	12.49	10.48
5	60.06	59.28	7.80	7.80	7.70	7.60	9.61	9.73	97.56	92.50	12.18	10.43
6	58.50	59.28	7.80	7.80	7.50	7.60	9.67	9.73	97.31	92.45	12.00	10.43
7	58.50	59.28	7.80	7.80	7.50	7.60	9.62	5.90	84.18	92.45	11.12	10.43
8	58.50	59.28	7.80	7.80	7.50	7.60	9.56	5.90	89.05	92.45	11.06	10.43
9	58.50	59.28	7.80	7.80	7.50	7.60	9.75	6.11	94.07	91.69	11.57	10.41
10	58.50	59.28	7.80	7.80	7.50	7.60	9.56	6.11	91.19	91.69	11.38	10.41
11	58.50	59.28	7.80	7.80	7.50	7.60	9.59	6.44	97.17	91.69	12.40	10.41
12	58.50	59.28	7.80	7.80	7.50	7.60	9.69	7.98	94.25	91.69	11.76	10.41
13	58.50	59.28	7.80	7.80	7.50	7.60	9.65	7.98	91.04	91.69	11.75	10.41
14	58.50	59.28	7.80	7.80	7.50	7.60	9.56	7.98	94.07	91.69	11.67	10.41
15	58.50	59.28	7.80	7.80	7.50	7.60	9.70	8.20	83.98	91.69	11.10	10.41
16	58.50	59.28	7.80	7.80	7.50	7.60	9.56	8.20	89.58	91.69	11.13	10.41
17	58.50	55.38	7.80	7.80	7.50	7.10	9.64	8.63	93.64	87.51	11.51	10.52
18	58.50	55.38	7.80	7.80	7.50	7.10	9.67	8.63	91.10	87.50	11.37	10.52
19	58.50	55.38	7.80	7.80	7.50	7.10	9.63	8.85	97.71	87.50	12.47	10.52
20	58.50	55.38	7.80	7.80	7.50	7.10	9.56	8.85	93.80	87.50	11.70	10.52
21	63.18	55.38	7.80	7.80	8.10	7.10	9.75	8.96	96.76	87.50	11.61	10.52
22	63.18	55.38	7.80	7.80	8.10	7.10	9.59	8.96	100.86	87.50	11.60	10.52
23	63.18	55.38	7.80	7.80	8.10	7.10	9.63	9.18	88.91	87.50	10.92	10.52
24	44.54	55.38	7.80	7.80	5.71	7.10	9.67	9.18	72.61	87.50	11.65	10.52
25	44.54	55.38	7.80	7.80	5.71	7.10	9.61	9.51	76.53	87.50	12.13	10.52
26	44.54	55.38	7.80	7.80	5.71	7.10	9.56	9.51	73.68	87.50	11.85	10.52
27	44.54	55.38	7.80	7.80	5.71	7.10	9.72	9.62	79.20	87.50	13.01	10.52
28	44.54	55.38	7.80	7.80	5.71	7.10	9.56	9.62	76.50	87.50	12.31	10.52
29	44.54	55.38	7.80	7.80	5.71	7.10	9.65	9.62	73.81	61.38	12.24	10.52
30	44.54	55.38	7.80	7.80	5.71	7.10	9.67	9.62	76.46	61.38	12.25	10.52

