



**Thar Coal & Energy Board**  
Government of Sindh

No. TCEB/Registrar/2-2/2015/CS-Review  
October 29, 2020

**DECISION OF THAR COAL & ENERGY BOARD IN  
THE MATTER OF MOTION FOR LEAVE FOR REVIEW  
OF CONTRACT STAGE TARIFF DATED  
31<sup>ST</sup> DECEMBER, 2019 FOR SINO SINDH  
RESOURCES Pvt. LIMITED MINE OF 7.8 MTPA AT  
BLOCK-I THAR COALFIELDS, DISTRICT  
THARPARKAR, SINDH, PAKISTAN**





## Thar Coal & Energy Board Government of Sindh


No. TCEB/Registrar/2-2/2015/CS-Review  
October 29, 2020

**Decision of Thar Coal & Energy Board in the Matter of Motion  
for Leave for Review of Contract Stage Tariff dated  
December 31, 2019 for Sino Sindh Resources Pvt. Limited  
Mine of 7.8 MTPA at Block-I Thar Coalfields, District  
Tharparkar, Sindh, Pakistan**

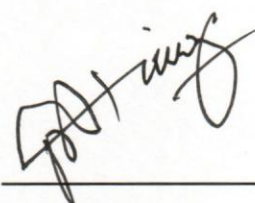
### **Thar Coal Tariff Determination Committee**

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

**Dr Abdul Ghani Pathan**  
Member

  
29-10-2020

**Mr Asif Haider Mirza**  
Member



**Mr Shahab Qamar Ansari**  
Member / Presiding Officer

  
29/10/20





## Thar Coal & Energy Board Government of Sindh

No. TCEB/Registrar/2-2/2015/CS-Review  
January 14<sup>th</sup>, 2021

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 Decision regarding Motion for Leave for Review of Determination of Contract Stage Tariff for Sino Sindh Resources Pvt. Limited Mine of 7.8 MTPA at Block-I Thar Coalfields, District Tharparkar, Sindh, Pakistan, appended in the following pages.

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**Tariq Ali Shah**  
Managing Director  
Thar Coal & Energy Board



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BCM	Bank Cubic Meter
COD	Commercial Operations Date
CPI	Consumer Price Index
CSA	Coal Supply Agreement
EDS	Effluent Discharge System
EPC	Engineering, Procurement & Construction
GCV	Gross Calorific Value
GOP	Government of Pakistan
GOS	Government of Sindh
HSE	Health, Safety & Environment
IDC	Interest During Construction
IRR	Internal Rate of Return
KIBOR	Karachi Inter-Bank Offer Rate
LHV	Lower Heating Value
LIBOR	London Inter-Bank Offer Rate
MBCM	Million Bank Cubic Meter
MJ / Kg	Mega Joules per Kilogram
MSF	Mine Service Facilities
MTPA	Million Tonnes Per Annum
MW	Megawatt
MT	Million Tonnes
NCV	Net Calorific Value
NEPRA	National Electric Power Regulatory Authority
O&M	Operations & Maintenance
OGRA	Oil and Gas Regulatory Authority
PKR	Pakistani Rupee
RMB	Chinese Renminbi
RCOD	Required Commercial Operations Date
ROE	Return on Equity
ROEDC	Return on Equity During Construction
SCOD	Scheduled Commercial Operations Date
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





## Thar Coal & Energy Board Government of Sindh

The Thar Coal & Energy Board (TCEB) vide its decision No. TCEB/Registrar/2-2/2015 dated December 31, 2019 determined the Contract Stage Tariff for Sino Sindh Resources Private Limited (SSRL) for a 7.8 Mtpa mining capacity at Block-I Thar Coalfield District Tharparkar, Sindh, Pakistan. SSRL on May 19, 2020 filed motion for leave to review the decision of TCEB dated December 31, 2019.

The TCEB considered and admitted the review motion on June 1, 2020 in accordance with Thar Coal Tariff Determination Rules, 2014.

### 1. GROUNDS OF REVIEW MOTION

The petitioners filed the review on the following grounds:

- Construction period of 18 months
- Geological Model
- Selection of Mining Technology
- Dewatering Plan
- Financing structure
- Project development cost
- Taxes and Expenses
- EPC Cost
- Land Acquisition and Rehabilitation Costs
- Effluent Disposal System (EDS)
- Rerouting Costs
- Variable & Fixed Costs
- Other Project / Non - EPC Cost

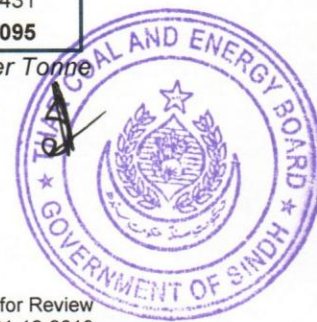
### 2. TARIFF SOUGHT BY PETITIONER

The Petitioner has submitted a request for determination of levelized tariff of USD 43.41 per Tonne for development & operations of 7.8 MTPA capacity mine. 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 Capacity Mine

Project Tariff	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Total Production Payment Tariff Components	17.0831	12.1623	16.0665
Total Capacity Payment Tariff Components	31.4851	19.5726	27.3431
<b>Total Project Tariff</b>	<b>48.5682</b>	<b>31.7349</b>	<b>43.4095</b>

All amounts in USD per Tonne





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*Table II – Petitioned Production Payment Tariff for 7.8 MTPA Capacity Mine*

Production Payment Tariff Components	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Variable O&M – Foreign (Spares and Consumables)	2.3067	2.0920	2.2703
Variable O&M – Foreign (Tyres)	0.6640	0.5513	0.6464
Variable O&M – Foreign (Lubricants)	0.6870	0.5909	0.6716
Variable O&M – Local (Fuel (Diesel))	4.9637	4.2197	4.8449
Variable O&M – Local (Power (Belts, Crushers, Production Equip))	0.1765	0.1943	0.1808
Asset Replacement	4.6425	2.1340	4.1966
Royalty	3.6426	2.3801	3.2557
<b>Total Production Payment Tariff Components</b>	<b>17.0831</b>	<b>12.1623</b>	<b>16.0665</b>

*All amounts in USD per Tonne*

*Table III – Petitioned Capacity Payment Tariff for 7.8 MTPA Capacity Mine*

Capacity Payment Tariff Components	Year 1 – 10	Year 11 – 30	Year 1 – 30
	Average	Average	Levelized
Fixed O&M – Foreign (Dewatering OpEx (Spares, Tyres, Lubricants))	0.1103	0.1573	0.1217
Fixed O&M – Foreign (MSF OpEx (Spares, Tyres, Lubricants))	0.2482	0.2482	0.2482
Fixed O&M – Foreign (Other OpEx)	6.3445	6.0550	6.2828
Fixed O&M – Local (Fuel (Dewatering and MSF))	0.1373	0.1373	0.1373
Fixed O&M – Local (Power (Dewatering and MSF))	0.6026	0.8768	0.6696
Fixed O&M – Local (Other OpEx)	2.7990	2.6213	2.7699
Insurance	0.4864	0.4864	0.4864
Interest on Working Capital	0.5376	0.3277	0.4726
Debt Principal Repayment	10.2246		6.5031
Debt Interest Payment	1.3320		0.9888
Return on Equity	6.8354	6.8354	6.8354
Return on Equity During Construction	1.8272	1.8272	1.8272
<b>Total Capacity Payment Tariff Components</b>	<b>31.4851</b>	<b>19.5726</b>	<b>27.3431</b>

*All amounts in USD per Tonne*

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

Petitioned Project Cost for 7.8 MTPA	Amount
EPC Cost	714.78
Non-EPC Cost	243.43
Insurance Cost	3.71
Financing Fee, LC Charges, Sinasure Fees etc.	73.40
Interest During Construction	26.42
<b>Total Project Cost</b>	<b>1061.75</b>

*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 82.17 per Litre |
| ii. Price of Furnace oil             | PKR 38,598 per Ton  |
| iii. PKR to USD Exchange Rate Parity | PKR 159.91 per USD  |
| iv. RMB to USD Exchange Rate Parity  | RMB 7.093 per USD   |





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v.	Cost of Foreign Financing	3-month LIBOR + 2.80%
vi.	3-month LIBOR Assumption	0.43463%
vii.	1-month KIBOR Assumption	8.32%
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 <sup>3</sup> )
xii.	Construction Period	18 Months
xiii.	Overburden Removal Volume (During Construction)	160.0 Million BCM
xiv.	Average Slope Angle of the Mine	24° (Degrees)
xv.	Average Rate of Dewatering	142520 m <sup>3</sup> /d

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

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

Following is a summary of the salient aspects of the 7.8 MTPA Review contract stage tariff petition:

#### 3. CONSTRUCTION PERIOD OF 18 MONTHS

In Contract Stage Tariff Determination order dated December 10, 2019 TCEB had allowed SSRL to achieve commercial operation not later than September 30, 2022 with certain conditions including but not limited to the case of delay in achieving the Commercial Operations Date, cost overruns beyond the above mentioned 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.

In review petition, SSRL has requested to allow an early COD of December 31, 2021 in order to ensure the supply of coal to mine mouth power plants being established. Required Commercial Operations Date ("RCOD") of the power plant is stated to be May 31, 2022 and its Scheduled Commercial Operations Date ("SCOD") is March 1, 2021. SSRL has further stated in its review petition that if they would not achieve their commitment by December 31, 2021 then penalties would be attracted, and they wanted to avoid it.

In this regard Thar Coal Tariff Determination Committee is of the view that they have not restricted SSRL to achieve an early COD in its previous order dated December 10, 2019 which states:

***"Construction period for the development of 7.8 MTPA mine is till September 30, 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 its being completed at the stipulated time period".***





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The fundamental premise of this review motion is to reconfigure equipment and manpower deployment in a manner which catalyses fast paced construction, in order to synchronize the CODs of mine and power plant.

In addition, TCTDC is of the view that the normal time period required for such a big mining project ranges from two to three years. Reducing development period to 18 months will be a challenging task for the company and will need additional resources and much higher efficiency to meet the targets.

The likely impacts of the early COD are as follows:

- Acceleration in procurement of equipment and their deployment, resultantly acceleration in loan and equity utilization;
- Fast pace hiring and deployment of human resource;
- Saving of IDC, ROEDC and overheads.

Based on the decision taken by the board, revised COD is December 31, 2021 instead of September 30, 2022. Hence all the conditions related to delay in COD now apply to new COD December 31, 2021.

#### 4. MINING TECHNOLOGY AND WASTE VOLUME:

##### 4.1 GEOLOGICAL MODEL

SSRL has requested to consider the overburden volume of 1,839 Mbcm, which was originally approved at Feasibility Stage, for this review motion. They further mention that the revised feasibility along with updated geological model will be got approved from SCA in due course of time before COD.

TCTDC accepts the request of SSRL and allows them to use the overburden volume of 1,839 Mbcm, as determined at Feasibility Stage, for planning and design purpose.

##### 4.2 MINING TECHNOLOGY

In previous determination of Contract Stage Tariff dated December 10, 2019, SSRL was required to present plans within one year for scaling up of equipment deployment. SSRL have mentioned in present review petition that they have put in place a plan for scaling up equipment at an opportune stage, but they have not shared it with TCTDC. SSRL have also raised a question about the bearing capacity of the strata for heavy equipment. TCTDC observes that SSRL had submitted Monographic Report on Mining Technology and Equipment Selection at feasibility stage tariff petition, where in, it is clearly mentioned that all heavy equipment including shovel-truck system and bucket wheel excavator are technically feasible for block-I, and that was duly accepted at that stage. Therefore, a new stance of SSRL on bearing capacity of the strata is not accepted by TCTDC.

In their present review petition, SSRL have referred to previous cost comparison, made in January 2017 between small scale equipment (7 m<sup>3</sup> shovel and 60-ton truck) and large size equipment (35 m<sup>3</sup> shovel and 220-ton truck). This comparison was made on certain assumed parameters, which have been changed now and therefore, new comparison is needed to be developed. SSRL is required to submit a new comparison within one year.





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Due to reduced development period from 24 months to 18 months, more excavating machinery (Shovel and truck) is required to remove the overburden of 160 Mbcm during reduced development period. While recalculating the equipment requirement for reduced development period of 18 months, SSRL have changed some operating parameters of equipment such as bucket fill factor, cycle time of shovel, speed of truck and bulk density of material. Since the development of box-cut is still in progress and they have not yet crossed the dune sand formation, therefore, it is un-wise to change the parameters for the whole pit at this stage. However, SSRL has requested for 34 shovels (7 m<sup>3</sup>) and 340 trucks (60 ton) during reduced development period of 18 months, while at contract stage tariff SSRL were allowed 28 shovels (7 m<sup>3</sup>) and 238 trucks (60 ton) for development period of 24 months. TCTDC has evaluated the equipment requirement internally and is allowing 33 shovels of 7 m<sup>3</sup> bucket size and 301 trucks of 60-ton capacity for development period of 18 months. SSRL is also allowed 68 shovels of 7 m<sup>3</sup> bucket size and 1229 trucks of 60-ton capacity for OB removal during 31.5 years of mining operation (1.5 years development + 30 years for coal extraction) against the request of 81 shovels (7 m<sup>3</sup>) and 2188 trucks (60 ton) by SSRL in present review petition. In addition to that SSRL is also allowed 6 shovels of 7 m<sup>3</sup> bucket size, 7 shovels of 2 m<sup>3</sup> bucket size and 165 trucks of 60-ton capacity for 30 years of coal extraction. A comparative list of all equipment is given at Annexure – A.

### 5. DEWATERING PLAN

As per determination order of contract stage tariff dated December 10, 2019, SSRL was required to submit detailed annual working plan and schedule of ground water production, its usage for the power plant, mine site and disposal of the surplus water.

SSRL was allowed 119 submersible pumps, at EPC-stage, to dewater the ground aquifers and now they have requested for 252 submersible pumps at Review Stage without any technical justification. Therefore, their request for additional pumps is not accepted. SSRL has reduced the quantity of drainage pumps from 90 to 47, which is accepted.

SSRL is 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.

### 6. FINANCING STRUCTURE

In absence of the loan drawdowns SSRL is initially, utilizing the equity component of 25%, of the project cost.

SSRL in its review petition has stated that USD 125.7 million of equity has already been utilized to procure equipment (USD 81.78 million), initiate overburden removal (USD 14.57 million), and civil works (USD 13 million) on site, in addition to Project Development Costs of USD 13.1 million.

In order to avoid any delays in ordering, and shipping of equipment, equity contribution to be made before Financial Close, is being allowed. However, finally at COD stage ROEDC would be allowed based on the actual drawdown, subject to maximum equity contribution of 25%.

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However, the overall amount is rationalized to USD 108.7 million from USD 125 million in line with the overall adjustments in EPC and project development cost discussed in relevant section 4 of this tariff order. The detail of which is as follows:

- Over burden removal cost USD 10 Million;
- Civil Works USD 11.9 Million;
- Equipment procurement cost USD 74.86 Million;
- Project development, rerouting works, and others USD 11.87 Million.

In addition to above, SSRL has developed its own arguments in the review petition against the decision taken by TCTDC in EPC stage tariff dated December 10, 2019 regarding an enhanced sinosure fee of 7% from previously allowed fee of 5.5%, without substantiating it by submitting the sinosure agreement.

After discussing the matter at length and giving due weightage to the plausibility of arguments developed by the petitioner, TCTDC allows a one-time upfront cost of 5.5% sinosure fee to SSRL in review petition. However, the same will be adjusted based on actual documents to be provided at true-up stage.

### 7. PROJECT DEVELOPMENT COSTS

SSRL in its review petition has asked for development cost of USD 13.01 million based on its audited accounts instead of previously capped fee of USD 9 million.

TCTDC after discussion at length and considering the fact that the GOS has already incurred a huge cost in different studies for the overall mine development in Thar, maintains its previous position at contract stage tariff, as following:

*"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
- Environmental Costs
- Cost for tariff petition"

### 8. TAXES & EXPENSES:

SSRL has requested to allow USD 55 million Tax and Duties on import of Mining equipment as per SRO 670(I)/2019 dated June 28, 2019 wherein, the federal government





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has levied additional custom duties on import of goods specified in the first schedule to the said act, at the rate of:

- 2% on the goods falling under tariff slab of 0%, 3% and 11%,
- 4% on goods falling under slab of 16% and
- 7% on goods falling under slab of 20% and higher.

The company has paid the relevant custom duties under protest as it was against the general exception available to Thar coal projects. TCTDC has allowed these additional taxes as a pass - through item with a condition that in-case, the company succeeds in getting these reversed, the same amount will be excluded from the determined tariff.

### 9. EPC Cost:

SSRL claims that out of total 160 Mbcm it has already removed 9.34 Mbcm overburden, therefor it has petitioned for upfront cost of USD 14.57 Million at a fixed rate of USD 1.56 per bcm for the said removal. The number of equipment required by SSRL for removal of remaining 150.66 Mbcm for the achievement of COD in 1.5 Years (18 Months) is as discussed in Section 4 above.

In addition to the above cost, SSRL has also asked for an amount equivalent to USD 227.04 million on account of overheads and other cost for removal of remaining 150.66 Mbcm overburden volume.

TCTDC has re-assessed the cost of 9.43 Mbcm overburden removal and allowed USD 10.013 Million at the rate of 1.07 per bcm. TCTDC has also rationalized the number of equipment needed to remove remaining 150.66 Mbcm overburden for 18 months Period. The rationale and detail of allowed equipment is given in Mining Technology & Equipment Configuration (section 4.2).

Based on the analysis presented in section 4 & 5 of this tariff, TCTDC is allowing SSRL USD 176.85 million as overburden removal cost against petitioned cost of USD 241.61 million. The breakup of cost is given as hereunder:

Description	Amount in USD Million	
	SSRL	TCTDC
Upfront cost	14.57	10.01
Spares	26.77	23.36
Tyres	17.44	8.82
Lubricants	17.19	5.49
Fuel	78.48	74.26
Power	2.36	0.98
Labour	54.48	36.59
Logistics	16.34	12.03
Dewatering cost	13.98	5.31
<b>Total</b>	<b>241.61</b>	<b>176.85</b>





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SSRL has petitioned USD 134.02 million for civil works as part of EPC Cost, TCTDC after discussion at length recommended to follow the reasoning and justification provided at contract stage allowing USD 132.5 Million for the same. All the cost related to civil works will be actualized on the basis of concrete documentary evidence provided at COD stage.

SSRL has assessed the number of equipment required for removal of 150.66 Mbcm in 18 Months and petitioned USD 270.04 million for their procurement. TCTDC has re-assessed this cost and allows USD 231.2 Million. The reduction in overall equipment procurement cost is due to change in equipment configuration (as discussed in section 4.2) for waste removal, coal handling and dewatering, the cost of which is given hereunder:

Amount in USD Million		
Description	SSRL	TCTDC
Mining and OB Equipment	114.21	104.30
Coal handling System	31.18	24.10
Dewatering and drainage	41.70	21.06
Communication System	9.37	9.37
Power supply System	46.19	45.56
Water supply and Drainage	3.06	3.06
Workshop and Warehouse	6.54	6.54
Site vehicles and office equipments	17.80	17.21
<b>Total Equipement and Procurement cost</b>	<b>270.04</b>	<b>231.20</b>

SSRL has proposed a 20 MW solar power generating plant for mine operations. The proposition requires USD 12.40 million additional capital cost but reduces the overall power cost to USD 197.97 Million from USD 289 million (saving of USD 91.04 Million) in 31.5 years. The reduction in cost helps to reduce the overall levelized tariff which is accepted by the TCTDC.

The detail of EPC cost is given hereunder:

Amount in USD Million		
Description	SSRL	TCTDC
<b>EPC Cost</b>		
Overburden Removal	227.63	171.54
Dewatering Cost	13.98	5.31
Civil Works	134.32	132.52
Equipment & Installation	270.04	231.20
<b>Other EPC Cost</b>		
Detailed Design Engineering	11.00	11.00
Mine Service Facilities Operating Expenses	16.75	14.10
EPC Contractor Operating Expenses	16.12	15.27
Coal Cost for Power Plant Commissioning *	24.94	4.99
<b>Total EPC Cost</b>	<b>714.78</b>	<b>585.94</b>

\*The SSRL has duplicated the over burden removal cost in coal cost for power plant commissioning, which was duly allowed in overall overburden removal cost. Hence the same is not allowed here.





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### 10. LAND ACQUISITION AND REHABILITATION COSTS:

After due analysis and deliberations, it has been decided that the cost of land acquisition and resettlement will be actualized upon submission of satisfactory evidence at true-up. For the sake of review TCTDC is still maintaining the cost allowed at the contract stage tariff.

### 11. EFFLUENT DISPOSAL SYSTEM

As stated by SSRL in their review motion petition, "Effluent disposal system (EDS) is not directly a part of mining operations, and is ancillary in nature, hence civil work of the same is being considered as a part of Non-EPC cost, while equipment is being considered as an EPC cost" and claims USD 23.62 for the development of the same.

In present review petition, SSRL has not submitted the required details related to newly proposed Effluent Disposal System (EDS). In the absence of the relevant details, as mentioned in section 5 above, it is difficult for TCTDC to determine the exact cost related to mining activity, hence for the time being 50% of the EDS cost is being allowed, which is subject to positive or negative adjustment upon submission of relevant details, at the time of true-up stage.

### 12. REROUTING COSTS:

SSRL has petitioned USD 14.50 Million instead of previously capped cost of USD 6 Mn based on their submitted re-routing contracts. TCTDC has reviewed and assessed the submitted contract related to rerouting works and after due analysis and discussions, TCTDC has decided to maintain its position as per contract stage tariff.

### 13. VARIABLE & FIXED COSTS:

SSRL has petitioned USD 8.43 per tonne levelized variable O&M cost and USD 10.41 per tonne fixed O&M cost for 30 years mine operations. The cost is primarily based on the O&M cost of equipment operation of 30 years after COD. As discussed in section 9, TCTDC has reassessed the maintenance cost (i.e. Fuel, lubricant, Tyre, Power and Labour requirement) of equipment deployed during operation period, the cost of levelized variable O&M now stands at USD 8.33 per tonne and fixed O&M at USD 5.85 per tonne. The detail of which is tabulated hereunder:





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Amount in USD / tonne		
Description	SSRL	TCTDC
Spares & Consumables	2.27	1.52
Fuel Costs	4.84	4.10
Lubricants Costs	0.67	0.34
Tyre Costs	0.65	0.47
Other Costs	-	1.90
<b>Total Variable O&amp;M</b>	<b>8.43</b>	<b>8.33</b>
Power Costs	0.85	0.64
Labor & Management Salary	3.23	0.89
Safety & Security Cost	0.26	0.26
SSRL & EPC Contractor Operating Expenses	3.07	1.78
Other Costs	3.01	2.29
<b>Total Fixed O&amp;M</b>	<b>10.41</b>	<b>5.85</b>

### 14. OTHER PROJECT / NON - EPC COST:

In review motion petition, Petitioner claims non-EPC costs of USD 346.96 million. After detailed analysis and discussion TCTDC has reassessed all the cost pertaining to non-EPC, and the detailed comparison of these costs is given hereunder:

Amount in USD million		
Description	SSRL	TCTDC
Consultancies and Studies	28.41	22.91
Legal & Professional Services	10.00	10.00
SSRL Operating Expenses	22.05	15.03
Development Costs	13.10	8.65
Terminal Reservoir	14.86	7.43
34 km Drainage / Effluent Water Channel	8.77	4.38
Re-routing Works (Road+Water+Transmission)	14.50	5.50
Land Acquisition & Rehabilitation	74.24	49.00
Crush Stone Filling for Roads	14.24	5.00
Security Cost	3.00	3.00
Insurance Cost	3.71	3.17
Commitment Fee	1.96	1.09
Upfront Fee	3.98	2.98
Interest During Construction	26.42	18.97
Sinosure Fee	67.46	33.80
Revenue from Pre-COD Sales	(23.51)	(39.16)
Environmental Protection	8.80	4.38
Import Duties & Taxes	54.99	52.00
<b>Total Non-EPC cost</b>	<b>346.96</b>	<b>208.12</b>





## Thar Coal & Energy Board Government of Sindh

### 15. ESCALATIONS SOUGHT IN THE FINANCIAL MODEL:

The detailed list of escalation sought in the financial model is given at Annexure – C. However, the same is being assessed based on mining and geological model submitted along with our observation as explained in Section 4 of this order.



Thar Coal & Energy Board



# Thar Coal & Energy Board Government of Sindh

## COAL TARIFF REVISED ORDER:

**No. TCEB/Registrar/2-2/2015/CS-Review:** The Thar Coal & Energy Board (TCEB) vide its decision No. TCEB/Registrar/2-2/2015 dated December 31, 2019 determined the Contract Stage Tariff for Sino Sindh Resources Private Limited (SSRL) for a 7.8 Mtpa mining capacity at Block-I Thar Coalfield District Tharparkar, Sindh, Pakistan. SSRL on May 19, 2020 filed motion for leave to review the decision of TCEB dated December 31, 2019.

The Petitioner has submitted a request for determination of levelized tariff of USD 43.41 per Tonne for development & operations of 7.8 MTPA capacity mine.

The TCEB has considered the Motion for Review Petition and the following Decision with respect to review petition is adjudicated in accordance with the Thar Coal Tariff Determination Rules, 2014:

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	13.2591	11.1277	12.8281
Total Capacity Payment Tariff Components	22.1166	13.0304	18.9922
<b>Total Project Tariff</b>	<b>35.3757</b>	<b>24.1581</b>	<b>31.8203</b>

All amounts in USD per Tonne

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)	1.5277	1.4624	1.5216
Variable O&M – Foreign (Tyres)	0.4709	0.4262	0.4665
Variable O&M – Foreign (Lubricants)	0.3431	0.3208	0.3409
Variable O&M – Foreign (others)	1.1717	1.1196	1.1677
Variable O&M – Local (Fuel (Diesel))	4.1330	3.8206	4.1046
Variable O&M – Local (Power (Belts, Crushers, Production Equip))	0.1650	0.1752	0.1675
Variable O&M – Local (others)	0.5682	0.5296	0.5637
Asset Replacement	2.4115	1.5879	2.2756
Royalty	2.4681	1.6855	2.2200
<b>Total Production Payment Tariff Components</b>	<b>13.2591</b>	<b>11.1277</b>	<b>12.8281</b>

All amounts in USD per Tonne





## Thar Coal & Energy Board Government of Sindh

*Table III –Capacity Payment Component*

Capacity Payment Tariff	Year 1 – 10 Average	Year 11 – 30 Average	Year 1 – 30 Levelized
Fixed O&M – Foreign (Spares & Con. (Dewatering and MSF))	0.2799	0.2799	0.2799
Fixed O&M – Foreign (Tyres (Dewatering and MSF))	0.0059	0.0059	0.0059
Fixed O&M – Foreign (Lubricants (Dewatering and MSF))	0.0854	0.0854	0.0854
Fixed O&M – Foreign (Other OpEx)	3.3463	3.2976	3.3617
Fixed O&M – Local (Fuel (Diesel) (Dewatering and MSF))	0.1512	0.1512	0.1512
Fixed O&M – Local (Power (Dewatering and MSF))	0.6266	0.6651	0.6361
Fixed O&M – Local (Other OpEx)	1.3347	1.3050	1.3317
Insurance	0.4096	0.4096	0.4096
Interest on Working Capital	0.3593	0.2307	0.3180
Debt Principal Repayment	7.6351	0.0000	4.8606
Debt Interest Payment	1.2825	0.0000	0.9520
Return on Equity	5.1116	5.1116	5.1116
Return on Equity During Construction	1.4883	1.4883	1.4883
<b>Total Capacity Payment Tariff Components</b>	<b>22.1166</b>	<b>13.0304</b>	<b>18.9922</b>

*All amounts in USD per Tonne*

*Table IV –Project Cost for Development of 7.8 MTPA capacity Mine*

Project Cost for 7.8 MTPA	Amount
EPC Cost	585.94
Non-EPC Cost	148.12
Insurance Cost	3.17
Financing Fee, LC Charges, Sinasure Fees etc.	37.86
Interest During Construction	18.97
<b>Total Project Cost</b>	<b>794.05</b>

*All amounts in USD Million*

The amounts illustrated above are calculated based on certain assumptions which are detailed in the following sections. The key assumptions and basis are summarized hereunder:

i.	Price of Diesel	PKR 104.04 per Litre
ii.	Price of Furnace oil	PKR 63,856.3 per Ton
iii.	PKR to USD Exchange Rate Parity	PKR 162.49 per USD
iv.	RMB to USD Exchange Rate Parity	RMB 7.09 per USD
v.	Cost of Foreign Financing	3-month LIBOR + 2.80%
vi.	3-month LIBOR Assumption	0.25%
vii.	1-month KIBOR Assumption	7.41%
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 <sup>3</sup> )
xii.	Construction Period	18 Months
xiii.	Overburden Removal Volume (During Construction)	160.0 Million BCM
xiv.	Average Slope Angle of the Mine	24° (Degrees)
xv.	Average Rate of Dewatering	142520 m <sup>3</sup> /d

The above assumptions are the prevailing rates as stated on October 16, 2020 for determining the tariff.





## Thar Coal & Energy Board Government of Sindh

### 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.
- iii. The Petitioner shall change its statutory auditors from its existing auditors to any of the big four (4) firms.
- iv. 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 the actual interest rate of the commercial loan.
- v. The Petitioner is directed to submit the sinosure policy and agreement along with next tariff petition.
- vi. Debt servicing shall be paid during the first 10 years.
- vii. 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.
- viii. The Petitioner shall be instructed to submit all the financing documents.
- ix. TCTDC fails to assess the water requirement for only coal mine operations at this stage, the Petitioner is directed to submit details in their next petition.
- x. Petitioner is advised to submit the payment proof related to expenses incurred under development and resettlement cost at COD stage.
- xi. Short term working capital facilities for inventories of coal, lubricants, diesel, RFO, spares and consumables, account receivable and account payable 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%.
- xii. 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.
- xiii. All equipment proposed under the EPC Contract should be new and unused.
- xiv. The detailed cost components of tariff are tabulated in Annexure-B appended to the end of this Order.





## Thar Coal & Energy Board Government of Sindh

### 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.
- 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 Sinasure 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 subject to maximum upfront equity drawdown of 25%, during a construction period of up till September 30<sup>th</sup>, 2022 for the development of 7.8 MTPA mining capacity.





## Thar Coal & Energy Board Government of Sindh

### Tariff Indexations

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

#### i. Fuel Cost

$$\text{Fuel Cost}_{(\text{rev})} = \text{Fuel Cost}_x \times \frac{\text{Diesel Price}_{(\text{rev})}}{104.04}$$

Where,

Fuel Cost<sub>(rev)</sub> is the revised total Fuel Cost Component

Fuel Cost<sub>x</sub> is the total Fuel Cost of x<sup>th</sup> year of operations

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

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

#### ii. Variable O&M

$$\text{Variable O\&M}_{(\text{rev})} = \text{Variable O\&M}_x \times \frac{\text{US CPI}_{(\text{rev})}}{260.21} \times \frac{\text{PKR/USD}_{(\text{rev})}}{162.49} \times \frac{7.09}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

Variable O&M<sub>(rev)</sub> is the revised Variable O&M Component

Variable O&M<sub>x</sub> is the Variable O&M Component of x<sup>th</sup> year of operations

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

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

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

Frequency of indexation shall be quarterly





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### iii. Asset Replacement

$$\text{Asset Replacement}_{(\text{rev})} = \text{Asset Replacement}_x \times \frac{\text{US CPI}_{(\text{rev})}}{260.21} \times \frac{\text{PKR/USD}_{(\text{rev})}}{162.49} \times \frac{7.09}{\text{RMB/USD}_{(\text{rev})}}$$

Where,

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

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

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

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

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

Frequency of indexation shall be quarterly

### iv. Royalty

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

Where,

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

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

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

$$\text{Fixed O\&M – Local}_{(\text{rev})} = \text{Fixed O\&M – Local}_x \times \frac{\text{Local CPI}_{(\text{rev})}}{126.86}$$

Where,

Fixed O&M – Local<sub>(rev)</sub> is the revised Fixed O&M – Local Component





## Thar Coal & Energy Board Government of Sindh

Fixed O&M – Local<sub>x</sub> is the Fixed O&M – Local Component in x<sup>th</sup> year of operations

Local CPI<sub>(rev)</sub> 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

$$\text{Fixed O\&M Foreign}_{(rev)} = \text{Fixed O\&M Foreign}_x \times \frac{\text{US CPI}_{(rev)}}{260.21} \times \frac{\text{PKR/USD}_{(rev)}}{162.49} \times \frac{7.09}{\text{RMB/USD}_{(rev)}}$$

Where,

Fixed O&M – Foreign<sub>(rev)</sub> is the revised Fixed O&M Component

Fixed O&M – Foreign<sub>x</sub> is the Fixed O&M Component of x<sup>th</sup> year of operations

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

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

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

Frequency of indexation shall be quarterly

### vii. Power Cost – By RFO

$$\text{Power Cost – By RFO}_{(rev)} = \text{Power Cost – By RFO}_x \times \frac{\text{RFO Price}_{(rev)}}{63,856.30}$$

Where,

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

Power Cost – By RFO<sub>x</sub> is the Power Cost – RFO in x<sup>th</sup> year of operations

RFO Price<sub>(rev)</sub> 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.





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### viii. Cost of Working Capital

$$WC_{(rev)} = WC_x \times \left( a_x \frac{\text{Prod Pmt}_{(rev)}}{\text{Prod Pmt}_x} + b_x \frac{\text{Coal}_{(rev)}}{\text{Coal}_x} + c_x \frac{\text{Diesel}_{(rev)}}{104.06} + d_x \frac{\text{US CPI}_{(rev)} \times \text{PKR/USD}_{(rev)} \times 7.09}{260.21 \times 162.49 \times \text{RMB/USD}_{(rev)}} \right) \times \frac{\text{KIBOR}_{(rev)} + 2.00\%}{9.41\%}$$

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 operation

$b_x$  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

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

$\text{Prod Pmt}_x$  is the Production Payment Price as determined by TCEB for  $x^{th}$  year of operations

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

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

$\text{Diesel Price}_{(rev)}$  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)

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

Frequency of Indexation shall be monthly

### ix. Interest Payments

$$\text{Interest} - \text{Local}_{(rev)} = \text{Interest} - \text{Local}_x \times \frac{\text{KIBOR}_{(rev)} + 2.00\%}{9.41\%}$$

Where,





## Thar Coal & Energy Board Government of Sindh

Interest – Local<sub>(rev)</sub> is the Interest Payment – Local Component

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

KIBOR<sub>(rev)</sub> 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

$$\text{Equity Returns}_{(rev)} = \text{Equity Returns}_x \times \frac{\text{PKR/USD}_{(rev)}}{162.49}$$

Where,

Equity Returns<sub>(rev)</sub> is the revised Equity Returns Component

Equity Returns<sub>x</sub> is the Equity Returns component determined by TCEB for  $x^{th}$  period of operations

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

Frequency of Indexation shall quarterly

### xi. Cost of Transportation

$$\text{Cost of Transportation}_{(rev)} = \text{Cost of Transportation}_x \times \frac{\text{Diesel Price}_{(rev)}}{104.04}$$

Where,

Cost of Transportation<sub>(rev)</sub> is the revised Cost of Transportation applicable on tariff

Cost of Transportation<sub>x</sub> is the Cost of Transportation applicable on tariff as determined by TCEB for  $x^{th}$  period of operations

Diesel Price<sub>(rev)</sub> 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





## Thar Coal & Energy Board Government of Sindh

### 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<sub>(rev)</sub> is the Production Payment Price adjusted for heating value (LHV)

Indexed Prod Pmt<sub>x</sub> is the reference Production Payment Price in x<sup>th</sup> year of operations

Indexation shall be computed annually.





## Thar Coal & Energy Board Government of Sindh

### EQUIPMENT COMPARISON

### ANNEXURE A

EQUIPMENT	Contract Stage Allowed		SSRL Requested at Review		Contract Stage Review Allowed	
	Development Period (24 months)	Operation Period (30 Years)	Development Period (18 months)	Operation Period (30 Years)	Development Period (18 months)	Operation Period (30 Years)
Waste - shovel (7 m <sup>3</sup> )	28	43	34	47	33	35
Waste - shovel (2 m <sup>3</sup> )	-	-	4	-	-	-
Waste - Truck (60 ton)	238	1022	340	1848	301	928
Waste - Wheel loader (5 m <sup>3</sup> )	5	13	4	8	4	8
Waste - Rock breaker	2	4	-	-	-	-
Waste - Crawler Dozer 320HP	8	16	12	24	8	16
Coal - Shovel (7 m <sup>3</sup> )	1	5	-	6	1	5
Coal - Shovel (2 m <sup>3</sup> )	1	6	-	8	1	6
Coal - Trucks (60 ton)	20	124	-	240	8	157
Coal - Wheel loader (5 m <sup>3</sup> )	2	4	1	2	1	2
<b>Auxiliary Equipment</b>						
Sprinkling tanker, 50t	4	12	8	24	4	12
Crawler Dozer 320 HP	1	2	2	6	1	2
Grader 220 HP	4	8	6	18	4	8
Road Roller 220 HP	2	3	2	6	2	3
Wheel loader (5 m <sup>3</sup> )	1	2	1	3	1	2
Shovel (1.1 m <sup>3</sup> )	1	2	3	6	1	2
Fuel tanker	5	13	8	24	5	13
Grease vehicle	4	5	3	12	4	5
<b>Coal Handling</b>						
Wheel loader (5 m <sup>3</sup> )	2	4	8	8	2	4
Crawler Dozer 320 HP	2	4	6	-	2	4





## Thar Coal & Energy Board Government of Sindh

**TARIFF TABLE 7.8 MTPA MINE:**

**ANNEXURE B**

Year	Variable O&M	Fixed O&M	Working Capital Interest	Insurance	Asset Replacement Reserve	Royalty	ROEDC	ROE	Principal	Interest	Tariff
1	9.14	5.52	0.37	0.41	3.08	2.55	1.49	5.11	6.64	2.28	36.60
2	9.05	6.23	0.37	0.41	2.51	2.56	1.49	5.11	6.84	2.08	36.65
3	9.05	5.98	0.37	0.41	2.51	2.54	1.49	5.11	7.05	1.87	36.38
4	9.05	6.49	0.37	0.41	2.51	2.58	1.49	5.11	7.27	1.65	36.93
5	7.92	5.43	0.35	0.41	2.27	2.39	1.49	5.11	7.49	1.43	34.29
6	7.92	5.89	0.35	0.41	2.27	2.43	1.49	5.11	7.72	1.20	34.79
7	7.92	5.84	0.35	0.41	2.27	2.42	1.49	5.11	7.96	0.96	34.74
8	7.92	5.63	0.35	0.41	2.23	2.40	1.49	5.11	8.20	0.71	34.47
9	7.92	5.85	0.35	0.41	2.23	2.42	1.49	5.11	8.46	0.46	34.70
10	7.90	5.44	0.35	0.41	2.21	2.39	1.49	5.11	8.72	0.20	34.21
11	7.90	6.48	0.24	0.41	2.20	1.79	1.49	5.11	-	-	25.62
12	7.90	5.73	0.24	0.41	2.21	1.73	1.49	5.11	-	-	24.82
13	7.90	5.66	0.24	0.41	2.29	1.73	1.49	5.11	-	-	24.84
14	7.90	5.66	0.24	0.41	2.29	1.73	1.49	5.11	-	-	24.84
15	7.90	6.16	0.24	0.41	2.20	1.76	1.49	5.11	-	-	25.27
16	8.45	5.43	0.24	0.41	2.16	1.75	1.49	5.11	-	-	25.04
17	8.44	5.81	0.24	0.41	2.16	1.77	1.49	5.11	-	-	25.43
18	8.45	5.69	0.24	0.41	2.16	1.77	1.49	5.11	-	-	25.31
19	8.46	6.19	0.25	0.41	2.14	1.80	1.49	5.11	-	-	25.84
20	8.45	5.37	0.24	0.41	2.08	1.74	1.49	5.11	-	-	24.87
21	8.45	6.44	0.25	0.41	1.88	1.80	1.49	5.11	-	-	25.83
22	8.45	5.46	0.24	0.41	1.82	1.72	1.49	5.11	-	-	24.70
23	8.45	6.33	0.24	0.41	1.82	1.79	1.49	5.11	-	-	25.64
24	7.15	5.38	0.22	0.41	1.26	1.58	1.49	5.11	-	-	22.58
25	7.15	5.73	0.21	0.41	0.72	1.56	1.49	5.11	-	-	22.38
26	7.15	6.05	0.21	0.41	0.72	1.59	1.49	5.11	-	-	22.73
27	7.14	5.38	0.21	0.41	0.65	1.53	1.49	5.11	-	-	21.92
28	7.13	5.87	0.21	0.41	0.65	1.57	1.49	5.11	-	-	22.45
29	7.13	5.68	0.21	0.41	0.34	1.53	1.49	5.11	-	-	21.90
30	7.13	5.32	0.20	0.41	-	1.47	1.49	5.11	-	-	21.14
	<b>8.33</b>	<b>5.85</b>	<b>0.32</b>	<b>0.41</b>	<b>2.28</b>	<b>2.22</b>	<b>1.49</b>	<b>5.11</b>	<b>4.86</b>	<b>0.95</b>	<b>31.82</b>





## Thar Coal & Energy Board Government of Sindh

### ESCALATIONS SOUGHT IN THE FINANCIAL MODEL:

### ANNEXURE C

#### 1. Equipment Cost Comparison Requested by Petitioner:

S. No.	Name/Description	Contract Stage			Review Motion			Unit Price Differential	Quantity Differential	Total Price Differential
1	Over-Burden Equipment	Unit Price	Quantity	Total	Unit Price	Quantity	Total			
1.1	Hydraulic Excavator 7.0 m <sup>3</sup>	1.23	38.00	46.76	1.36	34.00	46.30	0.13	(4.00)	(0.46)
1.2	Hydraulic Excavator 2.0 m <sup>3</sup>	-	-	-	0.34	4.00	1.35	0.34	4.00	1.35
1.3	Dump Truck 60t	0.12	354.00	43.64	0.16	340.00	53.79	0.03	(14.00)	10.14
1.4	Wheel Loader 5.0 m <sup>3</sup>	0.37	8.00	2.95	0.26	4.00	1.03	(0.11)	(4.00)	(1.92)
1.5	Hydraulic Rock Breaker	0.28	3.00	0.83	0.27	-	-	(0.01)	(3.00)	(0.83)
1.6	Crawler Dozer 320 HP	0.54	14.00	7.59	0.25	12.00	3.01	(0.29)	(2.00)	(4.59)
2	Mining Equipment									
2.1	Hydraulic Excavator 7.0 m <sup>3</sup>	1.23	-	-	1.36	-	-	0.13	-	-
2.2	Hydraulic Excavator 2.0 m <sup>3</sup>	0.47	4.00	1.88	0.34	-	-	(0.13)	(4.00)	(1.88)
2.3	Dump Truck 60t	0.12	-	-	0.16	-	-	0.03	-	-
2.4	Wheel Loader 5.0 m <sup>3</sup>	0.37	2.00	0.74	0.26	1.00	0.26	(0.11)	(1.00)	(0.48)
3	Auxiliary Equipment									
3.1	Sprinkling Tanker 50t	0.19	8.00	1.51	0.15	8.00	1.19	(0.04)	-	(0.32)
3.2	Crawler Dozer 320 HP	0.54	2.00	1.08	0.25	2.00	0.50	(0.29)	-	(0.58)
3.3	Grader 220 HP	0.27	6.00	1.65	0.26	6.00	1.58	(0.01)	-	(0.07)
3.4	Road Roller 20t	0.16	2.00	0.31	0.15	2.00	0.30	(0.01)	-	(0.01)
3.5	Wheel Loader 5.0 m <sup>3</sup>	0.37	1.00	0.37	0.26	1.00	0.26	(0.11)	-	(0.11)
3.6	Hydraulic Excavator 1.1 m <sup>3</sup>	0.19	2.00	0.39	0.17	3.00	0.50	(0.03)	1.00	0.11
3.7	Fuel Tanker	0.07	10.00	0.74	0.07	8.00	0.57	(0.00)	(2.00)	(0.17)
3.8	Grease Vehicle	0.41	4.00	1.64	0.39	3.00	1.18	(0.02)	(1.00)	(0.46)
3.9	Slope Stability Monitoring System	1.84	1.00	1.84	1.77	1.00	1.77	(0.08)	-	(0.08)





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S. No.	Name/Description	Contract Stage			Review Motion			Unit Price Differential	Quantity Differential	Total Price Differential
4	Coal Handling	Unit Price	Quantity	Total	Unit Price	Quantity	Total			
4.1	Crusher System	4.72	1.00	<b>4.72</b>	5.30	1.00	<b>5.30</b>	<b>0.58</b>	-	<b>0.58</b>
4.2	stacker and reclaimer	2.40	2.00	<b>4.80</b>	2.30	3.00	<b>6.90</b>	(0.10)	<b>1.00</b>	<b>2.10</b>
4.3	stacker and reclaimer(backup)	2.40	1.00	<b>2.40</b>	2.30	-	-	(0.10)	(1.00)	(2.40)
4.4	Wheel loader 5.0m <sup>3</sup>	0.37	4.00	<b>1.47</b>	0.35	8.00	<b>2.82</b>	(0.02)	<b>4.00</b>	<b>1.35</b>
4.5	Crawler dozer 320Hp	0.54	4.00	<b>2.17</b>	0.52	6.00	<b>3.12</b>	(0.02)	<b>2.00</b>	<b>0.95</b>
4.6	Coal lithotypes laboratory and Chemical laboratory	0.39	1.00	<b>0.39</b>	0.37	1.00	<b>0.37</b>	(0.02)	-	(0.02)
<b>5</b>	<b>Conveyor Belt Transportation System</b>									
5.1	Conveyor Belt	16.18	1.00	<b>16.18</b>	12.66	1.00	<b>12.66</b>	(3.52)	-	(3.52)
<b>6</b>	<b>Dewatering and Drainage</b>									
6.1	Dewatering submersible pumps	0.11	50.00	<b>5.29</b>	0.12	50.00	<b>5.82</b>	<b>0.01</b>	-	<b>0.53</b>
6.2	Dewatering submersible pumps(backup)	0.11	23.00	<b>2.43</b>	0.12	23.00	<b>2.68</b>	<b>0.01</b>	-	<b>0.25</b>
6.3	Pumps (mining field)	0.32	3.00	<b>0.97</b>	0.31	3.00	<b>0.93</b>	(0.01)	-	(0.04)
6.4	Pumps (Rainstorm)	0.41	3.00	<b>1.22</b>	0.39	3.00	<b>1.17</b>	(0.02)	-	(0.05)
6.5	Pumps (working bench)	0.01	8.00	<b>0.07</b>	0.01	8.00	<b>0.06</b>	(0.00)	-	(0.00)
6.6	Dewatering hole and Water drainage pipeline	13.87	1.00	<b>13.87</b>	12.66	1.00	<b>12.66</b>	(1.21)	-	(1.21)
6.7	Auxiliary Equipment	0.28	1.00	<b>0.28</b>	17.34	1.00	<b>17.34</b>	<b>17.06</b>	-	<b>17.06</b>
6.8	Disposal pipeline pumps	0.27	6.00	<b>1.62</b>	0.26	4.00	<b>1.05</b>	(0.01)	(2.00)	(0.58)
6.9	Pumps (Flood protection levee)	0.01	3.00	<b>0.02</b>	0.01	3.00	<b>0.02</b>	(0.00)	-	(0.00)
<b>7</b>	<b>Communication System &amp; Control System</b>									
7.1	Communication System	7.69	1.00	<b>7.69</b>	7.37	1.00	<b>7.37</b>	(0.32)	-	(0.32)
7.2	Control System	2.08	1.00	<b>2.08</b>	2.00	1.00	<b>2.00</b>	(0.09)	-	(0.09)





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S. No.	Name/Description	Contract Stage			Review Motion			Unit Price Differential	Quantity Differential	Total Price Differential
		Unit Price	Quantity	Total	Unit Price	Quantity	Total			
8	Power Supply System									
8.1	RFO generator	20.21	1.00	20.21	18.13	1.00	18.13	(2.08)	-	(2.08)
8.2	Power Distribution System	15.03	1.00	15.03	15.66	1.00	15.66	0.63	-	0.63
8.3	Solar Power Plant (20MW)	-	-	-	12.40	1.00	12.40	12.40	1.00	12.40
9	Water Supply and Drainage									
9.1	Water treatment system	2.43	1.00	2.43	2.40	1.00	2.40	(0.03)	-	(0.03)
9.2	Sewage treatment system	1.60	1.00	1.60	0.47	1.00	0.47	(1.13)	-	(1.13)
9.3	Oil sewage drainage system	0.14	1.00	0.14	0.19	1.00	0.19	0.04	-	0.04
10	Workshop and Warehouse									
10.1	Workshop & Warehouse Vehicles	7.22	1.00	7.22	5.77	1.00	5.77	(1.45)	-	(1.45)
10.2	Gas station & Oil depot	1.51	1.00	1.51	0.78	1.00	0.78	(0.74)	-	(0.74)
11	Administrative Facilities (Vehicle)									
11.1	Site Vehicles	5.82	1.00	5.82	4.41	1.00	4.41	(1.41)	-	(1.41)
12	Office Equipment									
12.1	Air conditioning and ventilation/ Ventilation system	12.89	1.00	12.89	12.89	1.00	12.89	(0.00)	-	(0.00)
12.2	Lighting	0.61	1.00	0.61	-	1.00	-	(0.61)	-	(0.61)
12.3	Kitchen Appliance	0.32	1.00	0.32	0.50	1.00	0.50	0.19	-	0.19





## Thar Coal & Energy Board Government of Sindh

### 2. Capital Cost Comparison

	Contract Stage		Review Stage	
	SSRL	TCTDC	SSRL	TCTDC
<b>Total Project Cost (mUSD)</b>	<b>1,177.55</b>	<b>749.30</b>	<b>1,061.75</b>	<b>794.05</b>
<b>EPC Cost (mUSD)</b>	<b>781.82</b>	<b>461.05</b>	<b>645.97</b>	<b>540.57</b>
Over-Burden Cost	320.69	120.29	241.61	176.85
Civil Works	177.43	137.52	134.32	132.52
Equipment Procurement and Installation	283.70	203.24	270.04	231.20
<b>Other EPC Costs</b>	<b>77.39</b>	<b>67.14</b>	<b>68.81</b>	<b>45.36</b>
Detailed Design	11.00	11.00	11.00	11.00
Mine Service Facilities Operating Expenses	23.86	22.99	16.75	14.10
EPC Contractor Operating Expenses	33.53	29.42	16.12	15.27
Lignite Production Cost	9.00	3.73	24.94	4.99
<b>Non-EPC Costs</b>	<b>318.35</b>	<b>221.11</b>	<b>346.96</b>	<b>208.12</b>
Consultancies and Studies	22.91	22.91	28.41	22.91
Legal and Professional Services	10.00	10.00	10.00	10.00
Insurance Cost	6.21	3.93	3.71	3.17
SSRL Operating Expenses	34.37	28.92	22.05	15.03
Security Cost	9.00	9.00	3.00	3.00
Transmission Line Re-Route (HESCO)	1.00	1.00	2.50	1.00
Existing Pipeline Re-Route	1.77	1.50	2.50	1.50
Existing Roads Re-Route	6.85	3.00	9.50	3.00
Development Costs	13.10	8.65	13.10	8.65
Land Acquisition & Rehabilitation	67.00	49.00	74.24	49.00
Commitment Fee	3.42	2.28	1.96	1.09
Arrangement Fee	4.42	2.81	3.98	2.98
Interest During Construction	94.42	49.92	26.42	18.97
Sinosure Fee	53.77	33.65	67.46	33.80
Income from Pre-COD Sales	(68.56)	(48.82)	(23.51)	(42.09)
Royalty to TCEB on Pre-COD Sales	4.78	3.41		2.94
Environmental Protection	4.38	4.38	8.80	4.38
Terminal reservoir	-	-	14.86	7.43
34 km Drainage / Effluent Water Channel	-	-	8.77	4.38
Crush Stone for Road	-	-	14.24	5.00
Taxes	49.51	35.57	54.99	52.00





## Thar Coal & Energy Board Government of Sindh

Year	Over Burden Volume (Mm <sup>3</sup> )		Annual Production (mton)		Stripping Ratio		Dewatering Cost (mUSD)		OB Cost (mUSD)		Mining Cost (mUSD)	
	Contract Stage	Review Motion	Contract Stage	Review Motion	Contract Stage	Review Motion	Contract Stage	Review Motion	Contract Stage	Review Motion	Contract Stage	Review Motion
-3	-	9.34	-	-	-	-	-	-	-	14.57	-	-
-2	90.1	43.99	-	-	-	-	8.31	4.70	155.42	68.88	-	-
-1	90.5	106.70	2.45	1.7	36.9	62.8	8.2	9.30	148.76	144.17	6.95	3.21
1	68.64	60.06	7.8	7.8	8.8	7.7	8.85	5.24	120.94	93.12	13.5	11.44
2	68.64	60.06	7.8	7.8	8.8	7.7	8.85	5.52	119.53	92.05	10.48	9.37
3	68.64	60.06	7.8	7.8	8.8	7.7	9.29	6.15	119.53	92.05	10.48	9.37
4	68.64	60.06	7.8	7.8	8.8	7.7	9.29	6.28	119.53	92.05	10.48	9.37
5	59.28	60.06	7.8	7.8	7.6	7.7	9.73	6.42	92.5	78.04	10.43	9.07
6	59.28	58.50	7.8	7.8	7.6	7.5	9.73	6.56	92.45	76.06	10.43	9.10
7	59.28	58.50	7.8	7.8	7.6	7.5	5.9	6.70	92.45	76.06	10.43	9.10
8	59.28	58.50	7.8	7.8	7.6	7.5	5.9	6.83	92.45	75.85	10.43	9.08
9	59.28	58.50	7.8	7.8	7.6	7.5	6.11	6.98	91.69	75.38	10.41	9.06
10	59.28	58.50	7.8	7.8	7.6	7.5	6.11	7.53	91.69	75.37	10.41	9.06
11	59.28	58.50	7.8	7.8	7.6	7.5	6.44	7.59	91.69	75.37	10.41	9.06
12	59.28	58.50	7.8	7.8	7.6	7.5	7.98	7.67	91.69	75.37	10.41	9.06
13	59.28	58.50	7.8	7.8	7.6	7.5	7.98	7.74	91.69	75.37	10.41	9.06
14	59.28	58.50	7.8	7.8	7.6	7.5	7.98	7.74	91.69	75.37	10.41	9.06
15	59.28	58.50	7.8	7.8	7.6	7.5	8.2	8.15	91.69	75.37	10.41	9.06
16	59.28	58.50	7.8	7.8	7.6	7.5	8.2	8.15	91.69	75.37	10.41	9.06
17	55.38	58.50	7.8	7.8	7.1	7.5	8.63	8.36	87.51	75.37	10.52	9.06
18	55.38	58.50	7.8	7.8	7.1	7.5	8.63	8.50	87.5	75.37	10.52	9.06
19	55.38	58.50	7.8	7.8	7.1	7.5	8.85	8.77	87.5	75.37	10.52	9.06
20	55.38	58.50	7.8	7.8	7.1	7.5	8.85	8.84	87.5	75.37	10.52	9.06
21	55.38	63.18	7.8	7.8	7.1	8.1	8.96	8.99	87.5	80.46	10.52	8.97
22	55.38	63.18	7.8	7.8	7.1	8.1	8.96	9.05	87.5	80.40	10.52	8.97
23	55.38	63.18	7.8	7.8	7.1	8.1	9.18	9.19	87.5	80.40	10.52	8.97
24	55.38	44.54	7.8	7.8	7.1	5.7	9.18	9.40	87.5	61.01	10.52	9.47
25	55.38	44.54	7.8	7.8	7.1	5.7	9.51	9.47	87.5	60.97	10.52	9.47
26	55.38	44.54	7.8	7.8	7.1	5.7	9.51	9.61	87.5	60.97	10.52	9.47
27	55.38	44.54	7.8	7.8	7.1	5.7	9.62	9.68	87.5	60.97	10.52	9.47
28	55.38	44.54	7.8	7.8	7.1	5.7	9.62	9.75	87.5	60.97	10.52	9.47
29	55.38	44.54	7.8	7.8	7.1	5.7	9.62	9.82	61.38	60.97	10.52	9.47
30	55.38	44.54	7.8	7.8	7.1	5.7	9.62	9.90	61.38	60.97	10.52	9.47

