



**PETITION FOR DETERMINATION OF REFERENCE COAL TARIFF FOR  
FEASIBILITY STAGE TARIFF**

**SUBMITTED**

**BEFORE THE THAR COAL AND ENERGY BOARD**

**FOR OPEN CAST LIGNITE COAL MINING PROJECT AT THAR COALFIELD**

**BLOCK-1, DISTRICT THARPARKAR, SINDH**

**For Development & Operations of 6.50 Mt/a**

**ON BEHALF OF**

**SINO-SINDH RESOURCES ( PRIVATE )LIMITED**

**October, 2015**



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## ACRONYMS

CAPEX	Capital Expenditure
CCTEG	China Coal Technology & Engineering Group Corporation
COD	Commercial Operations Date
CPI	Consumer Price Index
CSA	Coal Supply Agreement
EPC	Engineering, Procurement, and Construction
GoP	Government of Pakistan
GoS	Government of Sindh
IDC	Interest During Construction
IRR	Internal Rate of Return
KIBOR	Karachi Inter-Bank Offer Rate
LIBOR	London Inter-Bank Offer Rate
NEPRA	National Electric Power Regulatory Authority
O&M	Operations & Maintenance
OPEX	Operational Expenses
PKR	Pakistani Rupee
PPA	Power Purchase Agreement
RFO	Residual Furnace Oil
ROE	Return on Equity
ROEDC	Return on Equity During Construction
RWE	RWE AG (German Electric Utilities Company)
SBP	State Bank of Pakistan
SSRL	Sino-Sindh Resources Limited
TCEB	Thar Coal & Energy Board
USD	United States Dollar
RMB	Chinese Reminbi
WPPF	Workers' Profit Participation Fund
WWF	Workers' Welfare Fund



## **INTRODUCTORY REMARKS**

- Tariff Petition for feasibility stage is being filed before Thar Coal and Energy Board (TCEB) pursuant to Thar Coal Tariff Determination Rules, 2014.
- On 24<sup>th</sup> May 2012, TCEB issued a mining license to Sino Sindh Resources Limited for development of the Block-I of the Thar Coalfields, after completing detailed feasibility study of Block-I. The feasibility study was initially conducted by RWE of Germany in 2004, and revalidated by CCTEG in 2012. Following revalidation of feasibility study, TCEB had granted mining license to SSRL for a period of 30 years. For the purpose of the Project, SSRL was incorporated under the Companies Ordinance, 1984, as Sino-Sindh Resources Ltd.
- Financial package for the Project comprises of debt and equity in a ratio of seventy five percent (75%) debt and twenty five percent (25%) equity. Financial structure is permitted under the Infrastructure Project Guidelines provided by State Bank of Pakistan, as well as The Thar Coal and Energy Board Act issued by the Government of Sindh in 2011.
- In a scenario where TCEB requires any additional information, explanation, or clarification from SSRL during the evaluation process, SSRL would be pleased to furnish the required information on a prompt basis.

## **PARTICULARS OF PETITION**

### **Details of the Petitioner**

#### **Name and Registered Office**

Sino-Sindh Resources (Private) Limited  
F-60, Park Lane,  
Kehkashan, Clifton,  
Karachi

#### **Representatives of SSR**

Chaudhry Abdul Qayyum  
Chief Executive Officer



## **1. BACKGROUND**

- 1.1.** Under the Thar Coal and Energy Board Act of 2011, TCEB is the authority inter alia competent to determine tariffs and other terms and conditions for extraction of coal from Thar Coalfields. TCEB is also the competent authority for determining the process and procedures for reviewing tariffs and recommending tariff adjustments, pertaining to extraction of coal from Thar Coalfields.
- 1.2.** SSRL is a company incorporated and existing under the Companies Ordinance, 1984. SSRL was established to conduct coal excavation and production works on Block-I of the Thar Coalfields. SSRL has already completed feasibility studies, in addition to acquiring NOC from Sindh Environmental Protection Agency regarding the Environment & Social Impact Assessment plan.
- 1.3.** In accordance with the requirements of Thar Coal and Energy Board Act of 2011 and the rules and regulations made thereunder, SSRL hereby submits this petition, for tariff determination for feasibility stage in respect of SSRL's mining activities in Block-I of Thar Coalfields, situated in the province of Sindh. The petition follows Thar Coal Tariff Determination Rules, 2014.

## **2. INTRODUCTION**

- 2.1.** On 24<sup>th</sup> May 2012, TCEB granted mining lease for 30 years to SSRL after completion of feasibility report, which was finalized by CCTEG. In order to complete land acquisition process, and attain financial close – it is imperative that a tariff is finalized by TCEB, so that civil works on the Project may commence accordingly.
- 2.2.** The tariff agreement will be finalized between SSRL and China Power International, subject to TCEB's approval of a 30 year tariff which is acceptable to SSRL. China Power International will be establishing 2x600MW mine mouth power plants, which will be sourcing coal extracted from Thar Coalfields by SSRL. The tariff would be based on the principles of *cost+* basis – mainly comprising of capacity, and production charges. The tariff will be integrated into the Coal Supply Agreement (the "CSA") to be entered between SSRL and China Power International, and shall be based on the standardized CSA proposed by TCEB. A CSA between the two parties is already in place. Updated feasibility stage tariff as being requested in this petition, shall be made part of the CSA



following necessary approvals.

- 2.3. Additional information, if any, as required by TCEB shall be provided by SSRL, as and when required.

### 3. INVESTMENT

- 3.1. The Construction Cost estimate of the Project is provided in US Dollars (“USD”) in the table below. The Engineering, Procurement and Construction (“EPC”) price has been fixed at USD 980.09 million which includes project reserve fund of USD 72.6 million. A component wise break up of mine development costs, in terms of civil works, equipment, and installation has been provided in Table 1 below.

<b>Table 1: Engineering, Procurement, &amp; Construction Cost</b>	
<b>Mine Construction</b>	<b>USDm</b>
Stripping Works	479.35
<b>Total Mine Construction</b>	<b>479.35</b>
<b>Building Projects</b>	
Stripping Works	-
Rock project	0.24
Dumping System	-
Ground Production System	9.76
Ground Transportation	160.59
Dewatering & Water Prevention	3.90
Communication & Control Systems	0.21
Power Supply System	-
Outdoor Water Supply & Drainage	5.03
Machine Repair Shop	4.64
Professional Warehouse	3.02
Administrative Welfare Facilities	9.93
Site Construction	11.60
Environmental Protection	9.66
Engineering, Construction & Other Cost	-
Transportation Cost of Equipment	-
<b>Total Building Projects</b>	<b>218.59</b>
<b>Equipment</b>	
Stripping Works	48.59
Rock project	43.38
Dumping System	1.50
Ground Production System	10.83
Ground Transportation	-
Dewatering & Water Prevention	2.41
Communication & Control Systems	6.02



Power Supply System	20.35
Outdoor Water Supply & Drainage	2.12
Machine Repair Shop	1.70
Professional Warehouse	0.82
Administrative Welfare Facilities	2.86
Site Construction	-
Environmental Protection	-
Engineering, Construction & Other Cost	-
Transportation Cost of Equipment	12.24
<b>Total Equipment</b>	<b>152.83</b>
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<b>Installation</b>	
Stripping Works	0.78
Rock project	0.03
Dumping System	0.02
Ground Production System	1.14
Ground Transportation	-
Dewatering & Water Prevention	11.80
Communication & Control Systems	1.34
Power Supply System	4.36
Outdoor Water Supply & Drainage	6.96
Machine Repair Shop	0.08
Professional Warehouse	0.22
Administrative Welfare Facilities	0.10
Site Construction	-
Environmental Protection	-
Engineering, Construction & Other Cost	-
Transportation Cost of Equipment	-
<b>Total Installation</b>	<b>26.83</b>
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Other Construction Costs	29.89
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Total Civil+Equipment+Installation+Development Costs	907.49
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Project Reserve Fund	72.60
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<b>Total Construction Costs (incl. Reserves)</b>	<b>980.09</b>

- 3.2.** Non-EPC costs include “Land Acquisition & Relocation” costs, which will be incurred by SSRL following determination of tariff. Total land required is estimated to be 4,447 acres, which would result in displacement of roughly 2,000 individuals, inhabiting the area under consideration. It is estimated that the land will be acquired at a cost of USD 2,000 per acre, or whatever the price that is fixed by the Government of Sindh. As per various World Bank guidelines it is also estimated that rehabilitation and resettlement would cost roughly USD 5,830 per capita. Total cost of land acquisition and relocation is estimated to be USD



13.34 million, and USD 11.66 million respectively. The same has been illustrated in Table 2 below.

<b>Table 2: Cost of Land Acquisition &amp; Rehabilitation</b>	
Cost of Land (USD per acre)	3,000
Total Land Required (acres)	4,447
Number of Evacuees in First Cut (persons)	2,000
Estimated Cost of Evacuees (USD per person)	5,830
 Total Cost of Land (USDm)	 13.34
Total Cost of Rehabilitation (USDm)	11.66
<b>Total Cost of Land Acquisition &amp; Rehabilitation (USDm)</b>	<b>25.00</b>

- 3.3.** Other Non-EPC costs include “Taxes & Duties”, “Development Costs”, “Insurance Cost”, “Financing Fee”, “Interest During Construction”, and “Sinosure Fee”. The same have been enlisted in Table 3 below. Detailed explanation of each cost has been provided in 3.4.

<b>Table 3: Other Non-EPC Costs</b>	
	<b>USD in Millions</b>
- Taxes & Duties	9.07
- Development Costs	15.00
- Insurance Cost	12.25
- Financing Fee	24.9
- Interest During Construction	81.29
- Sinosure Fee	91.14
<b>Other Non-EPC Costs</b>	<b>233.66</b>

- 3.4.** Project Cost is simply the sum of Total Construction Costs, Cost of Land Acquisition & Rehabilitation, and Other Non-EPC Costs, which have been enumerated in 3.1, 3.2, and 3.3. Total Project Cost is estimated to be USD1,237.74 million.

### **3.5. Explanation of Investment**

- 3.5.1.** Project Timeline is assumed to be 30 years, which is the duration of the mining license granted by TCEB on 24<sup>th</sup> May 2012.
- 3.5.2.** “Engineering, Procurement & Construction Cost” covers all excavation equipment, civil works, in addition to necessary auxiliary machinery, installation, and systems including erection and commissioning of equipment, and construction of buildings. The stated EPC cost includes all works required for



removal of overburden, civil works, and implementation of the approved resettlement plan. The turnkey price of the overburden removal, and civil works is based on a firm proposal, which has been negotiated with \_\_\_\_\_, which is the EPC contractor. The Construction Cost also includes a 'Project Reserve' portion, estimated to be at 8 percent of actual engineering, procurement, and construction costs.

- 3.5.3.** "Taxes & Duties" covers all import taxes and duties and is assumed to be 1 percent of EPC cost. Custom duties on import of machinery are nil. The project also has exemption from withholding tax on dividends for a period of 30 years, in addition to exemption from withholding tax on procurement of goods and services. Furthermore, the project also has exemption from all other levies, such as Special Excise Duty (SED), Federal Excise Duty (FED), WPPF, and WWF for a period of 30 years.
- 3.5.4.** "Development Costs" covers the expenses of SSRL and O&M Contractor personnel, which include hiring of local personnel for operations and maintenance, training, etc. It also includes sponsors' development costs and any delay in start-up insurance. It covers costs of feasibility studies, environmental studies, geological and hydrological studies, soil investigation, fees of engineering consultants, lawyers, technical consultants, and guarantees, furnished to relevant authorities, etc.
- 3.5.5.** "Land Acquisition & Rehabilitation" covers the purchase of land, in addition to stamp duty and registration fees. The amount also includes the fees of the broker and lawyers, in addition to the cost of fill required to levelize the site with the access road. It is estimated that the cost of land acquisition would be USD3,000 per acre. Development of mine in the first phase would result in relocation of roughly 2,000 individuals. Resettlement and relocation is estimated to cost USD 5,830 per person, as detailed in 3.2 and Table 2.
- 3.5.6.** "Insurance Costs" cover the costs for insuring the developmental work being conducted on the site, prior to the Commercial Operations Date (the "COD"). The amount is estimated to be 1.35 percent of Construction Cost.
- 3.5.7.** "Sinosure Fee" covers the cost of insuring debt that will be utilized by the project. The fee is estimated to be 10 percent of the total amount of debt that will be undertaken by the project. The fee would be added to the debt required by the project, thereby resulting in escalation of debt load by 10 percent. The fee would be payable in two tranches. The premium is determined after taking



into consideration sovereign risk, and specific risks associated with the project.

**3.5.8.** “Financing Fees & Charges” includes upfront fee, commitment fee, lenders’ consultants’ fee, L/C charges, etc. It is assumed that funding would be wholly done in foreign currency (“FCY”), and financing cost would be considered as pass through. “Financing Fees & Charges” are assumed to be 3 percent of Total Debt being raised by the project.

**3.5.9.** “Interest During Construction” (“IDC”) is calculated on the basis of anticipated interest rates, equity injections, CAPEX, and debt drawdown schedule. The COD of the Project is expected to be 36 months after financial close. The financial close is being targeted to be attained by June 30, 2015. IDC would be capitalized, and would be paid back on a pro-rata basis in-line with the debt repayment schedule of the Project.

### **3.6. Project Analysis**

Project analysis, and consequent determination of tariff is done after taking into consideration the following assumptions:

**3.6.1.** Investment cost estimate, which includes a firm turnkey price.

**3.6.2.** Overburden removal costs.

**3.6.3.** Mine operating costs, including long-term impacts of scale.

**3.6.4.** Financing, taxation, depreciation and other obligations in-line with stipulation of law, and lenders.

**3.6.5.** Proposed 30-year tariff based on real life-time costs. SSRL’s model is based upon the BOO or Build-Own-Operate concept.

**3.6.6.** It is also assumed that the Project qualifies for tax incentives as per various notifications issued by the Government, which includes an exemption from corporate income taxes, in addition to turnover and withholding taxes. Various exemptions have been listed in 3.2.2

### **3.7. Capital Structure**



- 3.7.1.** The Project is being financed by a mix of seventy five percent (75%) debt and twenty five percent (25%) equity. The capital structure is in-line with stipulations of TCEB and Thar Coal Tariff Determination Rules, 2014. Capital structure of the Project, with estimated debt and equity requirements is provided in Table 4 below.

<b>Table 4: Capital Structure</b>	
	<b>USD in Millions</b>
Debt (%)	<b>75%</b>
Equity (%)	<b>25%</b>
 Total Debt (incl. IDC)	 <b>929.06</b>
Total Equity	<b>309.69</b>
Total Capital	<b>1,238.74</b>

### **3.8. Other Considerations**

- 3.8.1.** The Project would play an instrumental role in initiation of exploration of the seventh largest lignite deposits in the world located in Thar Desert. Overburden removal, and consequent development of opencast mine would involve local communities, generate employment, enhance social welfare and mobility, while catalyzing economic activity in the region.
- 3.8.2.** A detailed Environment & Social Impact Assessment has already been conducted, for which necessary approvals have been sought from relevant authorities.
- 3.8.3.** The Project would be supplying coal to mine mouth power plants, which are being developed by China Power International (“CPI”). The coal-fired power plant would source all of its fuel requirements from SSRL under a long-term Coal Supply Agreement.
- 3.8.4.** The tariff determined by the TCEB will act as pass-through cost for the power plant that is being established by CPI – which will be taken into consideration by NEPRA at the time of determination of power tariff for CPI. The tariff determined will effectively act as Fuel Cost Component (“FCC”) in determination of electricity tariff by NEPRA.
- 3.8.5.** Generation of electricity through indigenous coal resources would assist in bringing down cost of generation substantially relative to generation through Refined Furnace Oil (RFO), while also decreasing outlay of valuable foreign



exchange reserves for procurement of energy supplies.

- 3.8.6.** Leveraging indigenous resources would enhance energy security profile of the country, and would enable it to gradually transition towards a more indigenous fuel friendly energy mix, rather than an imported one.
- 3.8.7.** Coal that will be extracted from the mine is estimated to have a calorific value of 10,321.8 BTU/kg, categorizing as lignite – which is effectively unstable and susceptible to self-combustion. Economic usage of coal excavated would only be possible near the coal mine, thereby necessitating presence of mine mouth power plants.
- 3.8.8.** Moisture content constitutes 47.8 percent of coal to be extracted, followed by ash content of 7.3 percent, volatile matter of 28 percent, and sulfur of 1.4 percent.
- 3.8.9.** Average stripping ratio for the mine is 5.88m<sup>3</sup>/t, while average thickness of mineable coal seam is 23 meters. Lignite is being extracted in a large number of countries around the world, with similar mine parameters.
- 3.8.10.** Mineable reserves amount to 477.44 Million Tons within the mining boundary of the opencast mine.
- 3.8.11.** Assuming a reserve coefficient of 1.2 and design production capacity of 6.5 Million Tons per annum, the design service life of the opencast mine is 61.2 years.
- 3.8.12.** Opencast mine will operate for 330 days in a year, with 3 shifts per day, and 8 hours per shift.
- 3.8.13.** Yield per day is estimated to be 19,696 tons. Yield per shift is estimated to be 6,565 tons.
- 3.8.14.** Following overburden removal, the mine is expected to commence with production of 6.5mtpa. Determination of tariff is being sought assuming that the mine will be producing 6.5 Million Tons per annum throughout Project lifecycle of 30 years.
- 3.8.15.** Production capacity may be enhanced at a later stage, to accrue benefits of scale. Incremental Capital Expenditure may be done to enhance production levels to up



to 20 Million Tons per annum at a later stage.

**3.8.16.** It has been recommended by CCTEG in the feasibility conducted that a semi continuous process, which would utilize a shove-truck-semi-mobile crushing plant + belt conveyor, would be optimal for extraction of coal from the proposed open-pit mine.

**3.8.17.** Working Capital is assumed to be financed by financial institutions based out of Pakistan in PKR.

#### **4. TARIFF SUMMARY**

**4.1.** Proposed tariff estimates for feasibility stage provided below have been calculated after a detailed review of prospective financial position of the project, as well as capital and operational cost estimated provided by CCTEG. The tariff has been determined after considering economic, financial, legal, and technical aspects, to ensure that the project parameters and performance stays in-line with requirements of the law, and all stakeholders. The financial analysis has been conducted for a 30-year period, which is the length of the mining license granted to SSRL.

**4.2.** Cash costs of production have been determined by CCTEG in the feasibility report which was finalized in 2012. The same have been updated as of December 2014. Cash costs of production once the mine attains production levels of 6.5 Million Tons per annum are estimated to be USD 26.56 per ton. As excavation will be done by a semi continuous process, fuel costs make up 38.8 percent of total cash costs, followed by repairs at 25.4 percent, and manpower & materials 10.1 percent, and 9.7 percent respectively. As tariff is being determined on a 'cost+' basis, increase in scale of operations may result in reduction in cash costs at a later stage due to economies of scale. Detailed operating costs, and relative composition of operating cost structure have been provided in Table 5 and Table 6 respectively.

**Table 5: Operating Costs**

<b>Cash Costs</b>	<b>USDm</b>
Material Costs	2.58
Fuel Costs	10.30
Personnel Costs	2.68
Repair Costs	6.74
Other Expenses	2.42
Security Costs	0.87
Safety Fee	0.87



Management Fee	0.08
Variable O&M	12.89
Fixed O&M	12.68

<b>Total Operating Costs</b>	<b>26.56</b>
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**Table 6: Operating Costs (% of Total)**

<b>Cash Costs</b>	<b>%</b>
Material Costs	9.72%
Fuel Costs	38.79%
Personnel Costs	10.12%
Repair Costs	25.40%
Other Expenses	9.12%
Security Costs	3.27%
Safety Fee	3.27%
Management Fee	0.3%
Variable O&M	48.51%
Fixed O&M	51.49%
<b>Total Operating Costs</b>	<b>100%</b>

- 4.3.** Production levels for the purpose of this tariff petition are assumed to remain in-line with capacity of 6.5 Million Tons per annum throughout Project lifecycle. Production levels during the first year would be 3 Million Tons.
- 4.4.** Exhibit below provides a summary of reference tariff for the lifetime of the mine, from the first to the thirtieth year. In the reference tariff, any changes in various indices are not being considered, while guaranteed Internal Rate of Return is assumed to be 20 percent. ROEDC is being considered for 36 months, which is assumed to be the period in which mine will be developed. COD is assumed to be after 36 months. Discount rate for calculation of Levelized Cost is assumed to be the Weighted Average Cost of Capital for the project. Cash costs of production and aggregate production levels are in-line with estimates provided in 4.2 and 4.3.



Coal Tariff Table (USD per ton)											
	Variable O&M	Fixed O&M	Working Capital Interest	Insurance	Recurring CAPEX Reserve	Royalty	ROEDC	ROE	Principal	Interest	Tariff
2018	12.89	13.68	1.56	4.08	-	1.00	7.01	20.73	24.94	15.77	101.67
2019	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	12.17	6.62	61.99
2020	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	12.87	5.92	61.99
2021	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	13.61	5.18	61.99
2022	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	14.40	4.39	61.99
2023	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	15.22	3.57	61.99
2024	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	16.10	2.69	61.99
2025	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	17.02	1.77	61.99
2026	12.89	13.68	0.94	1.88	-	1.00	3.24	9.57	18.00	0.79	61.99
2027	12.89	13.68	0.69	1.88	-	1.00	3.24	9.57	2.63	0.04	45.61
2028	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2029	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2030	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2031	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2032	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2033	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2034	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2035	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2036	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2037	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2038	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2039	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2040	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2041	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2042	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2043	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2044	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2045	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2046	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
2047	12.89	13.68	0.64	1.88	-	1.00	3.24	9.57	-	-	42.90
<b>Levelized Cost</b>	<b>12.89</b>	<b>13.68</b>	<b>0.88</b>	<b>2.08</b>	<b>-</b>	<b>1.00</b>	<b>3.58</b>	<b>10.57</b>	<b>9.56</b>	<b>3.52</b>	<b>57.76</b>

**4.5.** Levelized Cost is assessed to be USD57.78 per ton, implying a cost of USD 5.59 on a per mmbtu basis. The production levels are expected to remain stable at 6.5Mtpa from second year onwards, while principal, interest, and guaranteed return payments are being considered as pass-through costs.

**4.6.** During the first nine years of full production, the tariff is estimated to be USD61.99 per ton, following which it would decrease to USD42.90 per ton for the remaining lifecycle of project.

## 5. PRODUCTION CHARGES

**5.1.** Cash costs of production have been detailed and discussed in 4.2. Cash costs per ton are expected to remain at USD 26.56 per ton during the lifecycle of the project. Cash costs may decrease following expansion of coverage area, and economies of scale. For the purpose of tariff in feasibility stage, cash costs assumed to remain unchanged at USD 26.56 per ton.

**5.2.** Overburden removal and excavation works would be conducted through a semi-continuous process, which will be fueled by Diesel Oil. Annual consumption of



Diesel Oil is estimated to be 72,000 m<sup>3</sup>, with an oil storage cycle of 1.5 months, and a reserve fuel quantity of 9,000 m<sup>3</sup>. Cost of Diesel Oil is contingent upon prevailing market prices, thereby necessitating appropriate indexation. The cost of Diesel Oil will be indexed to the prevailing price of HSD in the market.

- 5.3.** Mining works would also require 4,500 m<sup>3</sup> of viscous oil on an annual basis. The cost of viscous oil will be indexed to the prevailing Pakistan Wholesale Price Index (“WPI”).
- 5.4.** “Manpower”, “Security”, “Safety”, and “Management Fee” expenses are escalable in nature. These expenses would be indexed to prevailing Pakistan Consumer Price Index (“CPI”).
- 5.5.** Royalty payments have been fixed at USD1 per ton, with royalty payments increasing as aggregate production levels increase. From the second year onwards, royalty payments are expected to remain stable at USD6.5 million, in-line with production levels.
- 5.6.** Cash costs of production are contingent upon production levels of the mine. Increase in production levels would provide greater economies of scale. Cost of inputs, particularly fuel cost, and human resource cost have been linked to relevant price indices, to ensure that real price remains in a stable and narrow range.

## **6. CAPACITY CHARGES**

- 6.1.** Internal Rate of Return (“IRR”) for the Project’s equity is guaranteed at 20 percent for lifetime of the Project. Financial close is being slated to be attained by 30-June-2015.
- 6.2.** In order to ensure a fixed ROE, fixed costs pertaining to debt payments, will be categorized as pass-through costs, and will be a part of the tariff.
- 6.3.** Key assumptions factored in the capacity charge are total capital costs of the Project, Debt-Equity ratio, cost of debt, currency of debt, and cost of equity. Total Project costs have been detailed in 3.1-3.4.
- 6.4.** Capital Structure is assumed to be in a Debt-Equity ratio of 75-25 as discussed in 3.7.1. Debt funding is denominated in USD, and will be provided by a consortium of Chinese Banks, covered by Sinosure guarantee. Premium paid for



Sinosure guarantee will be added to the total stock of debt.

- 6.5.** Equity contributions are assumed to be in-line with CAPEX schedule.
- 6.6.** Cost of Debt is assumed to be at a spread of 500 basis points over 1-yr LIBOR, which is the benchmark rate for debt denominated in USD. LIBOR is assumed to be 0.63 percent for reference tariff. As the debt would be fully covered by a Sinosure guarantee, a coverage premium of 10 percent of the total debt is also being considered. Total cost of debt is assessed to be 5.63 percent for determination of reference tariff. 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.

<b>Table 8: Debt Parameters</b>	
Sinosure Fee (% of Total Debt)	10%
Principal Amount (incl. IDC) - USDm	929.06
Currency of Debt	USD
Total Debt Maturity (years)	13
Grace Period (years)	3
Debt Repayment Period (years)	10
1-year LIBOR	0.63%
LT Debt Spread	5.00%
Effective Interest Rate	5.63%

- 6.7.** Tenor of debt is assumed to be thirteen years, with a grace period of three years. Principal repayments shall commence from the first year of production, following three years of mine development and overburden removal. Principal would be fully repaid in ten years, after COD. Payments will be made on a quarterly basis, with “Interest During Construction” (IDC) already considered to be a constituent of Total Project Cost. Mark-up rate would be pegged to prevailing benchmark rate, and would be reset as per guidelines provided in Thar Coal Determination Rules, 2014.
- 6.8.** Principal repayments and interest payments would be a pass-through cost which will keep tariffs in the first ten years higher compared to the rest of the Project lifetime.
- 6.9.** Principal repayments and mark-up payments will be made according to the following schedule; with first repayment being made in Mar-2019, assuming financial close is attained by end-2015. The payments exhibited in the table have been used for reference tariff, and may change with market dynamics, following



COD. Debt drawdown is assumed to be in-line with CAPEX schedule. Debt amortization schedule has been provided in Table 9 below.

<b>Table 9: Debt Amortization Schedule</b>					
<b>USD Million</b>	<b>Opening Balance</b>	<b>Drawdown</b>	<b>Principal Repayment</b>	<b>Ending Balance</b>	<b>Interest Expense</b>
Mar-16	-	119.41	-	119.41	1.68
Jun-16	119.41	113.66	-	233.07	1.68
Sep-16	233.07	112.66	-	345.72	3.28
Dec-16	345.72	-	-	345.72	4.87
Mar-17	345.72	109.28	-	455.01	4.87
Jun-17	455.01	75.11	-	530.11	6.40
Sep-17	530.11	75.11	-	605.22	7.46
Dec-17	605.22	37.55	-	642.77	8.52
Mar-18	642.77	75.11	-	717.88	9.05
Jun-18	717.88	75.11	-	792.98	10.10
Sep-18	792.98	75.11	-	868.09	11.16
Dec-18	868.09	-	-	868.09	12.22
Mar-19	868.09	-	(18.32)	849.77	12.22
Jun-19	849.77	-	(18.57)	831.20	11.96
Sep-19	831.20	-	(18.83)	812.37	11.70
Dec-19	812.37	-	(19.10)	793.27	11.43
Mar-20	793.27	-	(19.37)	773.90	11.17
Jun-20	773.90	-	(19.64)	754.26	10.89
Sep-20	754.26	-	(19.92)	734.34	10.62
Dec-20	734.34	-	(20.20)	714.14	10.34
Mar-21	714.14	-	(20.48)	693.66	10.05
Jun-21	693.66	-	(20.77)	672.89	9.76
Sep-21	672.89	-	(21.06)	651.83	9.47
Dec-21	651.83	-	(21.36)	630.47	9.17
Mar-22	630.47	-	(21.66)	608.81	8.87
Jun-22	608.81	-	(21.96)	586.84	8.57
Sep-22	586.84	-	(22.27)	564.57	8.26
Dec-22	564.57	-	(22.59)	541.98	7.95
Mar-23	541.98	-	(22.91)	519.07	7.63
Jun-23	519.07	-	(23.23)	495.85	7.31
Sep-23	495.85	-	(23.55)	472.29	6.98
Dec-23	472.29	-	(23.89)	448.41	6.65
Mar-24	448.41	-	(24.22)	424.18	6.31
Jun-24	424.18	-	(24.56)	399.62	5.97
Sep-24	399.62	-	(24.91)	374.71	5.62
Dec-24	374.71	-	(25.26)	349.45	5.27
Mar-25	349.45	-	(25.62)	323.84	4.92
Jun-25	323.84	-	(25.98)	297.86	4.56
Sep-25	297.86	-	(26.34)	271.52	4.19
Dec-25	271.52	-	(26.71)	244.81	3.82
Mar-26	244.81	-	(27.09)	217.72	3.45
Jun-26	217.72	-	(27.47)	190.25	3.06



Sep-26	190.25	-	(27.86)	162.39	2.68
Dec-26	162.39	-	(28.25)	134.14	2.29
Mar-27	134.14	-	(28.65)	105.50	1.89
Jun-27	105.50	-	(29.05)	76.45	1.48
Sep-27	76.45	-	(29.46)	46.99	1.08
Dec-27	46.99	-	(29.87)	17.12	0.66
Mar-28	17.12	-	(17.12)	(0.00)	0.24

- 6.10.** ROE has been calculated at a rate of 20 percent on the equity invested in the Project. ROE is a pass-through cost, and decreases on a per ton basis as overall production levels increase. As the equity invested is in USD, the ROE component is escalable, and would change in PKR terms, as the PKR-USD parity changes.
- 6.11.** Working Capital is assumed to be fully funded by debt. Working Capital Finance would be raised from local banks, and would be denominated in PKR, and thereby would be pegged to 3-month KIBOR. It is assumed that Working Capital Finance would be raised at a spread of 300 basis points over 3-month KIBOR. Coal inventory is assumed to be held for 15-days, while Accounts Receivables are expected to be recovered after a period of 30-days. Similarly, Payables are expected to be settled by 18-days. Under the fairly static assumptions of this reference tariff petition, Working Capital Finance is assumed to be USD 47.3 million during the first ten years, followed by USD30.86 million thereafter.

## 7. ESCALATION & INDEXATION

- 7.1.** After COD, tariff tables that have been provided will be indexed to factors as detailed above. On the date of financial closing, reference tariff table will be updated by the prevailing indices, exchange rates, and base numbers at that point in time.
- 7.2.** Production components will be adjusted for relevant indices, as discussed in 5.3-5.4.
- 7.3.** All components denominated in FCY would be subject to exchange rate indexation.
- 7.4.** Interest payments would be subject to interest rate indexation. The relevant benchmark would be 1-yr LIBOR, as the debt would be denominated in USD. In a scenario where the Project raises debt in PKR, the relevant benchmark would be 6 months KIBOR.



**7.5.** Change in market price of Diesel may result in a base change for Fuel Costs, which is a critical component of aggregate cash production costs.

**7.6.** Any taxes and levies, etc. which are not factored in the tariff calculation shall be treated as pass-through items

**7.7. Adjustments at Commercial Operations Date**

**7.7.1.** Escalable ROE component and non-escalable components will be adjusted by inflation factors and exchange rates as defined earlier.

**7.7.2.** Cost of debt will be adjusted by indexing it to prevailing benchmark interest rate.

**7.7.3.** Hedging costs during construction on EPC payment shall be made part of Project cost, as required by lenders. Otherwise subject to the lenders' consent the final local amount at the COD would be based on actual Exchange Rates used by the lenders to make payment to the EPC contractor.

**7.7.4.** Project cost assumes a reserve fund of USD 72.6 million.