Fimcotex Industries (Pvt.) Ltd

1. INTRODUCTION

1.1. The Hyderabad Electric Supply Company Limited (HESCO) issued an LOI for setting up a new captive power plant in the premises of Fimcotex Industries. At Kotri, Sindh, Pakistan. (Appendix A)

1.2. The sponsors, to develop and implement the power project, established a Special Purpose Company called Fimcotex Industries Pvt) Ltd.

1.3. Based on Policy for N-CPP announced by Pakistan Electric Power Company Limited (PEPCO) and approved by the then Prime Minister of Pakistan, the Sponsors have secured a gas allocation of 6 MMCFD from Sui Southern Gas Company Limited (SSGC).

1.4. The power plant will be developed in two phases; viz Phase I will install 16.5 MW and Phase II will install another 16.5 in Simple Cycle and conversion of all 33 MW to Combined Cycle thus achieving an installed capacity of 35.538 MW (approximately).

1.5. The sponsors received Generation License from NEPRA in March 2014.(Appendix B).

1.6. The detailed Financial Model was developed and is enclosed as Appendix C

1.7. The GSA was signed with SSGC in 02ND May 2012 with a committed supply during 9 months (March-November) and 3 months (December-February) on "As Available Basis".

1.8. The Phase I Financial Close is achieved and letter Credit for import of power plant machinery has been established.

1.9. The construction of the proposed power plant has already begun.

1.10. The Commercial Operation of Phase I is expected to be September 1, 2014.

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2. IMPLEMENTATION:

The project is designed to be implemented in the following phases:

Phase I	16.5 MW
Phase II	19.038 MW

✓ The project costing is presented only for Phase I, i.e. 16.5 MW

3. PROJECT COST:

The project cost estimate of the Project is presented below.

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(16.5 MWs Gas Engine (Diesel Engine Running on Gas) Power Project)

Cost Head	Name of Currency	Amount in Original Currency (Million)	Pak Rupee Equivalent (Million)	Cost in PKR (Million)	Total Cost in PKR (Million)
Gas Engines	USD	6.25	643.75	0.00	643.75
Interest on EXIM Loan	USD	0.00	0.00	0.00	0.00
EPC Services	PKR	0.00	0.00	386.53	386.53
Inland Transportation	PKR	0.00	0.00	15.00	15.00
Spare Parts & Tools	USD	0.17	17.38	0.00	17.38
SUB-TOTAL EPC Costs	USD	6.42	661.13	401.53	1062.66
Interest During Construction	USD/PKR	0.00	0.00	61.46	61.46
Insurance during Construction	PKR	0.00	0.00	21.45	21.45
Duties	PKR	0.00	0.00	19.31	19.31
Finacing Fees and Charges	USD	0.32	33.37	5.00	38.37
Land Lease & Development	PKR	0.00	0.00	60.00	60.00
Development Costs	PKR	0.00	0.00	20.00	20.00
Owners' Engineer	USD?PKR	0.08	7.95	0.00	7.95
Motor Vehicles and Office	PKR	0.00	0.00	15.00	15.00
Administration during Construction	PKR	0.00	0.00	225.03	225.03
SUB-TOTAL Other Costs		0.40	41.32	427.25	468.57
Contingencies	USD?PKR	0.00	0.00	0.00	0.00
Estimated Unutilized Contingencies	USD?PKR	0.00	0.00	0.00	0.00
Working Capital	PKR	0.00	0.00	57.91	57.91
TOTAL		6.82	702.45	886.69	1589.14
TOTAL in USD Million					15.429

The gas engines of General Electric Jenbacher are being imported from Austria. The Letter of Credit has already been established and is appended as Annexure A.

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The Balance of Plant, civil works, erection, installation and commissioning will be provided by Orient Energy Systems Private Limited, the official representative of GE Jenbacher. The EPC Services contracts are enclosed as Annexure B.

The strategic spare parts are being imported with the equipment

The Inland transportation include lifting equipment rental at port and site.

The Loan for import of equipment and EPC Services have been acquired and based on 75% debt and 25% equity. The Term sheet containing the terms and conditions is enclosed as Annexure C.

The insurance has been obtained at a premium of 1.35% of the imported equipment and EPC Services.

The imported equipment is assumed to be exempted from customs duty. General Sales Tax will be paid but will be adjustable from the future sale of electricity. Therefore only handling, port charges and clearance have been accounted for at the rate of 3% of the imported equipment cost.

Financing Fees and Charges at the rate of 1.5% of the debt have been assumed. Another 0.5% of the debt is assumed on the undrawn loan as Commitment Fee. The LC charges are assumed to be 1% of the imported equipment value.

Land area of four acres is acquired at the rate of Rs. 15 Million per acre. Total land cost of Rs. 60 Million is assumed.

Various fees and charges are assumed in the Development Cost.

MEConsult (Private) Limited has been employed as Owners' Engineer. The fee for Owners' Engineer is agreed at Rs. 7.95 Million.

Administration During Construction include Banks' Consultants (technical, legal, insurance) and Gas Security Deposit equivalent to 3 month gas consumption.

Working Capital of Rs. 57.91 Million has been assumed based on 30 days Gas bill, 60 days spare parts and 60 days cash requirement for Operations and Maintenance.

Therefore, the Total Project Cost worked out is USD 15.429 Million. This translates to USD 935 /kW. Out of which the imported equipment is 379/kW.

4. CAPITAL STRUCTURE

The capital structure of the Project is as follows:

Equity	US$MM	3.857
Debt	US$MM	11.572
Total Project Cost	US$MM	15.429
Debt Equity Ratio		75:25

The following sections will present the various components of the Tariff and underlying assumption.

5. ENERGY COMPONENT

The tariff has a typical two-part structure with an energy component for the energy actually dispatched and a capacity component based on the available capacity. The energy component is based on the actual kWh off-take, and consists of the fuel component and the variable O&M component.

The generator sets being proposed for the Project are advanced technology machines providing high thermal efficiencies. After factoring the impact of average plant aging, this translates to approximately 42.4% gross efficiency at HHV and 100% Load factor, running on natural gas (without any tolerance for quality, quantity, LHV ambient temperature, HHV and load factor).

The Energy Component consists of the following:

- Fuel Cost Component
- Variable O&M Cost Component

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5.1.1 FUEL COST COMPONENT

The Fuel Cost Component represents the fuel consumption at the guaranteed efficiency level of the plant based on a notional 80% plant load factor. Consequently, this tariff subsumes the efficiency risk being borne by Fimcotex. The detailed working of the Heat rate is in the following:

HEAT RATE CALCULATIONS FOR FIMCOTEX SPONSORED N-CPP POWER PROJECT			
Electrical Efficiency at ISO, LHV and 100% Load Factor		%	42.1
Heat Rate at ISO Conditions, LHV and 100 Load Factor		Btu/kWh	8107
Average Load Factor		%	75
Heat Rate Correction Factor at 75 % load			1.0785
Heat Rate at 80 % Load		Btu/kWh	8743
Temperature degradation factor at 47 Deg C			1.04
Heat Rate at 75% Load and 47 Deg C		Btu/kWh	9093
Auxiliary Consumption		%	4
Heat Rate aftter Auxiliary Consumption		Btu/kWh	9730
LHV/HHV Correction Factor			10.7
Heat Rate after LHV/HHV Correction		Btu/kWh	10771
Gas Consumption Tolerance (Quality Variation)		%	5
Heat Rate after all corrections		Btu/kWh	11309
Heat Rate As given under N-CPP Policy		Btu/kWh	12124
Reference Gas Price		Rs./MMBtu	238.38
No. of kWh generated in 1 MMBtu		kWh/MMBtu	88.42
Gas Cost Component		Rs./kWh	2.70

5.1.2 VARIABLE O&M COST COMPONENT

The Variable O&M Cost component will be allocated to local and foreign currency components and will be a part of the Energy Component.

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5.1.2.1 Local variable O&M

Engine Rated Capacity	3300 kW
Engine Sump Capacity	720 Liter
Lub Oil change Interval	1000 hours
No. of kWh produced in 1000 hours	3300 * 1000 * 75% LF
	2,475,000
Lub Oil Change per kWh	720/2,475,000
	0.00029 liter/kWh
Lub Oil Consumption	20 liter/day
No. of kWh produced per day	3300 * 24 * 75% LF
	59,400
Lub Oil consumption per kWh	20/59,400
	0.000336 liter/kWh
Total Lub Oil Consumption	0.000626 liter/kWh
Cost of Lub Oil	Rs. 395/liter
Local Variable O&M for Lub Oil	Rs. 0.2475/kWh
Chemicals and Other Supplies	Rs. 0.1/kWh
Total Local Variable O&M	Rs. 0.3475/kWh

5.1.2.2 Foreign variable O&M

The foreign variable O&M represents consumption of imported spare parts as well as necessary foreign technical services during normal scheduled maintenance, unscheduled maintenance and major overhauls. The generator sets and associated equipment have manufacturer-recommended overhauling schedules that are based on actual running hours. The consumption of spare parts and the intervals between major overhauls are also directly related to the plant dispatch and electricity production of the plant. The labor for the Variable O&M is on Fixed O&M.

A long term Material Supply Agreement for the supply of consumable, preventive and overhaul parts have been agreed with Orient Energy Systems. The details are presented in the following:

Parts Rate per hour per Engine	Euro 12.3
Parts Rate per hour per set of Turbo charger and Alternator	Euro 4
Pak Rs. / Euro Parity assumed	133
Parts Cost per Generator Set at 75% LF	Rs. 2168
Parts Cost per kWh	Rs. 0.82/kWh

Energy Purchase Price (EPP)

Head	Value, Rs. /kWh
Fuel Cost Component	2.70
Local Variable O&M	0.3475
Foreign Variable O&M	0.82
Energy Purchase Price (EPP)	3.868

6 CAPACITY COMPONENT

Although the Policy for N-CPP is based on "Take-and-Pay" basis and does not allow the Capacity

Component as such, however the various sub-components, such as Fixed O&M, Insurance, Return on Equity (ROE), Principal Repayment and Interest will be applicable. The key assumptions factored in the capacity charge are the total capital cost of the Project, the debt-equity ratio, the cost of funding and currency thereof, together with the exchange rate.

The Capacity Component represents all the fixed expenses for Fimcotex and shall be payable based on the number of kWh dispatched by HESCO.. This calculation is based on a notional 75% plant capacity factor.

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The key assumptions that affect the Capacity Component are the project cost, debt-equity ratio, currency, cost and source of funding, exchange rates, and taxation.

At the time of Commercial Operations, the tariff numbers shall be updated for the various base numbers (e.g. fuel price, EPC, O&M and Insurance prices) adjusted by actual exchange rates compared to the Reference Exchange Rates (as defined in Section 4 - Escalation and Indexation) and Interest During Construction adjusted by actual prevailing KIBOR rates.

Any modifications or additions required by the power purchaser that are not considered in the project shall be treated as pass-through item. The Capacity Component is further broken down into the following components:

The component represents all the fixed costs of the plant and the return on equity. Fixed O&M Charge:

- Insurance Charge
- Return on Equity
- Working Capital

6.1 Fixed O&M:

The fixed O&M charge consists of O&M Fee, remuneration of staff and executives of plant operations, administration expenses including rent, utilities, local taxes, security, transportation, tax and legal fees, audit, environmental monitoring and company overheads.

O&M Contract	Rs. 24 Million/year
Management	Rs. 12 Million/year
Overheads and Misc.	Rs. 5 Million/year
Total Fixed O&M Cost	Rs. 41 Million/year
Total sellable electricity	108,405,000 kWh
Fixed O&M/kWh	Rs. 0.378/kWh

6.2 Insurance:

Insurance charges include all risk insurance, reinsurance for the project as well as insurance coverage for business interruptions, which is anticipated to be a requirement by the lenders of Fimcotex.

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Imported Equipment, BoP, Civil works, Installation and commissioning	Rs. 1,030.28 Million
1.35 % of EPC (as above)	Rs. 13.90 Million
Total sellable electricity	108,405,000 KWH
Insurance Cost per kWh	Rs. 0.128/kWh

6.3 Return on Equity:

ROE includes an annual return on the sponsors' invested equity at an ROE of 17%, net of withholding tax on dividend.

Equity of Sponsors	Rs. 397.297 Million
ROE of 17% /year	Rs. 67.54 Million
Total sellable electricity	108,405,000 kWh
ROE/kWh	Rs. 0.623/kWh

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6.4 Debt Servicing

Total Debt Rs. 1,191.89 Million

Equal Payment Method has been used. The debt servicing schedule is presented in the following:

Total Debt	PKR Million	1191.89	0	0
KIBOR	%	9.75	0	0
Spread	%	3	0	0
Interest Rate	%	12.75	0	0
Repayment Period	Years	7	0	0
No. of Installments per year	No.	2	0	0
Total Installments		14	0	0
Installment No. (6 monthly)	**Installment Amount, PKR Mill.**	**Interest Payment, PKR Mill.**	**Principal Repayment, PKR Mill.**	**Beginning Principal, PKR Mill.**
0				1191.89
1	131.22	75.982988	55.24	1,136.65
2	131.22	72.461406	58.76	1,077.89
3	131.22	68.715324	62.51	1,015.38
4	131.22	64.73043	66.49	948.89
5	131.22	60.491498	70.73	878.15
6	131.22	55.982334	75.24	802.91
7	131.22	51.185711	80.04	722.88
8	131.22	46.083304	85.14	637.74
9	131.22	40.655618	90.57	547.17
10	131.22	34.881917	96.34	450.83
11	131.22	28.740142	102.48	348.34
12	131.22	22.20683	109.02	239.33
13	131.22	15.257018	115.97	123.36
14	131.22	7.8641567	123.36	(0.00)

Yearly Debt Servicing Rs. 262.44 Million
Total sellable electricity 108,405,000 kWh
Debt Servicing per kWh Rs. 2.42/kWh

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7. Capacity Purchase Price

Cost Component	Value, Rs./kWh
Fixed O&M	0.378
Insurance	0.128
ROE	0.623
Debt Servicing	2.42
Total Capacity Purchase Price	3.549

8. Total Tariff (Rs./kWh)

Year	Fuel Cost	Variable O&M	Total Energy Purchase Price (EPP)	Fixed O&M	Insur -ance	Return on Equity	Debt Servicing	Total Capacity Purchase Price (CPP)	Total Tariff
1	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
2	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
3	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
4	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
5	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
6	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
7	2.7	1.168	3.868	0.378	0.128	0.623	2.420	3.549	7.417
8	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
9	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
10	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
11	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
12	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
13	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997
14	2.7	1.168	3.868	0.378	0.128	0.623		1.129	4.997

9. Indexation

Fuel (Gas) Price	Pass Through
Variable O&M (Local)	Pakistan Whole Sale Price (WPI) for manufacturing
Variable O&M (Foreign)	PKR/Euro Parity and German Machinery & Labor Price Index
Fixed O&M	Pakistan Whole Sale Price (WPI) for manufacturing
Insurance	PKR/USD Parity
ROE	PKR/USD Parity
Debt Servicing	Pass through based on KIBOR + 3%
WHT on Dividend	Pass through as per actual

10. Petition

It is requested to the authority to determine and award the Tariff as aforementioned.

....Concluded