Fatima Energy
Limited
A Fatima Group Company

E/A

02/12/2015

Registrar
National Electric Power Regulatory Authority
OPF Building, 2nd Floor
Shahrah-e-Jamhurriyat
G-5/2, Islamabad

Dear Sir

Application for the approval/determination of the generation tariff –
Fatima Energy Limited (the "Company") –
120 MW Cogeneration Power Project at Sanawan, Tehsil Kot Addu, District Muzaffargarh (the "Project")

Appended herewith is our application for the approval/determination of the generation tariff pursuant to the NEPRA Act and the applicable Rules.

We look forward to working with you to complete the regulatory process for this Project at the earliest.

Yours sincerely,

For and on behalf of
FATIMA ENERGY LIMITED

Fazal Ahmed Sheikh
Chief Executive Officer

For information & n/a pl.
— D/Reg-I/SAR
Copy to.
03.12.15
— SA (Tech)
— SAT-I
— Dir (Lic)
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— m/F
c.c. Chairman
VC/m(A)
m(T)
m(RE)
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Registrar
Dy No. 12569
Dated 03-12-15

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BEFORE

THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

TARIFF PETITION

BY: FATIMA ENERGY LIMITED

120 MW (GROSS ISO) COGENERATION POWER PROJECT AT SANAWAN, TEHSIL KOT ADDU, DISTRICT MUZAFFARGARH, PAKISTAN

Dated: 2nd December 2015

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GLOSSARY

Company/Petitioner	Fatima Energy Limited
CIF	Cost, Insurance and Freight
COD	Commercial Operations Date
Concession Agreements	The Implementation Agreement; and the Power Purchase Agreement
CC	Capacity Charge
Co-Gen Policy	The GOP's National Policy for Power Co-Generation by Sugar Industry and Guidelines for Investors, 2008
CPPA (G)/Power Purchaser	Central Power Purchasing Agency Guarantee Limited
Crushing Season	1 December till 31 March (4 months)
CSA	Coal Supply Agreement
EC	Energy Charge
ECC	Economic Coordination Committee of the GOP
EPCC	Engineering, Procurement & Construction Contract
EPC Contractor	Shanghai Marine Diesel Engine Research Institute (SMDERI)
Euro	The lawful currency of the European Union
FOB	Freight On Board
GOP	The Islamic Republic of Pakistan
HHV	Higher Heating Value
IDC	Interest During Construction
IRR	Internal Rate of Return
IPP	Independent Power Producer
KIBOR	Karachi Inter Bank Offered Rate
kcal / kg	kilocalorie/ kilogram
Km	Kilometer
Kw	Kilowatt
KWh	Kilowatt hour
LHV	Lower Heating Value
LIBOR	London Inter Bank Offered Rate
LOS	Letter of Support
MW	Megawatt
MWh	Megawatt hour
NEPRA/ Authority	National Electric Power Regulatory Authority
NEPRA Act	The Regulation of Generation, Transmission and Distribution of Electric Power Act (Act No. XL) of 1997
NTDC	National Transmission and Dispatch Company Limited
O&M	Operation & Maintenance
Off-season	1 April till 30 November (8 months)
PKR	Pakistani Rupee
PPA	Power Purchase Agreement
PPIB	Private Power & Infrastructure Board
Project	The Company's proposed 120 MW Gross ISO biomass and imported coal based co-generation power project
ROE	Return on Equity
ROEDC	Return on Equity during Construction
Ton or MT	Metric Ton i.e. 1000kg
USD	United States Dollar
FTCL	Fatima Transmission Company Limited

A. PARTICULARS OF THE PETITIONER:

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Petitioner's Representatives

Fazal Ahmed Sheikh
Chief Executive Officer

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B. TARIFF PETITION

1. INTRODUCTION

1.1 Applicable Law & Policy

1.1.1 Under the NEPRA Act, the Authority is mandated to determine tariffs and other terms and conditions for the supply of electricity through generation, transmission and distribution.

1.1.2 This Petition is being filed before the Authority pursuant to Rule 3 of the NEPRA (Tariff Standards and Procedure) Rules, 1998 read with paragraph 1.3 of the Tariff Guidelines and the applicable provisions of the Co-Gen Policy 2008.

1.2 Fatima Holding Limited (the "Lead Sponsor"), Fazal Cloth Mills Limited and Reliance Weaving Mills Limited (the "Sponsor Companies"), Fatima Sugar Mills Limited ("Sugar Mill") and Fatima Group ("Fatima Group" or the "Group") – Introductory Remarks

1.2.1 Fatima Group contributes significantly to the economic development of Pakistan. It was established in 1936 with trading of commodities and gradually entered into the manufacturing of various products. The Group has a success story spread over eight decades, expanding its horizon from trading to manufacturing. Today, the Group is engaged in trading of commodities, manufacturing of fertilizers, textiles, sugar, mining and energy. The Group has made exceptional progress in the last two decades by achieving an annual turnover of circa USD 922 Million and EBITDA of USD 267 Million in FY 2014. Further, the Group currently operates captive power plants with cumulative capacity of 200MW – supplying electricity to various entities within the Group.

1.2.2 Fatima Holding Limited "FHL" (Formerly Fatima Sugar Mills Limited "FSML") was incorporated in Pakistan on September 20, 1988 under the Companies Ordinance, 1984 as a public company limited by shares. The principal activity of FHL is to manage investments. It mainly holds investments in FSML and associated companies i.e. Pakarab Fertilizers Limited and Fatima Fertilizer Company Limited.

1.2.3 Fazal Cloth Mills Limited "FCML" was incorporated in Pakistan in 1966 as a public limited company under the Companies Act, 1913 (now the Companies Ordinance, 1984) and its shares are quoted on Karachi and Lahore Stock Exchanges. The Company is engaged in manufacturing and sale of yarn and fabric. FCML owns and operates 7 Spinning units comprising 230,000 Spindles and 2,000 Rotors and 225 Air-jet Picanol Looms.

1.2.4 Reliance Weaving Mills Limited "RWML" was incorporated in Pakistan in 1990 as a public limited company under the Companies Ordinance, 1984 and its shares are quoted on Karachi and Lahore Stock Exchanges. RWML is engaged in manufacturing and sale of yarn and fabric. RWML owns and operates 336 latest technology Tsudakoma Air-Jet Looms.

1.2.5 Fatima Sugar Mills Limited is a 100% owned subsidiary of the Lead Sponsor Company. The Sugar Mill is one of the vital units of Fatima Group principally engaged in the business of manufacture and sale of white refined sugar and molasses (as a by-product) with its daily crushing capacity of 10,500 MT and subject to

government consent capable of being expanded up to 15,000MT. The resulting bagasse from the sugarcane is planned to be utilized as fuel in the Project. Fatima Sugar Mills Limited was incorporated as a public limited company in 1988 and the mills are located at Fazal Garh Sanawan, Tehsil Kot Adu, District Muzaffargarh in the Province of Punjab.

1.3 Project Introduction

1.3.1 The Group is in the process of developing a 120 MW (Gross ISO) co-generation power project. The Project is located adjacent to the existing sugar mill of the Lead Sponsor Company in District Muzaffargarh and will utilize (a) bagasse produced by such sugar mill along with other biomass; and (b) imported coal as fuel for the Project.

1.3.2 The Project is being developed through a public limited company, i.e. Fatima Energy Limited (the "Company" or the "Petitioner"), incorporated under the laws of Pakistan mainly owned by Fatima Group Companies.

1.3.3 It must be noted that during the Crushing Season the Project will be capable of generating 88.78 MW of power whereas generation capability during the non-Crushing Season would be 107.54 MW. During the Crushing Season, the Sugar Mill may utilize up to 16.0 MW of the available generation capacity whereas during the non-Crushing Season the Sugar Mill may utilize 1.0 MW of the available capacity.

1.4 Project Timelines

1.4.1 The Project Company has achieved Financial Close of the Project on 29 May 2014.

1.4.2 A Notice to Proceed ("NTP") was issued prior to Financial Close by the Project Company to the EPC Contractor on February 10, 2014 based on which the Project is required to achieve commercial operations on August 10, 2016 given a construction period of 30 months.

1.4.3 However, based on the current Project timelines it is expected that the Project Company will be able to achieve commercial operations by April 30, 2016 to be able to provide power to the national grid prior to the upcoming summer season.

1.5 Project Development Activities

1.5.1 After conducting an extensive survey of the world market in relation to biomass technology, two French firms, i.e. Sechilienne SIDEC and CdF Ingenierie, were engaged as the technical advisor and consultant, respectively, for the Project (the "Technical Consultants"). The Technical Consultants have vast experience in relation to *inter alia* the design, development, operation and maintenance of cogeneration power plants (operating on coal and biomass) – Sechilienne SIDEC is currently managing a portfolio of 694 MW in power generation as an owner, operator and developer in diverse fuels of coal, biomass, wind and solar in France, Italy, Spain and Mauritius; whereas CdF Ingenierie has been providing quality engineering, design and construction supervision services for renewable energy power plants.

1.5.2 The Petitioner initiated an international competitive bidding process to select a turnkey EPC contractor for carrying out *inter alia* the design, engineering, procurement, construction and testing of the initially proposed 100 MW co-generation power project (which has subsequently been increased to 120 MW Gross

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ISO). In this context, the Instructions to Bidder ("ITB"), along with a draft EPCC and other technical documentation, was sent to various companies including:

- China National Chemical Engineering Group Corp (CNCEC), China;
- China Shipbuilding Industry Corporation (CSIC), China;
- Istro Energo Group (IEG), Slovakia;
- Sinoma Energy Conservation Company, China;
- China Machinery Engineering Corporation (CMEC), China;
- SOJITZ, Japan;
- Harbin Power Engineering, China;
- TEKONOTES, Turkey;
- VITKOVICE, Czech Republic; and
- KALEMCI, Turkey.

The following companies submitted their bids as per the revised deadline mentioned above:

- CNCEC;
- CSIC; and
- IEG.

Each of the aforementioned bidders was subjected to rigorous technical and commercial evaluation by the Petitioner (and its consultants). In consequence hereof, CSIC was selected as the preferred bidder to undertake the Project on a turnkey basis. In relation hereto, an EPCC was executed between the Petitioner and the EPC Contractor.

The EPC Contractor is owned by CSIC which is a major state-owned enterprise group and one of China's largest shipbuilding and energy equipment groups. CSIC has 43 industrial subsidiaries and 28 R&D institutes, with a workforce of 150,000. Further, CSIC is an entity directly under the state government with state authorisation for investment and capital management. The CSIC group has a total asset base of US$ 38 billion; and in 2011 the total revenue of the CSIC group was 181 billion RMB.

In relation to the development of the Project; a subsidiary of CSIC namely Shanghai Marine Diesel Engine Research Institute (SMDERI) is carrying out all the necessary EPC works. SMDERI was founded in 1963 and is a part of the Ministry of Defence, China Navy, Technology and Industry for National Defence, China Shipbuilding State Corporation and CSIC.

2. PROJECT SUMMARY

2.1 Plant Location

The Project is located at Sanawan, Mehmoodkot, District Muzaffargarh, on an area of approximately 61.42 acres including 10 acres for a residential colony adjacent to the sugar mills of the Sponsor Company. The layout is attached as Annexure – A.

2.2 Current Technology and the Proposed Technology plus Unit Size

The gross installed capacity of the Project at ISO condition is 120 MW (118.8 MW at site condition) based on Spreader Stoker technology which is proven for efficient burning of dual fuel biomass and coal. There are very few equipment suppliers globally who are specialist in this kind of technology owing to specialized techniques

to incorporate either biomass or coal. Foster Wheeler of Spain was selected after detailed due diligence and competition for the supply of boilers.

For the boiler combustion system, Detroit Stoker Company of USA has been selected for providing its special Rotograte System which is considered as one of the best in the world. For steam turbines, Siemens was selected for supply of two full condensing/extraction turbines for the Project.

Crushing Season: Both boilers will burn bagasse during the crop season and will have provision to burn coal whenever required. All necessary measures shall be taken to acquire additional biomass from surrounding industries to overcome any shortfall. Owing to process requirement of the Sponsors, steam turbine will operate in extraction mode supplying up to 210 t/h low pressure steam from Petitioner consequently reducing net available capacity of plant.

Non-Crushing Season: Both boilers will use coal as fuel but can burn Bagasse/biomass which is carried forward from season stock or any additional biomass collected locally. During off-season, steam turbines will operate in full condensing modes and turbines have been designed to accommodate full steam generation of boiler providing additional electricity to the national grid.

2.3 Overall Plant and Energy Balance

Each unit has been designed, manufactured as per international standards and practices and same standards will be followed while installation and commissioning of the project. The Project's estimated key performance data and energy balance is set out below:

	Non Crushing Season	Crushing Season
Net Capacity (MW)	107.54	88.78
Days Operation	201	120
Weighted Capacity	100.53 MW	
Plant Efficiency	28.00% (Weighted)	

The Net Plant Efficiency has been based on the benchmark established under the Co-gen Policy 2008.

As per provisions of the Co-gen Policy 2008 it is proposed that complete inter-changeability of fuel will be allowed under the power purchase agreement. All Pakistan Sugar Mills Association is currently in the advanced discussions with the relevant governmental authorities to remove the restriction on capacity additions for those sugar mills who install co-generation plants with their mills. Once removed, the Sugar Mill shall be able to enhance its capacity to 15,000 tons per day in a very short period, which is expected to increase the bagasse-based generation by 50%.

The sales mix of the Project, based on utilization of energy by the sugar mill and dispatch to the grid is expected as follows:

	Sugar Mill		CPPA (G)	
	MW	kWh	MW	kWh
Crushing Season	Upto 16.0	46,080,000	72.78	209,606,400
Non Crushing Season	1.0	4,828,800	106.54	514,460,352
Total		**50,908,800**		**724,066,752**

The actual requirement of the sugar mill during the crushing season will be confirmed at the time of the signing of the PPA. Notwithstanding the above, the sugar mill will be billed for power committed and energy utilized in the same manner and at the same rate as is the case for the power purchaser.

2.4 Plant Interconnection

An associated Company of Fatima Energy Limited, Fatima Transmission Company Limited ("FTCL"), is in the process of constructing a 37-km transmission line for the high voltage electrical interconnection of the Project to the existing transmission system at the voltage level of 132kV. It is proposed that once constructed ownership of the line may be transferred to the National Transmission & Despatch Company Limited, who shall subsequently be responsible for the operations & maintenance of the same subject to the reimbursement of the capital cost incurred in the construction of the transmission line at actuals.

2.5 Plant Commissioning, Operating and Maintenance Philosophies

The Petitioner is in the process of outsourcing the plant O&M to an independent O&M Operator who shall have relevant expertise and experience. Petitioner is under active negotiations with three O&M Operators namely (1) Tiangin Launch Electric Power Maintenance Company Limited ("LEPM"), (2) Tenaga National Berhad, Remaco ("TNB") and (3) China Huadian Corporation ("CHD") jointly with SMDERI. All the three companies have vast experience of operating power plants. Furthermore, the responsibilities of fuel supply, chemical/lube supply, and overall asset management shall reside with the Petitioner. The short listed O&M Contractor has agreed to reduce its team from 86 members to 12 members one year post CoD and has advised the Petitioner to hire its O&M team in parallel so that the personnel are properly trained and subsequently can replace O&M Operator's personnel except for supervisory staff of O&M.

3. PROJECT FINANCIALS

3.1 Capital Structure

The Project Cost will be funded on the basis of a Debt: Equity ratio of 75:25 implying a total debt requirement of PKR 17,497.0 million; and a total equity requirement of PKR 5,832.3 million, based on a Project Cost of PKR 23,329.3 million.

In light hereof, the proposed capital structure of the Project is outlined below:

Description	Million (PKR)
Equity	5,832.3
Debt – Local	17,497.0
Project Cost	23,329.3
Debt : Equity Ratio	75:25

3.2 Project Cost

The total Project Cost has been calculated after thorough analysis, evaluation and understanding of the dynamics that affect the development and operation of a co-generation power project. The breakup of the actual Project Cost incurred till date

(September 30th, 2015) by the Company and expected cost till COD in PKR is summarized as follows:

	Incurred at 30/09/15	Balance up to COD	Total
	PKR million		
EPCC	13,970	3,188	17,158
Non EPCC Costs	318	585	903
Custom Duties, Local Withholding Taxes & Others	220	151	371
Lenders' Fees & Charges	456	63	519
Insurance	173	0	173
Fuel during Testing	0	101	101
O&M Mobilization Advance	0	188	188
Project Development Costs	691	412	1,103
Site Security during Construction (Petitioners scope under EPCC)	74	49	123
Project Cost (before IDC)	**15,902**	**4,737**	**20,639**
Interest during Construction	1,373	1,317	2,690
Total Project Cost	**17,275**	**6,054**	**23,329**

The actual average PKR/USD and PKR/EURO exchange rate of 102.41 and 122.28 respectively has been observed during the period from Financial Close up to September 30, 2015. For purposes of the Petition the rate of PKR/USD 105.50 and PKR/EURO 111.62 has been assumed to be applicable for the remaining period up to COD. It is proposed that a final true-up of the balance costs will be carried at COD as per actual cost.

Furthermore the calculation for interest during construction currently assumes a 30-month construction period from date of the Notice of Proceed to the EPC contractor with commercial operations date of August 10, 2016. As stated above in Section 1.4, the Project Company as per the current timeline is expected to achieve COD by April 30, 2016. In case of the same, the interest during construction will be adjusted to reflect the actual COD which will not be later than August 10, 2016.

3.3 . Details of Assumed Project Cost

A. EPCC Cost

As submitted herein above, after carrying out a competitive and transparent bidding process spread over 12 months, the EPCC has been finalized with the EPCC price of USD 162.64 million split as follows:

- USD 95.750 million (PKR 9,883.78 million) ; and
- Euro 59.903 million (PKR 7,274.46 million)

The EPCC price, for the offshore supply contract and the onshore construction contract, is split as follows:

i) USD 68.150 million (PKR 7,030.70 million) and Euro 58.750 million (PKR 7,122.80 million) for the offshore supply contract; and

ii) USD 27.600 million (PKR 2,850.08 million) and Euro 1.153 million (PKR151.66 million) for the onshore construction contract.

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B. **Non - EPCC Cost**

The Non-EPCC Costs have been budgeted at PKR 903 million. The details in relation to such costs are provided in the following table:

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Land[1]	204	27	231
Boundary Wall & Other Structures[2]	61	16	77
Administrative Block[3]	25	46	71
Residential Colony[4]	21	459	480
Station Vehicles (for Coal handling)	7	37	44
Total	**318**	**585**	**903**

[1]The total estimated land requirement is 61.42 acres, out of which 53.92 acres have been acquired at an average rate of PKR 3.78 million per acre and rest is under process of acquisition which is budgeted at a unit rate of PKR 3.60 million per acre.

[2]This includes boundary wall PKR 33 million, security office and barracks PKR 17 million and construction of BOQ and MOQ PKR 27 million.

[3]The cost of the administrative block has been budgeted at PKR 46 million (including furniture and fixtures) for a total area of 10,000 square feet. Further, cost in relation to temporary office structure and equipment PKR 25 million.

[4]A residential colony is necessitated due to the location of the Project i.e. rural area of Kot Adu. The total area of the colony is approximately 120,650 square feet which includes 34 houses, a bachelor hostel, guest house, club, mosque, clinic and market. Further, the assumed cost hereunder also includes the cost in relation to 75,000 square feet of internal roads as well as electrification and furnishing.

A true-up in this regard will be made at COD.

C. **Custom Duties, Local Withholding Taxes & Others**

The Petitioner has paid custom duties and taxes as per following:

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Custom Duties, Local withholding taxes and others	220	151	371

Any imposition of or change in duties, levies or taxes of whatsoever nature will be incorporated and adjusted in the balance Project Cost at the COD.

D. **Lenders' Fees & Charges**

This includes the costs related to the Debt financing of the Project. Such costs include, *inter alia*, the lenders' up-front, arrangement and commitment fee; charges related to various letters of credit to be established in favor of various contracting

parties (other than L/C confirmation charges); fees payable and stamp duty applicable on the financing documents; agency fee; security trustee fee; monitoring fee and the fees for the lenders' various advisors. The Petitioner has paid Lenders' Fees & Charges as per following

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Lenders' Fees & Charges	456	63	519

A true-up in this regard will be made at COD; however overall cost shall remain subject to a cap of 3.0% of Project debt.

E. Insurance

This head covers the cost of insurances of the Complex during the construction phase (prior to the COD).

The Petitioner, in view of the practices set by other IPPs in Pakistan and in accordance with typical requirements set out by lenders, has procured the following insurances during the construction phase of the Project:

- Erection All Risk Insurances (EAR);
- EAR Delay in Start-up Insurance
- Marine and Inland Transit Insurance;
- Marine - Delay-In Startup Insurances; and
- Terrorism Insurance

Total insurance cost of PKR 173 million has been incurred. Details in this regard are as follows:

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Construction Insurance	173	0	173

The premiums paid under the above stated Pre-COD insurances do not include the Federal Excise Duty. The Petitioner prays that the same be allowed by NEPRA as part of the one-time adjustments allowed at the time of COD.

F. Fuel during Testing

An amount of PKR 101 million shall be required for the cost of fuel (which is not reimbursed by the Power Purchaser) for all testing activities of the Project prior to /synchronization with the grid. This amount has been assumed based on consumption of 10,584 MT of coal and 10,000 MT of bagasse during such testing.

Kindly note that current fuel prices have been assumed for the purpose of calculation whereas the transportation cost and custom duties applicable at the time of import of coal will be pass-through on actual basis; however, an adjustment will be sought at the time of COD based on the then-prevailing fuel prices.

G. O&M Mobilization Cost

The O&M contractor shall be mobilized 180 days prior to COD to ensure smooth takeover of the Project from the EPC Contractor at the COD. A cost of USD 1.77 million is budgeted under this head comprising of the expenses of the O&M

contractor's personnel (both local and expatriates), the Petitioner's O&M personnel and foreign training cost.

	PKR Million
O&M Contractor's personnel cost	115
Petitioner's O&M personnel cost	49
Training Cost	24
Total	**188**

A true-up in this regard will be made at COD.

H. Project Development Cost

The Project development costs include the following:

Item	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Owner's Engineer - CdFI payments	107	57	164
Owner's Advisor - SIDEC payments	27	0	27
Independent Engineer for Testing (to be appointed by the Power Purchaser and Petitioner)	0	11	11
Technical Studies (load flow study, topographic survey, soil investigation, environmental examination, EIA, water & fuel assessment etc.)	9	0	9
Legal & Financial Advisory	62	4	66
SECP Fees (authorized capital)	19	0	19
PPIB & Regulatory Fees	8	3	11
Administration Costs prior to Commercial Operations	459	337	796
Total	**691**	**412**	**1,103**

A true-up in this regard will be made at COD.

I. Site Security during Construction (petitioners scope under EPCC)

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Site Security during Construction (Petitioners scope under EPCC)	74	49	123

The Company has engaged Rangers and Police & commandos from private security company for the security of expatriate working at site for the construction/ implementation of the project.

J. Interest During Construction (IDC)

Costs incurred are as follows:

	Incurred at 30/09/2015	Balance up to COD	Total
	PKR million		
Interest during Construction	1,373	1,317	2,690

As stated above these calculations are based on a commercial operations date of August 10, 2016; in case the Project Company achieves COD prior to such date, the calculations will be adjusted to reflect the same.

IDC will be subject to adjustment at COD on the basis of fluctuations in base rate i.e. 6-month KIBOR, funding requirement (draw-downs) of the Project during the construction period, changes in Project Cost including changes due to Taxes and Duties, and variations in PKR / USD exchange rate.

4. TARIFF SUMMARY

The tariff has a typical two-part structure with an Energy Charge (EC) for the energy actually dispatched and a Capacity Charge (CC) based on the available capacity. The CC will cover Debt servicing, Return on Equity including Return on Equity during Construction, Fixed O&M, Insurance and Working Capital Financial Charges. Whereas the EC will cover fuel cost (bagasse and coal), and Variable O&M. The price of fuel will be a pass through item as indexed using a robust indexation mechanism based on internationally traded indices as proposed in the section on fuel below. Transportation cost and custom duties applicable at the time of import of coal will be pass-through on actual basis. Key Tariff Assumptions are provided below:

The proposed tariff figures are as follows:

PROJECT TARIFF	Levelized Tariff	
	US cents/kWh	PKR/kWh
Coal, Crushing and Non Crushing Season	3.2319	3.4097
Bagasse, Crushing and Non Crushing Season	5.1522	5.4356
Fuel (Weighted)	3.6701	3.8720
Variable O&M-Local	0.2019	0.2130
Variable O&M-Foreign	0.1934	0.2040
Total Energy (Weighted)	4.0654	4.2890
Fixed O&M-Local	0.5737	0.6053
Fixed O&M-Foreign	0.2933	0.3094
Insurance	0.2099	0.2214
Return On Equity including ROEDC	1.5624	1.6483
Working Capital	0.1289	0.1360
Principal Payments (Year 1-10 only)	1.2971	1.3685
Interest Payments (Year 1-10 only)	0.8971	0.9464
Total Capacity (Year 1-30)	4.9624	5.2354
Total Levelized Tariff (Year 1-30)	9.0278	9.5243

The reference generation tariff table for the Project is appended herewith as Annexure – B.

Key Tariff Assumptions

Key underlying Project and operating assumptions for the tariff are provided below:

Design, Fuel & Operating Assumptions	Units	
Gross Capacity (mean site conditions)	MW	118.8
Net Capacity (Non Crushing Season)	MW	107.54
Net Capacity (Crushing Season)	MW	88.78
Annual Weighted Average Capacity	MW	100.53
Annual Availability		88.00%
Net Capacity		
Crushing Season		
CPPA (G)	MW	72.78
FSML - Crushing Season	MW	16.00
Non Crushing Season		
CPPA (G)	MW	106.54
FSML - Non Crushing Season	MW	1.00
Calorific Value LHV		
Coal	kcal/kg	6000
Bagasse	kcal/kg	1740
Efficiency for Tariff		28.00%
Crushing Season Dispatch (Must-Run)		100.00%
Annual Bagasse Consumption	MT	408,523
Annual Coal Consumption	MT	307,574
Base FOB Coal Price	USD/MT	49.00
Base CIF Coal Price (excluding port charges)	USD/MT	58.20
Base Coal Price (excluding local transport)	USD/MT	63.15
Base Bagasse Price (from CIF Coal Price) (subject to minimum CIF Coal Price of USD 100.67/MT)	USD/MT	29.19
Project Cost Assumptions		
EPC Cost	PKR Million	17,158
Project Cost (before interest during construction)	PKR Million	20,639
Total Project Cost	PKR Million	23,329
O&M and Insurance Assumptions		
Variable O&M	US cents/kWh	0.40
Variable O&M (Local : Foreign Ratio)		51%:49%
Fixed O&M	USD million/annum	6.72
Fixed O&M (Local : Foreign Ratio)		66%:34%
Insurance	% of EPC cost	1.00%
Financing Assumptions		
Equity		25.00%
Debt		75.00%
Equity Internal Rate of Return		17%
Local Debt	% of Debt	100.00%

Interest/Repayment		
Local Debt		Semi-annually
Cost of Debt		
Local	6 month KIBOR plus 3.00%	

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4.1 Energy Charges

The Energy Charges of the reference generation tariff are based on the actual net electrical output measured in kWh and consist of:

(a) Fuel Cost Component;
(b) Local Variable O&M Component
(c) Foreign Variable O&M Component.

Fuel Cost Component has been further sub-divided based on the applicable fuel i.e. coal and/or bagasse.

4.1.1 Fuel Cost Component

This component represents the fuel consumption at an efficiency level of 28.0% at 100% plant load factor. As a general comment, we submit that there will be a separate fuel cost component for each generation scenario stated below and the energy invoice will be based on the applicable fuel and generation scenario.

Indexation and Escalation

The Fuel Cost Component (FCC) is proposed to be adjusted in accordance with price variation of fuel consumed using international coal price indices.

4.1.2 Coal Supply & Price Adjustment Mechanism

The Company shall make its own arrangement for the supply and transportation of coal up to the Project site. Given the limited level of annual coal requirement approximately 310,000 MT for 8-months of coal operation the Company intends to source the entire coal from Richards Bay South Africa and the pricing is proposed to be based on the API4 RB1 Index. Workings of the reference coal price have been provided below:

FOB Richards Bay Coal Price (6,000 kcal/kg)	USD 49.00 per MT
Marine Transport	USD 9.20 per MT
Port Charges (10% of FOB Price)	USD 4.90 per MT
Marine Insurance (0.10% of FOB Price)	USD 0.05 per MT
Total Coal Cost (excluding inland transport cost)	USD 63.15 per MT

This cost does not include the recently announced duty of 5% on import of coal and is considered to be Pass through.

The above figures will be replaced with actual numbers to arrive at actual fuel cost component. The Company is in the process of making arrangements with both Pakistan Railways and local trucking companies for the transport of coal from the port to the Project site. The costs in this regard will be pass through and is expected to be in the range of PKR 2,000 to 2,300 per MT at current diesel prices.

4.1.3 Bagasse Supply & Price Adjustment Mechanism

The Company will be sourcing its own bagasse from its associated company Fatima Sugar Mills Limited. Based on the current 10,500 MT per day crushing capacity of the sugar mill it is expected that the Company will be able to generate approximately ~378,000 MT of bagasse in house. An approximate purchase of ~30,000 MT bagasse from third parties would be made by the Company from third parties.

As is the case in the Authority's previous determinations in the matter of bagasse-based projects being set up under the Renewable Energy Policy 2006, the pricing for bagasse is proposed to be based on a "Calorific Value Equivalent CIF Coal Price" subject to a minimum CIF coal price of USD 100.67 per MT.

4.1.4 Variable O&M

The Petitioner is considering to award O&M contract to LEPM. However, the proposed term sheet contains a number of cost exclusions such as chemicals, lubricants, ash disposal, spares parts etc.. Given Fatima Group's vast engineering expertise and with the assistance of OEMs and EPC Contractor the Petitioner has estimated an amount of US cents 0.40 per KWh as the variable portion of the operations and maintenance costs.

4.2 Capacity Charge

The Capacity Charge component of the reference generation tariff is payable on the basis of the contract capacity established at the COD and annually thereafter. Since the net capacity of the Plant varies during the crushing and non-crushing season, a weighted average capacity of 100.53 MW has been used for the calculation of the Capacity Charge component. The calculation is based on assumption of 120 days of cane crushing season.

A detailed breakup and explanation of various components of the Capacity Charge Component is provided below.

4.2.1 Fixed O&M

Fixed O&M has been based on fixed annual costs of USD 6.72 million which includes O&M cost including O&M fee and Corporate & Administration Cost including Plant Security. O&M cost consists of O&M fee payable to independent operator and petitioner's O&M personnel costs. Since the Petitioner is considering outsourcing the O&M therefore, LEPM proposed cost is used as fixed O&M fee. The proposed cost varies year on year depending upon the number of personnel supplied by LEPM therefore 12 years cost has been levelized while calculating the O&M cost for any year. Details of the costs applicable to Fixed O&M component are provided hereunder.

	PKR Million
Fixed O&M cost payable to independent operators and petitioner's O&M personnel	468
Corporate and Administration Cost (including Plant Security)	241
Total	709

4.2.2 Insurance

The insurance cost component has been calculated based on Authority's previous rulings of 1.00% of the EPCC price.

4.2.3 Working Capital

The Project's working capital requirements on accounts of its unconventional nature are different from standard working capital calculations. Given the long lead time associated with coal procurement, requirement for maintaining a minimum inventory, advance payments to the fuel supplier as well as limitations associated with shipment size, the Petitioner has estimated that working capital equivalent to 90-days of coal inventory. In addition, the working capital requirement also takes into account the payment cycle of the PPA applicable to energy payments receivable from the Power Purchaser and a 30-day period in this regards has been assumed.

Based on the above, cost of working capital has been calculated on the following basis:

Coal Inventory @ 120 Days (Including 30 days receivable)	158,509 MT
Cost of Coal inventory	PKR 1,236 million
Annual Working Capital Cost (6-month KIBOR + 2.0 %)	PKR 105.39

Base 6-month KIBOR = 6.53%

4.2.4 Return on Equity (ROE) including Return on Equity During Construction (ROEDC)

The Return on Equity component of the tariff has been based on an internal rate of return of 17% which is in line with previous rulings of the Authority on the matters related to bagasse and coal generation. Calculations are based on equity disbursements till date and expected utilization up to COD.

Withholding tax payable on the payment of dividends to the equity holders of the Project is assumed to be pass-through.

4.2.5 Debt Servicing Component

Since all the debt is taken from local lenders therefore, the Petitioner has assumed 100% provision of debt from local banks and financial institutions in calculating the debt servicing component of the tariff.

The following assumptions have been made in calculating this component:

- Amount of Debt: PKR 17,497 million in local financing
- Term of debt: 10 years plus 30 months grace period
- Interest Rates: 6-month KIBOR plus 3.0%
- Base KIBOR: 6.53%
- Repayment: Semi-annually

The Project drawdown schedule and related Interest during Construction (IDC) is based on actual incurred costs till date and expected utilization upto COD. This will be adjusted at COD on account of actual variation in interest on the basis of actual drawdown for the period during construction.

4.3 Pass-Through Items

In addition to the pass-through items stipulated in the standardized PPA and in the Petition herein, any taxes, duties and levies and or governmental impositions of whatsoever nature not factored in the tariff calculation including the coal transportation costs will be treated as part of the Project Cost at the time of COD.

4.4 Adjustments at Commercial Operations Date (COD)

4.4.1 At COD, the tariff components will be adjusted by the inflation factors and reference exchange rates, as the case may be, as defined and described herein.

4.4.2 The relevant reference tariff components will also be adjusted on account of variation in FCY/PKR, and by the then prevailing KIBOR (if applicable). Furthermore, any debt related cost will be adjusted at COD.

4.4.3 Debt service and ROE components will be adjusted on account of actual variation in debt and equity drawdown, actual interest during construction, financing costs/fees, actual customs duties and taxes. Once adjusted, the Debt service and ROE will be updated according to the relevant indexations.

4.5 Indexation

The following indexations are applicable to the above mentioned tariff components:

Component	Indexation
Fuel cost component Coal, Crushing and Non Crushing Season	Landed Coal Price
Fuel cost component Bagasse, Crushing and Non Crushing Season	CIF Coal Price subject to minimum of USD 100.67 per MT
Variable O&M-Local	Local CPI or replacement index
Variable O&M-Foreign	PKR/USD, US CPI
Fixed O&M-Local	Local CPI or replacement index
Fixed O&M-Foreign	PKR/USD, US CPI
Insurance	PKR/USD, US CPI
Return On Equity including Return on Equity during Construction	PKR/USD
Working Capital	Coal Price, 6 month KIBOR
Debt Payments (Principal)	PKR/USD, if applicable
Debt Payments (Interest)	6 month KIBOR

Base Dates for the purpose of US and Local CPI shall be the date of NTP i.e. February 2014.

5. GENERAL ASSUMPTIONS

In addition to the assumptions taken in the foregoing paragraphs, the Petitioner's generation tariff takes into account the following assumptions. Changes in any of these will result in an appropriate adjustment to the proposed tariff:

5.1 Annual plant availability of 88% assumed. Scheduled outage allowance of 29 days per annum assumed, except in a major overhaul year where the scheduled outage period will be 42 days. Annual unscheduled outages of 15 days are assumed.

5.2 FTCL will be responsible for procuring, initial funding and constructing of the interconnection, metering and transmission facilities. Following COD these shall be handed over to NTDC who shall be responsible for the operating and maintenance as well as reimbursement of capital costs to FTCL.

5.3 All fuels costs during plant tests after synchronization is assumed to be paid for by the Power Purchaser.

5.4 The tariff is calculated on the basis of a notional 88 % plant load factor.

5.5 No hedging cost has been assumed for exchange rate fluctuations during construction.

5.6 Project contingencies, debt service reserves and maintenance reserves are not included in tariff calculations.

5.7 Any tax on any income of the Company including sales proceeds from CPPA (G), general sales tax and all other corporate taxes will be treated as pass-through items.

5.8 No withholding tax on supply of plant and equipment.

5.9 Withholding tax on dividends is considered pass through.

5.10 No taxes or duties (including stamp duties) have been assumed on the execution of the financing documents, loan repayment, interest repayment, agency fee, commitment fee, upfront fee and fuel purchase or transportation.

5.11 The transmission and system studies have already been carried out by NTDC. Further, the cost of metering system (except back up meter) and remote terminal unit (RTU) will be borne by the Power Purchaser. In case the Company is required to meet this cost, it will be treated as pass-through item.

5.12 No free startups are assumed.

5.13 The tariff will be based on minimum take or pay – minimum dispatch level to be agreed with the power purchaser in due course. Any liquidated damages levied by the coal suppliers due to lower dispatch will be passed through to the Power Purchaser.

5.14 Project will be considered a must-run during the Crushing Season as is the case with bagasse-based renewable projects. In case of non-dispatch the full tariff including energy charges shall be payable by the Power Purchaser to the Project Company.

5.15 Additional coal (over and above the minimum take or pay) will be purchased through options and/or additional quantity from coal suppliers and/or spot market. Any additional cost and/or premium paid in this regard will be passed through to the Power Purchaser.

5.16 No royalty or any payment or fees to the relevant port authorities has been assumed.

5.17 If the Company is required to comply with an environmental regime more stringent than the one assumed then there will be an increase in the EPCC cost on account of equipment to be installed to offset SOx sand NOx emissions. Such costs will become part of the overall Project Costs.

5.18 All invoicing and payment terms are assumed to be in accordance with the standardized PPA terms.

5.19 Any benefit/concession/incentives given to any other IPP/projects will also be given to the Company.

5.20 Any additional costs incurred to cater for any modifications or additions required by the Power Purchaser will form part of the Project Cost at the COD.

5.21 For the purposes of the tariff petition coal transportation is assumed pass through, the Petitioner is exploring various options hereunder (in order to increase overall efficiency) including the possibility of rail transportation of coal to the Project site. The Petitioner therefore respectfully requests the Authority to allow the requisite adjustments, if any, at COD.

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6. DETERMINATION SOUGHT

In light of the foregoing submissions, the learned Authority is kindly requested to approve the Company's generation tariff together with the pertinent indexations in accordance with the Project Costs and the assumptions related thereto mentioned above for a 30-years PPA term post COD.

The Petitioner will be pleased to provide any further information, clarification or explanation that may be required by the Authority during its evaluation process.

Fatima Energy Limited
Through
Fazal Ahmed Sheikh
Authorized Representative

[redacted]

[redacted]

Annex C •Operations Organization

[redacted]

[redacted]

[redacted]

Annex G [redacted]