

Power Acquisition Request

In relation to:

FFBL Power Company Ltd.

Submitted before:

National Electric Power Regulatory Authority
(Under IPPR 2005 rules and regulations)

Submitted by:

K-Electric Limited

March 27, 2015

Table of Contents

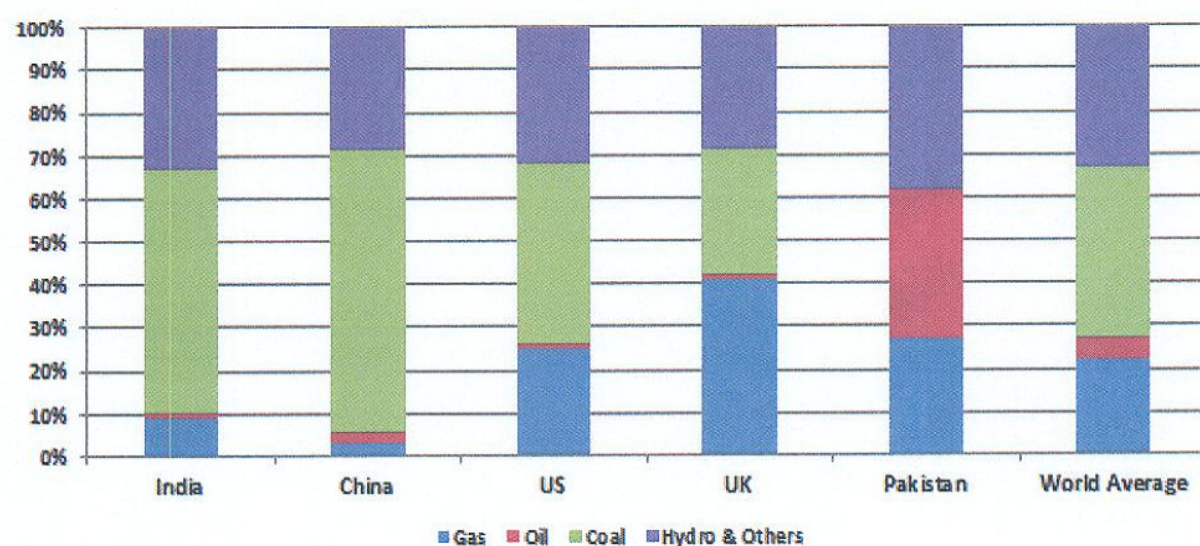
Chapter 01	Grounds Forming Power Acquisition Request	2
1.1	Overview	2
1.2	Project Brief.....	3
1.3	Process leading to Submission of PAR.....	4
1.4	Submission of Application for Generation License.....	4
1.5	Submission before Authority	4
Chapter 02	Economic Justification of the Project	5
Chapter 03	Overview of the Power Sale Proposal	6
3.1	Summary of Sale Proposal.....	6
3.2	Project Costs.....	7
3.3	Project Cost Allocation.....	7
3.4	Request for Inclusion of cost of Interconnection Facilities	9
3.5	Tariff Components	9
Annexure I:	Information Required under IPPR 2005	14
Annexure II:	Power Sale Proposal.....	17

Chapter 01 Grounds Forming Power Acquisition Request

1.1 Overview

- 1.1.1 Karachi is the industrial, financial and trading hub of Pakistan. The availability of port facilities has attracted energy related investments over several decades thus positioning Karachi as the focal point of the energy corridor of Pakistan. Although K-Electric has a customer base of 2.3 million connections across residential, commercial, industrial and agricultural sectors, the real beneficiaries are over 20 million people living in and around Karachi. K-Electric continues to receive applications for new connections on a daily basis. At any particular instant, the volume of these applications usually adds up to several hundred MW. K-Electric recorded a peak demand of 2929 MW in June 2014, an increase by nearly 500 MW within the last six years period. Hence the demand of electricity is exponentially increasing with the passage of time and calls for investment in generation capacities for reducing demand-supply gap for the power consumers.
- 1.1.2 The decrease in gas supply to K-Electric has led to a higher consumption of furnace oil which has adversely impacted the consumer tariff and the working capital of the utility. Although the prices of furnace oil have come down in recent months, the historical wide spreads between furnace oil and coal prices suggests use of coal fired power generation. Unfortunately, no coal fired power generation stations are currently operating that could enable K-Electric to source power from.
- 1.1.3 With 41% share, coal is by far the major fuel input used in the world for power generation. The share of oil, on the other hand, is a mere 5%. In Pakistan, it is the other way round where oil based power generation leads with 35% share and coal based power generation holds nearly 0% share. Given the lower cost of coal compared with oil and its abundant supply in the international market as well as substantial domestic reserves, the solution is simple and straight forward. However, the real challenge is to create a conducive environment which facilitates development of coal fired generation projects in minimum possible time. The introduction and higher usage of coal in the power generation will help in correcting the fuel mix and rationalizing consumer tariffs.
- 1.1.4 With improvement in economic outlook of the country, the demand for electricity is expected to increase in the range of 5-6 % annually. Hence there is an urgent need to develop coal fired power projects to improve power supply and reduce cost of generation.

Comparison of Fuel Mix for Power Generation



1.2 Project Brief

- 1.2.1 Taking a view on depleting indigenous gas reserves and poor prospects of gas supply in future, the Fauji Fertilizer Bin Qasim Limited (FFBL) has reviewed its growth strategy and decided to replace gas with coal as fuel for their fertilizer manufacturing operations. Following this decision, FFBL incorporated FFBL Power Company Limited ("FPCL"), a wholly owned subsidiary of FFBL, as an unlisted public limited Company to own and operate an independent coal fired co generation complex.
- 1.2.2 FPCL will design, construct and operate the coal fired cogeneration facility at Bin Qasim Karachi (the Project) to meet the steam and power requirements of FFBL as well as generate dedicated supply of 52 MW net power for K-Electric under an "IPP" structure. The Project will be located at Port Qasim, Karachi in the province of Sindh, on approximately 50 acres of land within the existing FFBL Fertilizer Complex. The project will be implemented by FFBL on multi-package engineering, procurement & construction management approach under the supervision of a reputed engineering firm.
- 1.2.3 FPCL is planning to install high pressure CFB technology boilers to build flexibility of burning a wide variety of coals to be procured from different sources internationally as well as avail the opportunity to utilize indigenous Thar coal, as and when available. This strategy will help in rationalizing the tariff in view of higher capital cost of CFB boilers. In addition to the CFB Boilers, the Project envisages common equipment/facilities such as electrical and instrumentation, handling facilities for coal, lime stone and ash, tie-ins & BOP, etc. which are provided in detail in the Section 3 of the Power Sale Proposal submitted by FPCL. The common capital cost has been allocated between K-Electric and FFBL on the basis of estimated water and steam consumption required for each facility. The Project costs specific to K-Electric includes steam turbine, generator and step up transformer.
- 1.2.4 FPCL has indicated Indonesia and/or South Africa to be the likely sources for coal procurement. They have also indicated use of indigenous coal, as and when the same becomes available and is economically viable. However, for the purpose of computing indicative tariff, the FOB price of Richard Bay API4 6,000 kcal NAR coal has been assumed.
- 1.2.5 The proposed steam turbine for K-Electric supply is General Electric (GE) make with 60 MW gross (MCR) having inlet steam pressure and temperate at 89 bara and 510 C respectively. The generator has a rating of 60 MW, speed of 3,000 rpm and power factor of 0.8 lagging / 0.9 leading.
- 1.2.6 The Project will generate and supply 52 MW (net) electric power to K-Electric at 50Hz frequency and the remaining MW will be supplied to FFBL through use of separate and dedicated STGs at 60 Hz, which is outside the K-Electric's operational limit and distribution frequency of 50 Hz and due to this technical constraint the supply at 60 Hz cannot be routed through K-Electric. Besides the power at 60 Hz, a limited amount of steam will also be supplied to FFBL to meet the operational needs of the fertilizer plant.
- 1.2.7 The Project is expected to be commissioned in the first quarter of 2017. Considering the large investment being undertaken by FPCL and the dedicated 52 MW (net) power generated by the project is to be sold to K-Electric under a Power Acquisition Contract ("PAC"), FPCL has

requested to consider the Project on a 'Take or Pay' basis, which the Authority may please consider and determine.

1.3 Process leading to Submission of PAR

- 1.3.1 FFBL currently has in-house power generation facility which is run on gas. Natural gas is required in large volumes by FFBL for the purpose of both feedstock and fuel to operate various ancillary equipment of the fertilizer plant including power generation. Taking a long term view, FFBL decided to develop new coal fired power generation project. In view of synergies available with respect to operations of FPCL by serving both FFBL and K-Electric together, FPCL approached K-Electric to determine K-Electric's interest in purchasing power from FPCL. In view of power shortage in the city, K-Electric considered the offer of FPCL and requested for submission of a power sale proposal.
- 1.3.2 Following request of K-Electric, FPCL submitted a power sale proposal which is attached as Annexure II.
- 1.3.3 After a careful review and discussions with FPCL on the power sale proposal, K-Electric has agreed in principle for purchase of power from FPCL subject to various regulatory approvals.
- 1.3.4 To determine power evacuation from the Project, the Grid Load Flow study for the connectivity of FPCL with K-Electric network has been completed by OMS (Private) Limited.

1.4 Submission of Application for Generation License

- 1.4.1 FPCL submitted application for Generation License to NEPRA via letter dated 14 October 2014 and this application is currently under process by the Regulator.

1.5 Submission before Authority

- 1.5.1 Upon receipt of the Power Sale Proposal from FPCL, K-Electric hereby submits its Power Acquisition Request ("PAR") to NEPRA, in accordance with Interim Power Procurement Regulations (IPPR) 2005 and hereby requests the Authority to approve the following:
 - Proposed power acquisition from FPCL under IPPR 2005
 - Review the power sale proposal, power acquisition request and determine reference tariff
 - Assess the indexation, escalation and adjustment methodologies as described in the power sale proposal and reviewed in power acquisition request
 - Revisit and necessary revision of reference tariff at the time of commercial operations date; and
 - Any other matters stated in the power acquisition request
- 1.5.2 Given the acute shortage of power in the country and the potential of this Project in giving relief to the consumers, the Authority is requested to expedite this power acquisition request under the IPPR 2005 so that K-Electric and FPCL proceed further and formalize the arrangements.

Chapter 02 Economic Justification of the Project

2.1 In view of the growing electricity demand in K-Electric's franchise area, the management of K-Electric has decided to pursue the power sale proposal of FPCL for the following reasons:

- The long term forecast for natural gas supply is not encouraging. This may affect full utilization of gas fired power generation capacity of K-Electric.
- Coal is very cheap when compared with furnace oil. Hence the supply should rationalize the consumer tariff.
- Reduction in the GoP's subsidy payments and hence improvement in the circular debt situation.
- FPCL is providing an expedited power generation option considering Project is being implemented on a fast track basis with a construction period of 24 months after the financial close.
- Reliable base load supply 24x7.
- Potential use of the Project as black start facility in case of widespread power outage.

Chapter 03 Overview of the Power Sale Proposal

3.1 Summary of Sale Proposal

Project Company	FFBL Power Company Limited. (FPCL)		
Major Sponsors	Fauji Fertilizer Bin Qasim Limited		
Project Capacity	52 MW (Net)		
Interconnectivity	132 KVA		
Project Location	Bin Qasim, Karachi, Sindh, Pakistan		
Plant Technology	High Pressure Circulating Fluidized Bed (CFB) Technology		
Project Lifecycle	30 Years from COD		
Power Purchaser	K-Electric Limited		
Fuel Type	Coal		
Plant Factor	85%		
Energy Production	455.520 GWh at 100% Load Factor		
Energy Production	387.192 GWh at 85% Load Factor		
Project Cost	K-Electric related Project Costs		US\$ Million
	EPC Cost		97.1
	Project Management		3.0
	Financing Fees & Charges		2.6
	Insurance during construction		1.0
	Power and Fuel during Construction		1.0
	Interest During Construction		9.3
	Total		114.0
Capital Structure	Project Financing	Percentage	US\$ Million
	Equity	25%	28.5
	Debt	75%	85.5
	Total Financing	100%	114.0
Financing Terms	Loan period: 10 years		
	Interest Rate: KIBOR + 3.5% p.a.		
	KIBOR: 10.10% p.a.		
Levelized Tariff	PKR 10.1554/kWh at 85% load factor		
Concession Documents	Power Acquisition Contract		
Construction period	24 months after Financial Close		
Applicable Framework	Interim Power Procurement Regulations 2005		

3.2 Project Costs

- 3.2.1 As noted above, FPCL has planned to construct two separate power generation units within its complex with each unit dedicated for supply of power to K-Electric at 50 Hz and FFBL at 60 Hz. Thus, the combined total cost of the Project is estimated at US\$ 265 million which covers both common costs and costs specific to each unit.

EPCM Cost	US\$ million
Civil Works & Erection	36.6
Boiler Island	57.3
Coal, Sorbent & Ash Handling	23.7
Electrical, Instrumentation & Control	17.3
Tie-inns and BOP Equipment	9.5
Engineering & Consulting	7.5
Cooling Water System	7.4
Steam Turbine Gen (50Hz)	16.1
Grid System	9.1
Steam Turbine Gen (60Hz)	29.9
Custom Duties and Taxes	11.6
EPMC Cost	225.9
Project Management	7.0
Financing Fees & Charges	6.0
Insurance during construction	2.3
Power and fuel during testing	2.2
Project Cost before IDC	243.4
IDC	21.6
Total Project Cost	265.00

- 3.2.2 According to the power sale proposal, the Project will be capable of generating 500 metric tons per hour (MTPH) steam through two (02) circulating fluidized bed (CFB) high-pressure coal-fired boilers each with a capacity of 250 TPH with 5 MTPH as internal consumption of boilers. Out of the 495 MTPH net steam generated and available for consumption, ~291 MTPH steam would be utilized for power and steam supply to FFBL and ~204 MTPH of steam would be used to supply 52 MW (net) of power to K-Electric. Since the distribution of steam has been used as basis for allocation of common project costs, the Authority is requested to review the same between FFBL, K-Electric and internal consumption of boilers.

3.3 Project Cost Allocation

- 3.3.1 The total Project cost comprises of specific and common costs. Specific costs represent the cost of equipment that is dedicated to either FFBL or K-Electric (e.g., steam turbine and generator). Grid system costs are specific to K-Electric and are related to the step up transformer to ensure delivery of electricity which conforms to required specifications at the interconnection point, whereas common costs represent equipment/items that are shared between FFBL and K-Electric.
- 3.3.2 Common equipment includes civil works & erection, control system, boiler islands, electrical & instrumentation, coal, lime stone and ash handling systems and cooling towers, etc.

whereas specific equipment include grid system & steam turbine generator (50Hz) for K-Electric and steam turbine generator (60 Hz) for FFBL. Common items include project management, financing fees and charges, project insurance, interest during construction, commissioning power and fuel etc.

- 3.3.3 FPCL has proposed the allocation of common Project costs (inclusive of Custom Duties & Taxes) on the basis of expected steam consumption for K-Electric and FFBL, whereas the cost of cooling tower (inclusive of Custom duties & Taxes) has been allocated on system utilization of cooling water circulation. Based on this mechanism, the total Project cost for the K-Electric component is worked out to be US\$ 114 million. The Authority is requested to review and determine the cost allocation of the complex pertained to K-Electric.

Base Project Cost	Total(USD million)	FFBL Steam & Power	K-Electric
EPC/M COSTS			
Steam allocation basis %		58.7%	41.3%
Civil Works & Erection	36.6	21.5	15.1
Boiler Island	57.3	33.7	23.6
Coal, Sorbent & Ash Handling	23.7	13.9	9.8
Electrical, Instrumentation & Control	17.3	10.2	7.1
Tie-ins and BOP Equipment	9.5	5.6	3.9
Engineering & Consulting	7.5	4.4	3.1
Custom Duties (Steam)	8.3	4.9	3.4
System use basis %		46.0%	54.0%
Cooling Water System	7.4	3.4	4.0
Custom Duties (System use) and Taxes	0.4	0.2	0.2
K-Electric Specific		0.0%	100.0%
Steam Turbine Gen (50Hz)	16.1	-	16.1
Grid System	9.1	-	9.1
Custom Duties (KE) and Taxes	1.7	-	1.7
FFBL Specific		100.0%	0.0%
Steam Turbine Gen (60Hz)	29.9	29.9	-
Custom Duties (FFBL) and Taxes	1.1	1.1	-
TOTAL EPC/M COST	225.9	128.7	97.1
Allocated EPCM Cost (%age)		57.0%	43.0%
Project Management	7.0	4.0	3.0
Financing Fees & Charges	6.0	3.4	2.6
Insurance during construction	2.3	1.3	1.0
Power and Fuel during testing	2.2	1.3	1.0
PROJECT COST (Pre IDC)	243.4	138.7	104.7
Interest during construction (IDC)	21.6	12.3	9.3
TOTAL PROJECT COST	265.0	151.0	114.0

3.4 Request for Inclusion of cost of Interconnection Facilities

- 3.4.1 The Authority is requested to allow an additional US\$ 2 million (not inclusive in the Project cost as mentioned above) for the transmission facilities needed towards K-Electric's interconnection. The cost is allocated towards the 132kV double Circuit line of approximate 0.8 Km which is needed to connect the existing 132kV Dhabeji with the BOC 132kV single circuit at the FFBL switchyard Complex. If the additional US\$ 2 million is allowed, the total project cost pertained to K-Electric will increase from US\$ 114million to 116 US\$ million and the levelized tariff on this allocation would increase by USD Cents 0.0737/Kwh. The Authority is requested to review and allow this additional cost pertained to K-Electric.

3.5 Tariff Components

- 3.5.1 FPCL has filed a cost plus tariff on 'Take or Pay' mechanism, which is essentially broken down into variable component (i.e., Energy Purchase Price) and fixed component (i.e., Capacity Purchase Price). The variable tariff component includes Fuel Cost, Ash Disposal, Limestone and Variable Operations and Maintenance. The fixed component includes Fixed Operations and Maintenance, Insurance, and Working Capital, Return on Equity "ROE" and Debt Servicing.

Tariff Inputs	At 100% (PKR/KWh)			At 85% (PKR/KWh)
	Year 1-10	Year 11-30	Levelized	Levelized
Variable Operating Costs				
Fuel Cost	4.3333	4.3333	4.3333	4.3333
Variable O&M (Foreign)	0.0811	0.0811	0.0811	0.0811
Variable O&M (Local)	0.1711	0.1711	0.1711	0.1711
Ash Disposal	0.1753	0.1753	0.1753	0.1753
Limestone	0.0897	0.0897	0.0897	0.0897
EPP: Operating Costs	4.8505	4.8505	4.8505	4.8505
Fixed Operating Costs				
Fixed O&M (Foreign)	0.1963	0.1963	0.1963	0.2310
Fixed O&M (Local)	0.2262	0.2262	0.2262	0.2661
Insurance	0.2184	0.2184	0.2184	0.2569
Working Capital	0.2000	0.2000	0.2000	0.2353
CPP: Operating Costs	0.8409	0.8409	0.8409	0.9893
Fixed Capital Cost				
ROE	1.3580	1.3580	1.3580	1.5976
Debt Servicing	3.5445		2.3103	2.7180
CPP: Capital Cost	4.9025	1.3580	3.6683	4.3156
Total Tariff	10.5939	7.0494	9.3597	10.1554

3.5.2 At 100% plant capacity factor, the average tariff works out to be Rs. 10.5939 per kWh in the first 10 years and drops to Rs. 7.0494 per kWh between years 11 to 30. The main reason for drop of tariff from 11th year is the completion of debt servicing to lenders. The levelized tariff at 100% plant capacity is Rs. 9.3597 per kWh while at 85% is Rs. 10.1554 per kWh.

3.5.3 Fuel Cost

The FPCL’s working of the Fuel Cost Component (“FCC”) is based on the efficiency parameters of 29% (net LHV). FPCL has proposed high pressure CFB technology for boiler so as to bring in flexibility of using wide variety of coal including imported and local coal. The boilers are being procured from Hyundai Heavy Industries Ltd. For the purpose of calculating Reference Coal Price per kg, imported coal of following specifications has been proposed (“Reference Coal”):

Item	Metric	Reference Coal
CV	kCal/kg	5,925
Moisture	As-Received (%)	11
Volatile Matter	As-Received (%)	38.68
Fixed Carbon	As-Received (%)	39.14
Ash	As-Received (%)	11.18

3.5.4 The proposed range of coal is abundantly available from nearby export hubs including Indonesia, South Africa, and Australia. As and when economically available, FPCL has indicated that the locally produced coal will be considered for blending with imported coal within the Design Coal Specifications. The details of coal procurement will be firmed up through a bankable Coal Supply Agreement.

3.5.5 The Reference Coal Price has been determined based on following:

- McCloskey Richards Bay for 6000 kCal/kg NAR coal index FOB price (“Benchmark Coal”) as notified by IHS Energy McCloskey Coal Report. FPCL has taken the November 7, 2014 Benchmark Coal Index price of FOB US\$ 63.38 per ton. The FOB price of Benchmark Coal has been adjusted for the calorific value of Reference Coal 5,925 kcal/kg NAR to arrive at US\$ 62.58 per ton (“Reference Coal Price”).The Authority is requested to evaluate and determine the suitability of Benchmark Coal, for the purpose of reference Fuel Cost Component and provide a mechanism for the purpose of future adjustments of reference coal price to accommodate variation in prices of coal imports during commissioning and commercial operations.
- Sea Freight of US\$ 13.6/MT Karachi Port. FPCL has asked for charging marine freight at actual. The Authority is requested to determine whether FPCL can charge the marine freight at actual or should they follow some other mechanism.
- Local Transportation, Port Clearing & Handling, and Marine Insurance of US\$ 8.28/MT. The Authority is requested to review this cost for appropriateness and also establish a relevant indexation for this component.
- The delivered price of coal has been calculated by adding the Sea Freight and Local Transportation, Port Clearing & Handling, and Marine Insurance to the Reference Coal Price. The delivered price will further include an appropriate level of adjustment for unloading, transit and storage losses with a maximum cap of up to 2 %.

- The Authority is requested to derive a pricing formula to incorporate the impact of difference in Moisture, Sulphur and Ash content between delivered coal (within the Design Coal Specifications) and Index Coal.
- Facilities at Karachi Port Trust and Port Qasim will be used to handle coal from the export hubs (Indonesia, South Africa etc.). Once unloaded, coal will be taken to a storage facility at FPCL plant. Inventory for 45 days of coal will be stored inside the Storage yard (capacity of 60,000 MT) in addition to provision of 45 days' worth storage at unloading port.

3.5.6 Variable O&M

The variable O&M cost components includes the cost of consumables such as lubricant, chemicals, wear & tear parts, sand &, and fresh water charges. The Variable O&M Component has been calculated at 100% capacity factor and has been split between foreign and local components as NEPRA Standards. The indexation of Variable O&M is proposed to be indexed to the product of US\$ and US CPI for foreign component and Pakistan Consumer Price Index, as notified by the Pakistan Federal Bureau of Statistics, for local component. The Authority is requested to determine whether the proposed indexation mechanisms and sources are appropriate.

3.5.7 Ash Disposal

The Ash disposal Component proposed by FPCL includes the ash collection system, ash storage Silos and ash disposal system. The Ash Disposal Component shall require adjustments for cost escalations. Authority is requested to determine a suitable basis for indexation of Ash Disposal Component.

3.5.8 Limestone

The Limestone Component incorporated in the Tariff is essential to prevent SOx emission. The usage of Limestone inside the CFB Boilers will ensure de-sulphurisation of the plant. The Limestone Cost Component shall require adjustments for cost escalations. Authority is requested to determine a suitable basis for indexation of Limestone Component.

3.5.9 Insurance

The annual cost of insurance proposed by FCPL is 1.0% of the engineering, procurement and construction cost of the project. The Insurance Component shall cover machinery breakdown and third party liability insurances including business interruption/consequential loss following such event. The Insurance Cost Component is proposed to be adjusted to Rs / US\$ exchange rate. Authority is requested to determine whether the proposed indexation mechanism is appropriate.

3.5.10 Working Capital

The Working Capital Component includes the cost of investment in coal supply chain including coal in transit and available at FPCL's storage which totals to consumption of coal for 90 days period at full load. Additionally, receivable of 30 days for collection of energy invoice has also been included. A borrowing rate of 3 months KIBOR plus 2% has been assumed as working capital cost. FPCL has proposed that the Working Capital Component

shall be periodically adjusted for any change in 3 months KIBOR and variation in fuel price. Authority is requested to determine whether the proposed indexation mechanisms and sources are appropriate.

3.5.11 Fixed O&M

The fixed O&M cost component proposed by the Project Company represents (a) fixed cost of staff for operation & maintenance of the plant (b) the cost of spares and services for routine maintenance and major overhaul (c) Third party services (d) material handling costs (e) administrative cost and office expenditures. The Fixed O&M Component is split among local and foreign component. The indexation of Fixed O&M has been proposed as the product of US\$ and US CPI for foreign component and Pakistan Consumer Price Index, as notified by the Pakistan Federal Bureau of Statistics for local component. Authority is requested to determine whether the proposed indexation mechanisms and sources are appropriate.

3.5.12 Return on Equity

The project sponsors Fauji Fertilizer Bin Qasim (FFBL) has requested for an 18.38% IRR on US\$ basis. The reference tariff table submitted by FPCL provides a Return on Equity is 21.2% which is much lower than the upfront tariff determination for coal projects. The main reason for such difference is the shorter time for the development of FPCL project. The ROE has been proposed to be indexed to changes in PKR to US\$ parity.

3.5.13 Long Term Debt

FPCL is currently engaged with local banks to complete the financing of the project as per the capital structure submitted in the power sale proposal. The terms of the project loan are assumed in the table below. These rates/terms are subject to finalization and adjustment in accordance to negotiations with the project lenders. FPCL has requested for the adjustments in the Long Term Debt Component at a later stage based on the actual drawdown by the Company. FPCL has also proposed for adjustments to be allowed for changes in KIBOR rate.

Loan period:	10 years
Repayment:	Quarterly
Interest Rate:	3 Month KIBOR + 3.5% p.

3.5.14 Reference Tariff Economic Assumptions

PKR- USD Exchange Rate	102.4 PKR/USD <ul style="list-style-type: none"> PKR/USD Selling TT&OD rate as notified by National Bank of Pakistan on November 7,2014
3 Month KIBOR	10.10% <ul style="list-style-type: none"> 3 Month offer side KIBOR notified by State Bank of Pakistan on November 7,2014
Pakistan Consumer Price Index	198.80 <ul style="list-style-type: none"> Consumer Price Index (General) of November 2014 as published by Pakistan Bureau of Statistics in Monthly Review of Price Indices.
US Consumer Price Index	236.151 <ul style="list-style-type: none"> Consumer Price Index – All Urban Consumers (Series ID CUUR0000SA0 Not Seasonally Adjusted) of November 2014 as published by United States Bureau of Labor Statistics.

3.5.15 Tariff Table

FFBL Power Company Limited
Reference Tariff Table for K-Electric

	Energy Purchase Price (Rs/Kwh)						Capacity Purchase Price (Rs/Kw/hr)									
Year	Fuel Component	Ash Disposal	Limestone	Variable O&M		Total EPP	Fixed O&M		Working Capital	Insurance	ROE	Debt Servicing	Total CPP	Capacity Charge @85%	Total Tariff Rs/Kwh	Total Tariff USD Cents /Kwh
				Foreign	Local		Foreign	Local								
1	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
2	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
3	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
4	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
5	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
6	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
7	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
8	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
9	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
10	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
11	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
12	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
13	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
14	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
15	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
16	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
17	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
18	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
19	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
20	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
21	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
22	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
23	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
24	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
25	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
26	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
27	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
28	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
29	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
30	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
Average 1-10	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	3.5445	5.7434	6.7569	11.6074	11.3353
Average 11-30	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	-	2.1989	2.5869	7.4374	7.2631
Average 1-30	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	1.1815	3.3804	3.9769	8.8274	8.6205
Levelized 1 -30	4.3333	0.1753	0.0897	0.0811	0.1711	4.8505	0.1963	0.2262	0.2000	0.2184	1.3580	2.3103	4.5092	5.3050	10.1554	9.9174

Net Capacity 52 MW
Reference Exchange Rate 1 USD = 102.4 PKR

Submitted:



Tayyab Tareen
Chief Executive Officer
K-Electric Limited

Annexure I: Information Required under IPPR 2005

Information about Generation Capacity Under Proposed Procurement Request			
Net Capacity (MW)			52
Technology			Circulating Fluidized Bed Boiler
Fuel			Steam (Non-Coking) Coal
Whether Forms part of least cost plan			N/A
Availability of Power/Energy			85%
Year of Commissioning			2017
Expected rate of power to be acquired (Levelized)			Rs. 10.1554 per kWh
K-Electric Demand in FY14			2,929 MW
Location			Port Qasim, Karachi
Proposed	Grid	for	interconnection
Approximate Distance			Looping in-out of 132 kV Dhabeji – BOC circuit 0.8 KM
Augmentation Required in Grid			none
Augmentation Required in transmission network			none
Estimated costs if augmentation required			none
Steps taken or required for transmission augmentation			none
Any other information			none

Peak Demand at Interconnection Points of K-Electric Transmission and Distribution Network		
Interconnection Point # 1		BALDIA / NKI
Grid Identification:		BALDIA
Location		BALDIA
Voltage		220kV
Capacity in MA		950MVA
Peak Demand at # 1		455MW
Interconnection Point # 2		KDA / NKI
Grid Identification:		KDA
Location		Scheme 33
Voltage		220kV
Capacity in MA		950MVA
Peak Demand at # 2		135MW
Interconnection Point # 3		KDA / JAMSHORO
Grid Identification:		KDA
Location		Scheme 33
Voltage		220kV
Capacity in MA		750MVA
Peak Demand at # 3		60MW

K-Electric (Distribution) Peak Demand		
2007-08	Peak Demand (MW)	2,443
	Actual Load shed in the evening peak demands	387 MW (10-06-2008)
2008-09	Peak Demand (MW)	2,462
	Actual Load shed in the evening peak demands	450 MW (27-05-2009)
2009-10	Peak Demand (MW)	2,562
	Actual Load shed in the evening peak demands	480 MW (29-06-2010)
2010-11	Peak Demand (MW)	2,591
	Actual Load shed in the evening peak demands	570 MW (08-06-2011)
2011-12	Peak Demand (MW)	2,596
	Actual Load shed in the evening peak demands	433 MW (22-05-2012)
2012-13	Peak Demand (MW)	2,778
	Actual Load shed in the evening peak demands	526 MW (19-06-2013)
2013-14	Peak Demand (MW)	2,929
	Actual Load shed in the evening peak demands	609MW (18-06-2014)

