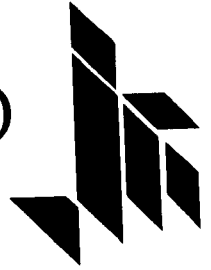


# JAPAN POWER GENERATION LIMITED



JIA BAGGA, RAIWIND ROAD, LAHORE. TEL : 042-5835864 - 67, FAX: 042-5835860  
E-mail: jpgl@brain.net.pk Website: http://www.jpglpk.com

July 24, 2008  
JPGL-2008/07/NB-25

The Registrar  
National Electric Power Regulatory Authority  
2<sup>nd</sup> Floor OPF Building  
Sector G-5/2  
Islamabad

**Subject: Expansion Project – Petition for tariff determination**

Dear Sir,

Reference your letter No. NEPRA/R/TRF-100/6732 dated March 20, 2008, directing us to re-file the tariff petition with EPC contract. We are re-submitting petition for tariff determination pursuant to Rule 3 of the NEPRA (Tariff Standards & Procedures) Rules, 1998, read with paragraph 1.3 of the Federal Government's Guidelines for Determination of Tariff for Independent Power Producers, issued by Government of Pakistan in November 2005. Signed agreement with EPC Contractors along with annexure and exhibits are attached as required.


We are submitting one original and six copies of the application for your perusal.

Bank draft No. A0884182 dated July 24, 2008 for Pak Rs. 3,199,500/= (Pak Rupees three million one hundred ninety nine thousands and five hundreds only) drawn on ABN Amro Bank (Pakistan) Limited covering requisite fee for the tariff determination.

We are in the process of preparing the application for grant of generation license. We expect to file the said application within 15 days.

We shall be grateful if the learned Authority could expeditiously finalize the tariff determination enabling the Company to move ahead with the project implementation.

Regards,

  
Nadeem Babar  
Chief Executive

CC: Managing Director PPIB, Islamabad

Registrar  
Dy. No. 6265  
Dated 28-7-08

PO No. A 0884182

884182 / 84701



61 Main Gulberg , Lahore .

Not Over **PKR**

\*\*\*\*\*3,199,500.00\*\*\*\*\*

Date : 24 JUL 2008

This Bankers / Cashier's Cheque  
Requires Endorsement

Pay Order

Pay To NEPRA.

Or Order

Pak Rupees THREE MILLION ONE HUNDRED NINETY NINE THOUSAND FIVE HUNDRED AND 0/100 ONLY **PKR**

\*\*\*\*3,199,500.00

On Account of

This PO is valid for 6 months only

JAPAN POWER GENERATION LTD.

Payable at : Any Branch of ABN AMRO in Pakistan

Please do not write below this line.

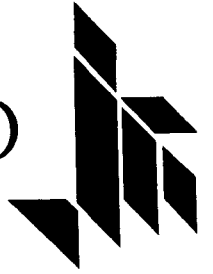
SAEEDA AKHTAR

⑈0884182⑈0500405⑈

⑈020⑈

# JAPAN POWER GENERATION LIMITED

JIA BAGGA, RAIWIND ROAD, LAHORE. TEL : 042-5835864 - 6 , FAX: 042-5835860  
E-mail: jpgl@brain.net.pk Website: <http://www.jpglpk.com>



**Certified True Extracts from Resolution by Circulation of the Board of Directors of the Company dated March 17, 2008 for filing of Tariff Petition and Generation License petition by the Japan Power Generation Limited for expansion project near Lahore**

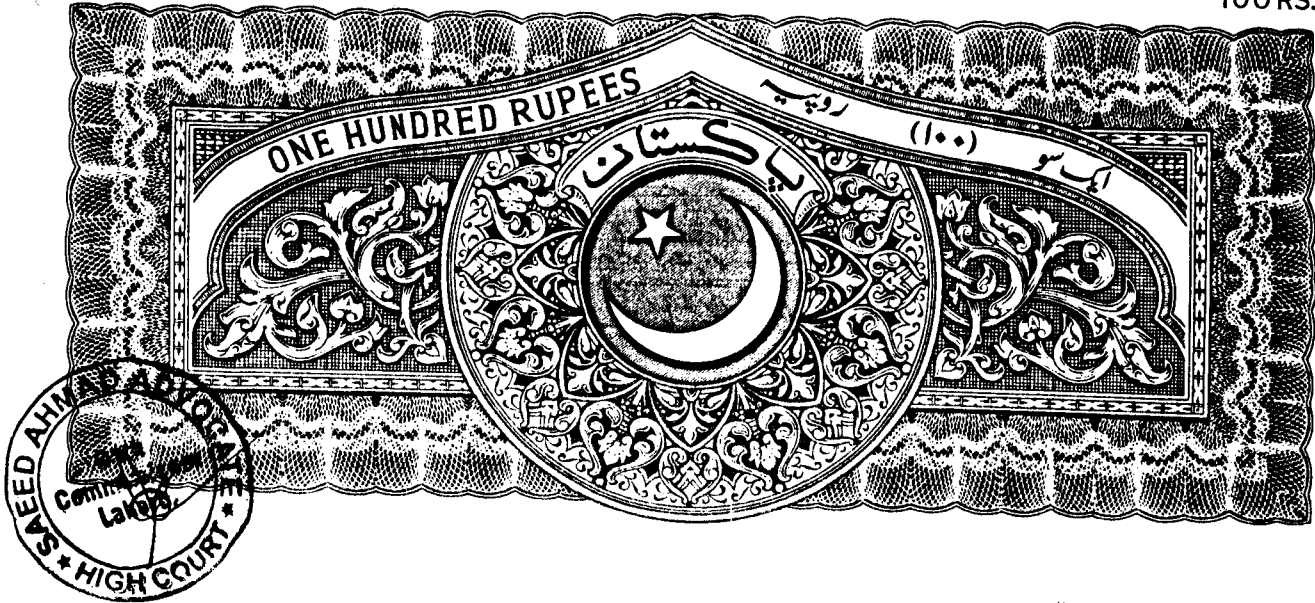
---

**Resolved** that a tariff petition be filed by and on behalf of the Japan Power Generation Limited (the "JPGL") with the National Electric Power Regulatory Authority (the "NEPRA") for determination and approval of the tariff for the JPGL's expansion project near Lahore for approximately 150 MW gross capacity using RFO/fuel for power generation (the "Project").

**Resolved Further** that a Generation License petition be filed by and on behalf of the JPGL with the NEPRA for issuance of Generation License for the "Project".

**Resolved Further** that Mr. Nadeem Babar, Chief Executive of the JPGL be and is hereby authorized to sign all petitions (including review petitions) and documentations, pay all filing fees, appear before the NEPRA and provide any information required by NEPRA in respect of this expansion project and do all acts things necessary for processing, completion and finalization of the aforementioned petitions.

Zain-ul-Abidin  
Company Secretary



BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

PETITION FOR TARIFF DETERMINATION

UNDER RULE 3 OF THE TARIFF RULES READ WITH PARAGRAPH 1.3 OF THE  
FEDERAL GOVERNMENT'S TARIFF GUIDELINES AND THE APPLICABLE  
PROVISIONS OF THE POWER POLICY

FOR A POWER PROJECT OF APPROX. 146.5 MW - NET  
NEAR LAHORE IN THE PUNJAB PROVINCE

JAPAN POWER GENERATION LIMITED  
(On behalf of its subsidiary / associated, company Japan Power II Limited,  
proposed to be incorporated)

**Affidavit of Mr. Nadeem Babar, Chief Executive Officer of Japan Power  
Generation Limited, Jia Bagga, Raiwind Road, Lahore**

I, the above named deponent, do hereby solemnly affirm and declare that the contents of  
the accompanying petition are true and correct to the best of my knowledge and belief.

Deponent

Verification

Verified on oath this 24<sup>th</sup> day of July 2008 that what has been stated above is true and  
correct to the best of my knowledge and belief and nothing has been concealed therefrom.

Deponent

**ATTESTED**  
**SAEED AHMAD**  
ADVOCATE  
Oath Commissioner Lahore

BEFORE THE NATIONAL ELECTRIC  
POWER REGULATORY AUTHORITY

---

PETITION FOR TARIFF DETERMINATION

FOR A POWER PROJECT OF APPROX. 146.5 MW - NET  
NEAR LAHORE IN THE PUNJAB PROVINCE

---

JULY 24, 2008

---

JAPAN POWER GENERATION LIMITED  
(On behalf of its subsidiary/associated company  
Japan Power II Limited  
Proposed to be incorporated)  
JIA BAGGA, OFF RAIWIND ROAD  
LAHORE  
TELEPHONE: (042) 583-5864-67  
FACSIMILE: (042) 583-5860

## GLOSSARY

COD	Commercial Operations Date
CPI	Consumer Price Index
CPP	Capacity Purchase Price
CPPA	Central Power Purchasing Agency of NTDC
EPC	Engineering Procurement and Construction
Euro or €	Euros
FSA	Fuel Supply Agreement
GOP	Government of Pakistan/Islamic Republic of Pakistan
HHV/HCV	Higher Heating Value/Higher Calorific Value
IA	Implementation Agreement
IDC	Interest During Construction
IPP	Independent Power Producer
ISO	International Standards Organization
KIBOR	Karachi Inter Bank Offered Rate
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt per hour
L/C	Letter of Credit
LFO	Light Fuel Oil (High Speed Diesel)
LHV/LCV	Lower Heating Value/Lower Calorific Value
LIBOR	London Inter Bank Offered Rate
MW	Megawatt
MWH	Megawatt per hour
JP-II	Japan Power II Limited, the proposed special purpose vehicle
NEPRA/Authority	National Electric Power Regulatory Authority
NTDC	National Transmission and Dispatch Company Limited
O&M	Operation and Maintenance
PKR	Pakistani Rupees
Petitioner	Japan Power Generation Limited (on behalf of its subsidiary/associated company "Japan Power II Limited" proposed to be incorporated)
Power Policy	The Federal Government's Policy for Power Generation Projects, 2002 (as amended up-to-date)
Power Purchaser	NTDC
PPA	Power Purchase Agreement
PPIB	Private Power & Infrastructure Board, Ministry of Water & Power
Project/Power Plant	The proposed reciprocating engines-based project of 145MW capacity using single fuel RFO, to be set up near Lahore, to be implemented by JP-II
RFO	Residual Fuel Oil
RFP	Request for Proposal
ROE	Return on Equity
ROEDC	Return on Equity During Construction
US\$ or USD or \$	United States Dollars
US Cents or US¢ or ¢	United States Cents
Tariff Guidelines	The Federal Government's Guidelines for Determination of Tariff for Independent Power Producers, 2005
Tariff Rules	The NEPRA (Tariff Standards & Procedure) Rules, 1998

**PETITIONER**

**Name and Registered Office**

Japan Power Generation Limited

(On behalf of its subsidiary/associated company Japan Power II Limited, proposed to be incorporated)

Jia Bagga

Off Raiwind Road

Lahore

Telephone: (042) 583-5864

Facsimile: (042) 583-5863

**Representatives of the Petitioner:**

- Mr. Nadeem Babar - Chief Executive Officer
- Mr. Zain-ul-Abidin - Company Secretary
- Mr. Khan A Saleem - General Manager

## **TARIFF PETITION**

This Tariff Petition is being submitted by Japan Power Generation Limited (on behalf of its subsidiary/associated company proposed to be incorporated with the name Japan Power II Limited, collectively and individually hereinafter termed as the “Petitioner”) to NEPRA for its expansion project. This expansion project has been approved by the PPIB, details of which are provided below.

### **Background**

1. The Petitioner, a listed company incorporated and existing under the Companies Ordinance, 1984, is one of the commissioned IPPs under the Federal Government’s Power Policy of 1994.
2. On May 29, 2006, the PPIB through its letter No.1(102)PPIB-IPP.EXP/06/FIN requested existing IPPs including the Petitioner to bid for “Fast-track Capacity Expansion” pursuant to an RFP.
3. Later, the PPIB issued addenda and clarification dated July 19, August 10, August 19 and August 23, 2006. During this process, the PPIB held several meetings with the bidders, including the Petitioner, collectively and on occasions individually. These meetings were also attended by the representatives of the Power Purchaser and NEPRA.
4. In this regard, the Petitioner formally submitted a bid for capacity expansion (approximately 156 MW) to the PPIB on August 28, 2006 pursuant to the RFP.
5. The Bids were opened on August 29, 2006.
6. Several rounds of revisions and clarifications ensued, concluding in a final submission by the Company in February 2007.
7. After approval of Bids by ECC in April 2007, Japan Power submitted its tariff for approval to NEPRA. The application was based on approval accorded by ECC for the three bid projects. NEPRA approved the tariff as submitted, but did not specifically include a listing of all the assumptions that went into the tariff indexations and escalations.
8. The winning bidders filed Motion for Leave to File Review for the tariff and requested confirmation of the assumptions of the tariff. NEPRA rejected the appeals indicating that, it was constrained in confirming the same unless ECC explicitly directed the same.
9. It is to be noted that after the bid submission in August 2006 and the revisions in the following few months, while the bid was based on IC engines, in January 2007, the Company suggested the use of a different technology as a potentially faster solution.

10. Upon request of the winning bidders, the PPIB board decided that since the original ECC summary had included all those assumptions, there was no necessity to go back to ECC. PPIB, through its letter No. 1(102)PPIB-IPP.EXP/08/FIN dated February 9, 2008, said that “In case the three existing IPP’s intend to change the tariff or its parameters as previously approved by the ECC, they may apply to NEPRA for fresh tariff approvals.”
11. Almost one and a half years had been lost in the process and therefore it has become essential to incorporate the current market conditions in the tariff. In order to avoid any further loss of time, Japan Power confirmed to the PPIB on February 11, 2008 that it will proceed with a fresh tariff determination to NEPRA.
12. On March 19, 2008, through letter No. JPGL-2008/03/NB-09, Japan Power submitted its fresh tariff petition to NEPRA. However, on March 20, 2008, through letter No. NEPRA/R/TRF-100/6732, NEPRA returned the petition stating that the petition must be accompanied by an EPC Contract.
13. The Company is hereby re-submitting the tariff petition, with the EPC Contracts, as required.

#### **Changes in Market Conditions**

14. Three projects, including Japan Power, submitted their bids, all based on IC Engines. The bid was submitted in August 2006. However, on account of several delays, revisions required by PPIB, and some negotiations, the final revised bid was submitted in February 2007. However, for various reasons as described above, the projects have not been able to finalize their tariffs up to now. During this period, the market has tightened dramatically with equipment deliveries stretching out.
15. The equipment supply market for large size internal combustion engines (“IC Engines”), more commonly known as diesel engines, has become very tight in the previous years. Deliveries today have stretched to more than two years, thereby extending the completion timeframe for a project to approximately three years if released today. In addition to prices going up rapidly, another phenomenon is that the suppliers are not willing to meet the rigorous testing conditions imposed by NTDC in its Power Purchase Agreements. This is resulting in disconnects between EPC contracts and the PPA’s which the lenders are not comfortable financing, unless equity amounts are increased.
16. In its bid, on January 11, 2007, Japan Power suggested that it could improve the COD date if it went with a configuration using a certain gas turbine in combined cycle mode, burning RFO. With the loss of almost one and a half years in time, delivery of power in 2010 using IC engines, while possible, is extremely challenging. At this time, based on the conditions in the equipment supply market for IC Engines, the company believes that the best option is to implement the expansion based on Combined Cycle Gas Turbine technology running on RFO. This technology will allow quicker completion, and slightly better pricing than comparable plant using IC Engine technology.
17. For reference, it is to be noted that Kot Addu power plant has two GE Frame 9E

machines, in combined cycle mode, running on LSFO for several years. In addition, in January 2008, PEPCO signed a contract with Dong Feng for a plant at Nandipur, configured as three GE Frame 9E machines, in combined cycle, to be operated on RFO. The financing for this plant is currently in process. PEPCO is expected to sign another such contract for an identical plant at Chichon Ki Malian. Further, several companies have bid the same technology in the “Fast Track Capacity Expansion” tender presently in process.

18. Based on the current arrangements that the Company has, it can deliver power towards the end of 2010 using this technology.

#### **Comparable Plants**

19. The WAPDA plant consists of three GE Frame 9E machines, plus one steam turbine, to be operated on RFO. The GE Frame 9E machine has a nominal ISO rating of 126 MW on gas fuel. After adjusting for site conditions, the site rating on gas is approximately, 112 MW. When run on RFO, the gas turbines are derated because the firing temperature has to be lowered on account of higher flame radiation of oil. The contractor has guaranteed a net output of 97 MW per Gas Turbine, after this derating, and a total plant output of 412 MW (net) at site conditions. PEPCO believes that this number is conservative and the actual total plant output is likely to be about 418 MW.
20. The same configuration of 3 Frame 9Es and 1 Steam Turbine is used at the Uch power plant but using gas fuel. The net guaranteed output at that plant, at slightly worse site conditions on account of elevation and ambient temperatures, is 525 MW. Hence, the 20% derating for RFO use from 525 MW to 418 MW, although on the conservative side, seems to be in line with manufacturer's data.
21. The Company is proposing a configuration of 1 GT + 1 ST operating in combined cycle mode, on RFO as the primary fuel. It is our expectation that the output of GE Frame 9E on RFO, at site conditions around Lahore, in combined cycle would be approximately 152 MW (gross) and 146.5 MW (net). The same plant if run on gas would be delivering about 175 MW. A comparable bench mark is Fauji Dharki plant using same configuration but on gas.

#### **Implementation of the Project via a Project Vehicle**

22. The Petitioner will be implementing the expansion Project via its proposed subsidiary / associated company to be incorporated under the Companies Ordinance, 1984, proposed to be named as Japan Power II Limited. If it is determined that the expansion project can be undertaken in the same legal entity without creating any legal complications for the existing project and its lenders, the sponsors may elect to do so.

#### **Proximity to the Load Centre**

23. The Project would offer significant relief locally in the transmission system of Lahore, as it would bypass long transmission lines and potential step-down

transformer bottlenecks. The Power Plant would be close to the load centre of Lahore and energy generated would be consumed very close to the generation site, thus also reducing substantial transmission losses. The Power Plant is expected to be commissioned within 26 months of the execution of the IA, PPA and FSA (collectively, the “Project Agreements”).

#### **Plant & Equipment Procurement**

24. Given the tight equipment market for the Project, the Petitioner has signed an agreement with China National Machinery & Equipment Import & Export Corporation (CMEC). The same company is currently building the Saif Power project near Sahiwal and has served other projects in Pakistan in development. The Power Plant will consist of a one Gas Turbine together with heat recovery steam generators (HRSG) to provide steam to one Steam Turbine. When Gas Turbine and Steam turbine are running, the facility will deliver about 146.5 MW net.
25. Unlike IC engine technology, this configuration gives an advantage that if gas becomes available in the future, the plant can be converted to gas firing very quickly, at relatively little cost, and improve significantly on heat rate as well as output. However, cost of conversion to gas has not been included in this proposal. When conversion to gas would be required, the cost of conversion and other associated costs shall have to be included in the tariff.

## **Project Cost**

26. Following is the breakup of the estimated costs of the Project:

		US\$ (000)	PKR (000)
<b>Engineering Construction &amp; Procurement</b>			
Equipment Supply & Procurement Cost		150,605	9,932,424
Custom Duties on EP Part & initial Spares	5.00%	7,911	521,750
Construction Cost		31,070	2,049,067
Withholding tax on construction costs		1,983	130,791
Land		485	32,000
Construction Management	1.00%	1,837	121,123
Initial Spare Parts Cost	3.00%	4,518	297,973
Construction period insurances	1.35%	2,610	172,122
Insurance Broker Fee	0.10%	193	12,750
Insurance Surveyor costs		70	4,617
<b>Startup &amp; Pre-operational Costs</b>			
O&M Contractor Mobilization Cost		2,000	131,900
Independent Engineer		400	26,380
Unrecovered Fuel Cost for testings		1,784	117,674
<b>Administrative</b>			
Staff costs & expanses		614	40,500
Professional Fees		461	30,403
<b>Financing Fees &amp; Costs</b>			
Upfront Fee	1.50%	2,719	179,293
EP&C LC Fees (rate/per quarter)	0.15%	1,457	96,086
LC Retiring Charges	0.10%	184	12,112
Commitment Fee (rate/per annum)	0.25%	247	16,284
LC Fee (Company LC to WAPDA)	1.50%	121	7,971
Agency Fee during Construction		143	9,448
CED on above financing costs	10.00%	487	32,119
Lender Legal costs		152	10,000
Lender Engineer adviser costs		284	18,702
Lender Insurance advisor costs		65	4,268
<b>Total Project Cost (without IDC)</b>		<b>212,400</b>	<b>14,007,755</b>
Interest During Construction		21,942	1,447,079
<b>Total Project Cost (With IDC)</b>		<b>234,342</b>	<b>15,454,834</b>

Total EP cost of US\$ 150.605 million includes €32.479 million cost in Euro. Euro based costs has been converted into US\$ using this €/US\$ parity of 1.556. Rest of the EP cost is US\$ based. Construction Cost is also US\$ based.

Professional Fees includes fees payable to GOP entities like NEPRA, PPIB SECP, legal costs and audit costs.

Staff Cost and Expanses include includes office expense during development and implementation period.

### **Tariff Structure & Summary**

27. In order to allow for easy comparison, this petition is using the same reference baseline data as submitted by HubCo in their recent 200MW RFO based project, for which the NEPRA Authority has recently issued its determination. The primary assumptions in this regard are KIBOR rate, Fuel Price, €/US\$ rate, PKR/US\$ rate, base dates for WPI/US CPI, HHV of Fuel etc.
28. A comparable benchmark for this configuration is also the Fauji Dharki plant, using 1GT+1ST. The Fauji plant is currently in construction, while the present proposal would go into construction towards the end of this year necessitating adjustments for 6-8 months for cost increases.
29. The Tariff is a two-part tariff, comprising Capacity and Energy charges, based on a 25 years term. This tariff will be incorporated into the PPA to be entered into in due course between JP-II (project vehicle) and NTDC.
30. This Tariff petition contains detailed assumptions and adjustment formulae which will form part of Schedule 1 to the PPA.
31. The capital structure of the Project is as follows:

	<b><u>US\$ (000)</u></b>
Total Project Cost	234,342
Project Debt	175,756
Project Equity	58,585
Debt: Equity ratio	75:25

These numbers are based on the detailed assumptions stated in the appended assumptions and elsewhere stated in this petition. Change in the assumptions shall result in a change in these numbers.

32. The proposed tariff figures appended herein-below are the result of a detailed financial analysis. Technical, commercial and legal aspects have been considered in the evaluation of the financial performance.
33. Based on the RFO price of PKR 24,490 per M Ton, including transportation of Rs. 2,350 per M Ton. (RFO Price is based on 40,792 Btu/Kg HHV, adjustments for actual HHV/LHV would be made), excluding sales tax on RFO price transportation, output of 146.5 MW net, together with other financial and operating assumptions stated herein and reproduced elsewhere in this Petition, the following tariff has been established.

Japan Power Generation Limited – 146.5 MW (Net) Expansion Project  
Petition for tariff determination before NEPRA

Year	ENERGY PURCHASE PRICE Rs/Kwh		CAPACITY PURCHASE PRICE Rs/Kwh/Hour										Capacity at 60% PF		PF	
	Fuel	Var O&M Foreign	Total	Fixed O&M Foreign	Fixed O&M Local	Cost of Working Capital	Insurance	ROE	ROEDC	Wholding Tax 7.50%	Loan Rep	Interest Charge	Total	Rs/Kwh	Rs/Kwh	USCents /kWh
1	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.4638	1.1920	2.6856	4.4760	9.8427	14.9245
2	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.5294	1.1264	2.6856	4.4760	9.8427	14.9245
3	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.6043	1.0516	2.6857	4.4762	9.8429	14.9248
4	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.6898	0.9661	2.6857	4.4762	9.8429	14.9248
5	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.7873	0.8685	2.6856	4.4760	9.8427	14.9245
6	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.8987	0.7572	2.6857	4.4762	9.8429	14.9248
7	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	1.0258	0.6301	2.6857	4.4762	9.8429	14.9248
8	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	1.1709	0.4850	2.6857	4.4762	9.8429	14.9248
9	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	1.3365	0.3194	2.6857	4.4762	9.8429	14.9248
10	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	1.5255	0.1304	2.6857	4.4762	9.8429	14.9248
11	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
12	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
13	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
14	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
15	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
16	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
17	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
18	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
19	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
20	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
21	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
22	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
23	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
24	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
25	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
Avg (Rs/Kwh) 1-10 Years	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.9032	0.7527	2.6857	4.4761	9.8428	14.9247
Avg (Rs/Kwh) 11-20 Years	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
Avg (Rs/Kwh) 21-25 Years	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.0000	0.0000	1.0298	1.7163	7.0830	10.7400
Avg (Rs/Kwh) 1-25 Years	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.3613	0.3011	1.6921	2.8202	8.1869	12.4139
Level (Rs/kwh) 1-25 Years	4.7811	0.5856	5.3667	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	0.5517	0.5692	2.1507	3.5845	8.9512	13.5728

### **Energy Charges**

34. The Energy Charge is based on the actual net electrical output measured in kWh, and consists of the fuel cost component and variable O&M component (local and foreign).
35. The equipment being considered for the Project is a gas turbine capable of operating on RFO. In combined cycle, this unit can provide a 45% net site efficiency at 100% load while running on RFO. The tariff is priced accordingly. For comparison, it is pointed out that the Nandipur plant signed by WAPDA using same equipment has a guaranteed efficiency of 44.47% for a three times larger plant. Also, the actual efficiency experienced by KAPCO for a little older version of these units on LSFO is approximately 43%.

A summary of the energy price is provided in the table below:

Energy Purchase Price (EPP) PKR/kWh			
Period	Fuel	Variable O&M (Foreign)	Total
Years 1-25	4.7811	0.5856	5.3667

### **Fuel Component**

36. This component represents the fuel consumption at a guaranteed efficiency level for the Power Plant based on 100% plant loading. The main assumptions used to derive this component are:

(a)	RFO Price:	PKR 24,490 per M Ton (HHV as supplied), including transportation cost of Rs. 2,350 per M Ton, delivered at the Power Plant site, without sales tax. Any and all taxes and transportation charges (including any tax thereon) shall be pass-through to the Power Purchaser as part of fuel cost.
(b)	Sludge/Water in RFO:	Adjustments to be made in fuel cost component for actual contents.
(c)	Thermal efficiency:	45.0% (life-cycle net at site conditions at 100% load).
(d)	Output:	146.5 MW.
(e)	Fuel Stock:	15 days. If fuel stock requirement increases, the tariff will change to account for working capital.
(f)	Heat Rate:	8,000 kJ/kWh (LHV), new plant.
(g)	HHV/ LHV of RFO:	40,792 Btu/Kg. Fuel Cost component shall be adjusted for actual HHV-LHV.
(h)	Plant Loading:	100% loading assumed while calculating Fuel Cost Component.

(i)	Partial Loading:	Partial load heat rate curves to be agreed with the Power Purchaser and applied to the Fuel Cost Component.
(j)	Heat Rate Curves	Heat Rate degradation curve to be applied to adjust the Fuel Cost component.
(k)	Temperature Correction	Ambient conditions correction curves to be agreed with the Power Purchaser and applied to the Fuel Cost Component.

### **Foreign Variable O&M**

37. This component primarily includes lubricant consumption, chemicals, consumables, imported spare parts to be changed on normal scheduled maintenance and unscheduled maintenance. Also, it includes specialized technical services from manufacturer, during maintenance of the Power Plant. The equipment has manufacturer-recommended overhauling schedules that are based on actual running hours. The actual timing of the major overhaul depends on the actual factored fired hours / dispatch provided to the Power Plant. The gas turbine is expected to be made in France; therefore, the spare parts and specialized technical services will be supplied from Europe. Based on the aforesaid, the variable O&M (foreign component) will be indexed to the European CPI. This tariff component will also be adjusted for currency indexation on a quarterly basis.

### **Capacity Charges**

38. The Capacity Charges for the Project are payable on the basis of the Available Capacity. This payment is calculated on a PKR/kWh basis of capacity and in order to calculate a unit rate in PKR/kWh, a notional 60% capacity factor has been used for comparison purposes.
39. The key assumptions factored in the Capacity Charges 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 following are the assumptions used on the reference dates:

Project Cost	US\$ 212.400 million (including EPC price)
IDC	US\$ 21.942
Total Project Cost	US\$ 234.342
Exchange Rates	1 US\$ = 65.95 Rupees; 1 € = 1.556 US\$, 1 € = 102.6 PKR
Debt / Equity Funding	Debt: 75%. Equity: 25%.
Taxes	<ul style="list-style-type: none"> <li>• Customs Duty at 5% on imported machinery as per the Power Policy</li> <li>• Dividend withholding tax of 7.5%</li> <li>• 0% Corporate Tax</li> <li>• 0% Minimum Turnover Tax</li> </ul>

### **Adjustments at Financial Close:**

40. At the time of Financial Closing, the tariff figures shall be updated for the various base figures (e.g. fuel price, O&M and insurance prices, adjusted by actual exchange rates compared to the Reference Exchange Rates (PKR/US\$=65.95, US\$/€=1.556 and PKR/€=102.6), and Interest During Construction adjusted by prevailing KIBOR +3% spread, to arrive at the reference tariff table to be used in the PPA. If the financing is done based on LIBOR, then as allowed in the Power Policy, the upfront exposure fee shall be included in the capital cost and interest rate based on LIBOR shall be passed through.

### **Adjustments at Commercial Operations Date:**

41. Total capital shall be updated for actual exchange rate, actual construction insurance, and actual IDC at COD. Total project cost shall be determined on the basis of actual payments in Pak Rupees against foreign exchange paid in respect of construction/ testing/ commissioning of the Power Plant and actual IDC, keeping the spread fixed. Once adjusted, the debt and equity amount shall be updated accordingly and the relevant Capacity Charges calculated thereon.
42. The actual equity investment profile during the construction period shall be updated to adjust the ROEDC.
43. The working capital component assumed is at the fuel price used above, KIBOR assumed above, and payment cycle in the standardized PPA. Any variation in the above shall result in updating of this component at the COD.

### **Modification / additions to be treated as pass through**

44. The monetary impact of all or any modifications or additions required by the Power Purchaser that are not considered in the Project shall be treated as pass-through.
45. The Capacity Charges are further broken down into two components:

### **Escalable Capacity Payment**

46. This component represents all the fixed costs of the Power Plant and the ROE. Since there is no recovery of the original equity capital invested, the Power Plant remains the property of JP-II after the 25 year PPA term. A summary of the levelized charges is provided below:

Period	Escalable Capacity Payment PKR/Kw/Hour							Total
	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of WC	Insurance	ROE	ROE DC	Withholding Tax	
Years 1-25	0.2085	0.0292	0.1046	0.0823	0.4516	0.1114	0.0422	1.0298

47. The fixed O&M component of the escalable capacity payment represents the fixed costs of all the staff for O&M, Power Plant administration, security, transportation,

overheads, office costs, professional fees such as audit, tax and legal, as well as some minor fixed operational costs such as environmental monitoring, that do not change with dispatch levels.

48. The insurance component consists of all-risk insurance/re-insurance for the Project, as well as business-interruption insurance at commercially reasonable rates available. This is a PPA requirement.
49. This component also includes the cost impact of a working capital loan to finance the net accounts receivable and fuel storage to cover the PPA payment cycle. The Cost of Working Capital and ROE Components are based on the following parameters:

Equity Amount:	US\$ 58.585 million (25% of total project cost)
Repayment of Equity:	None
Currency of Funding:	PKR / US\$
Working Capital Loan and Cost of Working Capital:	A working capital loan facility of approximately US\$ 16.348 million equivalent in PKR is assumed in order to finance the inventory of RFO, net accounts receivables, advance payments for RFO and working capital impact of 15% sales tax. The interest rate for this working capital loan is assumed at 3 months KIBOR (10.45%) +2% spread.
Cost of Local Debt:	3 months KIBOR (10.45%)+3% spread
Corporate Tax	0%
Minimum Turnover Tax	0%
Indexation:	ROE/ROEDC Component (both local and foreign) shall be indexed to PKR/ US\$ exchange rate.

#### Non-Escalable Capacity Payment

50. Under the assumption that the debt will be local the following table provides a summary of the Non-Escalable Component:

Period	Non-Escalable Component (PKR/kWh)		
	Loan Repayment	Interest Charges	Total
Year 1	0.4638	1.1920	1.6558
Year 2	0.5294	1.1264	1.6558
Year 3	0.6043	1.0516	1.6559
Year 4	0.6898	0.9661	1.6559
Year 5	0.7873	0.8685	1.6558
Year 6	0.8987	0.7572	1.6559
Year 7	1.0258	0.6301	1.6559
Year 8	1.1709	0.4850	1.6559
Year 9	1.3365	0.3194	1.6559
Year 10	1.5255	0.1304	1.6559
Years 11-25	0	0	0

51. It is apparent that there is no charge under this category after 10 years as all the debt would be repaid by the end of the 10<sup>th</sup> year. The assumptions used in calculation of the above are:

(a)	Amount of Debt:	US\$ 175.756 million (75% of total Project cost including IDC)
(b)	Term of Loan:	26 months of construction period (grace)+10 years of quarterly debt service after the COD
(c)	Interest Rates:	3 months KIBOR (reference rate of 10.45%)+3% spread
(d)	Currency:	PKR
(e)	Reserves	No debt or maintenance reserve has been assumed
(e)	Indexation:	Funding in PKR: interest component would be indexed to the 6 month KIBOR

As per GOP policy, if we use foreign debt, the benefit of lower interest rate will be passed on to the Power Purchaser, but all upfront risk premium and fees for such loan shall be included in the project cost. The foreign loan will also have the currency indexation in the currency of the loan.

#### **Escalations and Indexations**

52. After the COD, the tariff tables provided will be indexed to factors as described above and the Reference Exchange Rates. On the Financial Closing date, the Reference Tariff table will be updated by the then-prevailing indices, exchange rates and base numbers. The details are provided herein below:

#### **Inflation Factors**

The following components are subject to inflation factors and currency devaluations:

Fuel Cost component	Fuel price (fuel price shall also be adjusted to include transportation and taxes if any) and actual HHV/LHV
Financing cost on working capital	Working capital amount to be adjusted for actual Fuel price, and markup + margin on working capital is to be adjusted for actual markup+ margin
Variable O&M – Foreign	European CPI
Fixed O&M - Local	Pakistan WPI
Fixed O&M - Foreign	European CPI
Insurance	On the basis of actual insurance payment

#### **Currency Indexation**

The following components are subject to exchange rate indexation. The Reference Exchange Rates are 65.95 PKR/1 US\$, 1.556 US\$/1 € and 102.6 PKR/1 €.

Variable O&M – Foreign	PKR/€ exchange rate
Fixed O&M – Foreign	PKR/€ exchange rate

ROE /ROEDC	PKR/US\$ exchange rate
Withholding tax	PKR/US\$ exchange rate
Foreign Loan principal (if any)	PKR/US\$ exchange rate
Foreign Loan interest (if any)	PKR/US\$ exchange rate

### Interest Rate Indexation

The following components are subject to interest rate indexation:

Financing cost on working capital	3 months KIBOR+2% spread to remain constant
Interest Charge Local Loan	3 months KIBOR+3% spread to remain constant; and/or
Interest Charge Foreign Loan	3 months LIBOR+3% spread to remain constant

### Base Changes

The impact of any changes in the base price of fuel (RFO), including any and all taxes and transportation charges (including any tax thereon) and HHV/LHV, sludge etc. as per actual shall be treated as pass-through to the Power Purchaser as part of fuel cost.

### Pass-Through Items

Any taxes, charges and levies etc. imposed by any public sector entity (including but not limited to federal / provincial / local / district government or agency etc.) not specifically mentioned herein shall be treated as pass-through items in the PPA.

### Start-up Charges

53. All start-up charges will be payable at actual, which includes, but not limited to:
- Actual fuel and lubricant usage and related overheads costs.
  - MDI (Maximum Demand Indicator) charge and the energy charge used for the start up.

### Plant Availability Payments

54. Payment will be made on “deemed availability” basis for:

Allowed annual outages 1314 hours

Except in major overhaul outage years, the scheduled outage will be increased to 60 Days.

55. The above would result in 85% plant availability every year except in Major Overhaul Year. This is a function of the fuel being used in the gas turbine, since the turbine would have to be shut down for water washing after approximately every 250 hours or so. This lowered availability by 3%, compared to IC engines, can also be incorporated in the tariff in an other way by grossing up the capacity charge by 3%, in which case the deemed availability can still be restricted to 12% as in IC engines projects. The Company would be prepared use this alternative methodology

also.

**Other Assumptions**

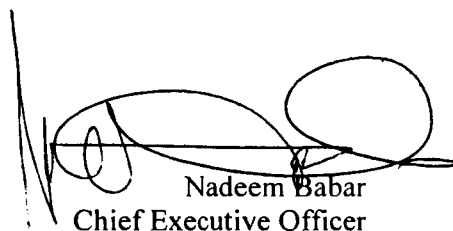
56. In addition to the foregoing, the Petitioner while calculating the tariff has also taken few other assumptions as per Annex appended herewith. These assumptions were an integral part of the bid and will be incorporated in the PPA.

**Petitioner's Submission**

57. Copies of the correspondence exchanged with the GOP/PPIB and Authority are appended herewith for the Authority's consideration.
58. Copies of signed letter agreement, together with annexures and exhibits, entered with EPC contractors are attached.
59. The Petitioner prays for approval of the tariff submitted to enable the Petitioner to move forward for implementation of the Project.
60. The Petitioner being an existing/commissioned IPP is expecting to apply to the Authority for a generation license for its proposed subsidiary / associated company JP-II, in terms of the NEPRA Licensing (Application & Modification Procedure) Regulations, 1999, within the next 15 days.
61. The requisite affidavit sworn by the Chief Executive Officer of the Petitioner who will also be the Chief Executive Officer of JP-II is also appended herewith.
62. The Petitioner would be pleased to provide any other assistance that the learned Authority may require in this behalf.

The foregoing tariff petition is most respectfully submitted for and on behalf of the Petitioner:

Through



Nadeem Babar  
Chief Executive Officer

Date: July 24, 2008

---

### **TARIFF ASSUMPTIONS**

In addition to the assumptions mentioned in the tariff petition, the Petitioner has also taken the following assumptions while calculating the generation tariff. Any change therein will result in a corresponding change in the tariff:

1. Anticipated average site conditions that have been used in calculation of the net output and heat rate are:
  - Altitude: 215 meter above sea level
  - Ambient Temperature 25° C
  - Relative Humidity 60%
2. Every maintenance cycle shall be as per manufacturer's recommendations.
3. A correction curve for changes in ambient conditions will be agreed based on curves provided by manufacturers as in other GT based plants.
4. Heat Rate degradation curve shall be applied to adjust the Fuel Cost component.
5. Minimum loading of the Complex shall be 50% to allow for combined cycle operations.
6. Power Purchaser shall be responsible for financing, constructing, operating and maintaining the interconnection to the grid and PLC equipment.
7. A tolerance of +1.5% in dispatch is assumed.
8. All fuel during plant tests after synchronization of the Complex to the grid is assumed to be paid for by the Power Purchaser.
9. Insurance cost has been assumed at 0.68% of the Project cost, per year, during the operational period. Tariff shall be trueed up for actual insurance costs.
10. No L/C and/or maintenance reserve have been assumed. Any such requirement will have additional cost.
11. Payments from Power Purchaser have been assumed as per the standard PPA.
12. Payments to Fuel Supplier have been assumed to be 7 days before delivery.
13. Working capital requirement has been calculated on the basis of reference RFO price and payment cycle as per the standard PPA and the FSA.

14. Debt tenor is assumed to 26 months (construction) + 10 years quarterly repayments.
15. Project contingency/debt service/maintenance reserves are not included in tariff calculations. If required by lenders, these shall be adjusted in the tariff.
16. No income tax, minimum tax or any provisional taxes / levies / surcharges etc. have been assumed. Any such taxes will be pass through.
17. 7.5% withholding income tax has been assumed on dividend distributions, to be paid by the Power Purchaser as part of the tariff.
18. 6% withholding tax has been assumed on the construction cost component of EPC Contracts. Any variation will be pass through.
19. Custom duties on imported plant and equipment are assumed to be 5% in accordance with the Private Power Policy. Numbers will be trued up to actual at COD.
20. Sales Tax on purchase of materials and services by the company has been assumed as fully adjustable against the sales tax on generation and sale of electricity by the company. If sales tax becomes un-adjustable, it will be a pass-through to the Power Purchaser under the PPA.
21. No tax has been assumed on in-house consumption of the electricity.
22. No taxes / levies / charges etc. on construction / maintenance / operation of the plant and use of RFO / diesel / gas / electricity at the plant have been factored in the tariff calculation.
23. The tariff table shall be updated at COD in order to correct the tariff according to the prevailing CPI, WPI, KIBOR, LIBOR and exchange rates (PKR/US\$ and US\$/ € and PKR / €).
24. Actual equity investment profile will be used to up date Return on Equity During Construction, at the time of COD.
25. Actual IDC, using the approved spread above KIBOR, will be used to update the capital cost at COD.
26. Any benefit / concession provided to any other IPP shall also be provided to the petitioner.
27. All other assumptions not expressly stated herein are based upon the 2006 standardized PPA. Consequently any change in any such assumption may lead to change in the tariff.