F/A

OLYMPUS ENERGY PVT LTD

No. LHP/2012/AJCL/NEPRA/01
July 5, 2012

Registrar 5766
Dy. No. .....
Dated 11-07-12

The Registrar,
National Electric Power Regulatory Authority (NEPRA),
OPF Building, 2nd Floor,
Shahrah-e-Jamhuriat, G-5/2,
Islamabad

Subject: Revised Tariff Petition – 20 MW Lucky Hydropower Project

Dear Sir,

This revised petition is in continuation to earlier petitions submitted to NEPRA dated May 24, 2010 and October 17, 2011 which were returned through NEPRA's letter No. NEPRA/TRF-164/OEPL-2010/4506-07 dated June 14, 2010 and letter No. TRF-200/10556 dated November 11, 2011due to one pretext or otheras referred in the revised Petition.

I, Laeeq Ahmed Sheikh, Chief Executive Officer duly authorized representative of M/s Olympus Energy (Private) Limited by virtue of a fresh Board resolution dated June 25, 2012 hereby again apply to NEPRA for determination of Feasibility Stage Reference Tariff for subject hydropower project to be set up at Marala Headworks, Sialkot, Punjab under Rule 3 of the National Electric Power Regulatory Authority Tariff (Standard and Procedure) Rules, 1998 ("NEPRA Rules")and "Mechanism for Determination of Tariff for Hydropower Projects" announced by NEPRA on July 18, 2008.

It is certified that the supporting documents attached with this application and petition are prepared and submitted in conformity with provisions of the NEPRA Rules and undertake to abide by the terms and provisions of the above-said rules. I further undertake and confirm that the information provided in the attached supporting documents including petition is true and correct to the best of my knowledge and belief.

A pay-order No. 1156187 dated June 22, 2012 drawn from Silkbank, Lahore in favour of National Electric Power Regulatory Authority amounting to Rs. 353,928/- (Rupees Three Hundred Fifty Three Thousands and Nine Hundred Twenty Eight) is attached with this application as Tariff Petition Fee.

It may please be noted that the first petition dated May 2010 was submitted to NEPRA with a fee amounting to Rs. 715,000/- (Seven Hundred and Fifteen Thousands) vide cheque dated May 24, 2010 drawn from Saudi Pak Commercial Bank Limited (copy attached). This petition could not be processed due to reason beyond the control of Project Sponsors.

We request the NEPRA to determine Feasibility Stage Reference Generation Tariff and its terms and conditions for the electricity to be produced by the Project giving due consideration to the assumptions forming basis for this petition.

We also request NEPRA to process the reimbursement of fee earlier submitted with our first petition.

Best regards,

For & on behalf of Olympus Energy (Private) Ltd.

Laeeq Ahmad,
Chief Executive Officer

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

ENCLOSURES

1.	Petition Request Letter from Project Company	
2.	Pay Order dated June 22, 2012 (Original)	
3.	Copy of Cheque for already paid fee	
4.	Revised Feasibility Report (Three Copies)	
5.	Tariff Petition (Two Copies)	
6.	Copy of Petition cover letter dated May 24, 2010 and fee paid	Annex-A
7.	Copy of Petition cover letter dated Oct 17, 2011	Annex-B
8.	NEPRA Letter dated June 14, 2010 against Annex-A	Annex-C
9.	PPDB Letter for approval of Revised Feasibility Report	Annex-D
10.	NEPRA Letter dated Nov 11, 2011 against Annex-B	Annex-E
11.	Copy of Revised Tariff Petition Fee through Pay-Order	Annex-F
12.	Board Resolution of Company (Original)	Annex-G
13.	Affidavit of Petitioner (Original)	Annex-H
14.	Copy of NOC from GEPCO to acquire Power	Annex-I
15.	Copy of LOI from PPDB	Annex-J
16.	Copy of PPDB approval for Feasibility Report dated 29-08-2009	Annex-K
17.	Copy of request for NOC from EPA Punjab	Annex-L

F/F

OLYMPUS ENERGY PVT LTD

RESOLUTION OF THE BOARD OF DIRECTORS OF OLYMPUS ENERGY (PVT.) LIMITED HELD ON 25TH JUNE, 2012

RESOLVED that a revised Tariff Petition for and on behalf of Olympus Energy (Private) is filed Limited before National Electric Power Regulatory Authority in the light of PPDB'S approved reviseFeasibility Report for determination and approval of the Generation Tariff for 20 MW Lucky Hydropower Project to be constructed on MarralaHeadworks, Gujrat/Sialkot.

FURTHER RESOLVED that Mr. Laeeq Ahmed Sheikh, CEO Olympus Energy (Private) Limited be and is hereby authorized to sign the Tariff Petition and the necessary documents, pay necessary filing fees, provide any information required by NEPRA in respect of Project, appoint and designate the Consultant to appear before NEPRA and do all things necessary for the processing, completion and finalization of the Tariff Petition.

Signed

Laeeq Ahmed Sheikh
Chief Executive

Signed

Sikander Laeeq
Director

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

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البنك السعودي الباكستاني التجاري المحدود
Saudi Pak Commercial Bank Limited

CHEQUE NO

DATE 24-05-2010

PAY M/s Registrar (NERRA) Islamabad OR BEARER

Seven hundred fifteen thousand Rs. 715000/-

Only

A. [illegible]

Please do not write or stamp below this line

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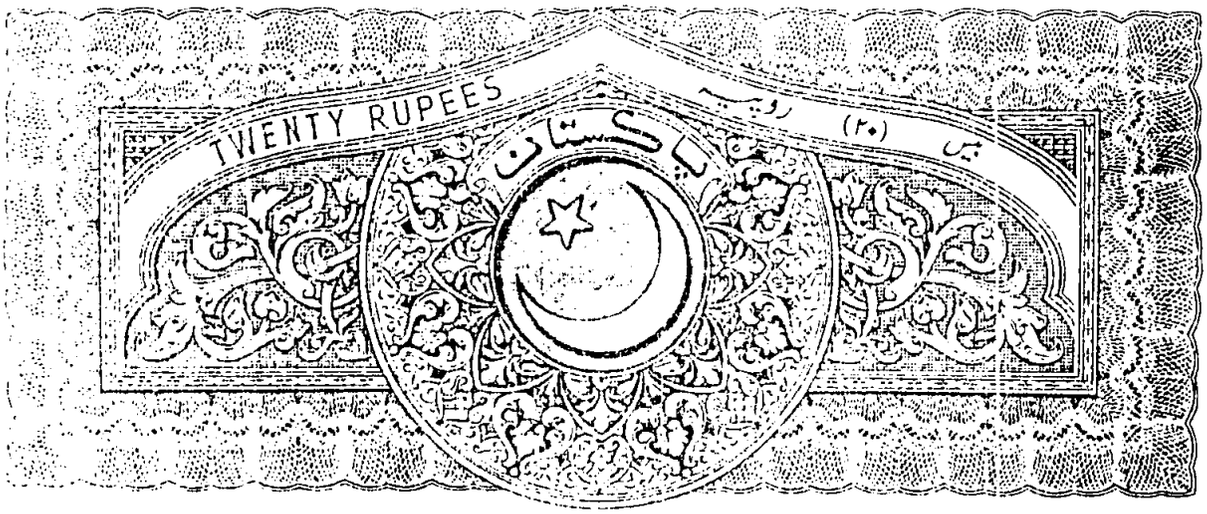

BEFOPRE THE NATIONAL ELECTRIC POWER REGULATRY AUTHORITY

AFFIDAVIT

I, Laeeq Ahmed Sheikh, Chief Executive, Olympus Energy (Pvt.) Ltd being duly authorized representative/attorney of Olympus Energy (Pvt.) Ltd, hereby solemnly affirm and declare that the contents of the accompanying Tariff Petition dated 25.06.2011 including all supporting documents are true and correct to the best of my knowledge and belief and that nothing has been concealed.

I also affirm that all further documentation and information to be provided by me in connection with the accompanying petition shall be true to the best of my knowledge and behalf.

DEPONENT

ATTESTED

2012

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PAY ORDER

SILKBANK

Silkbank Ltd. 6-Q Block Gulberg II Branch
Lahore-Pakistan.

A/C PAYEE ONLY

DATE

1156187 22 JUN 2012
P.O. NO.

NOT OVER PKR 353,928.00

AMOUNT

PAY TO THE
ORDER OF

353,928.00

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ISLAMABAD

AMOUNT

THREE HUNDRED AND FIFTY THREE THOUSAND NINE HUNDRED AND TWENTY EIGHT ONLY

For Silkbank Limited

ASIF KAMAL
IBS No. 226

MAJID ALI
IBS No. 681

payable at any Silkbank Branch in Pakistan

Please do not write or stamp below this line

Authorized Signature

Authorized Signature

⑈1156187⑈066006⑆ ⑈000⑈

Before

National Electric Power Regulatory Authority

On behalf of

OLYMPUS ENERGY (PVT) LIMITED

For

20MW LUCKY HYDROPOWER PROJECT

AJC (Pvt) Limited
House 368, Street 70, G-11/2, Islamabad
Phone : +92 51 2215534
Fax : +92 51 2215538
info@ajcl.pk
www.ajcl.pk

ABBREVIATIONS AND DEFINITIONS

BOOT	Build, Own, Operate & Transfer
BOQ	Bill of Quantities
COD	Commercial Operations Date
Company	M/s Olympus Energy (Pvt.) Limited
¢	US Cents
CAPM	Capital Asset Pricing Model
CSR	Corporate Social Responsibility
CPI	Consumer Price Index
ECC	Economic Coordination Committee of Cabinet of Pakistan
EIA	Environmental Impact Assessment and Resettlement Plan
EPA	Environmental Protection Agency
EPC	Engineer, Procure & Construct
EPCC	EPC Contract
GOPU	Government of Punjab
GOP	Government of Pakistan
GOP IA	Implementation Agreement
GWh	Giga Watt hour; (1,000,000 kilowatt hours)
Hydropower Tariff Mechanism	NEPRA's Mechanism for Determination of Tariff for Hydropower Projects
Hydel Policy	The Punjab Power Generation Policy 2006
Hydel	Hydroelectric
IDC	Interest During Construction
IPP	Independent Power Producer
IRR	Internal Rate of Return
KIBOR	Karachi Interbank Offered Rate
KWh	Kilowatt hour
LIBOR	London Interbank Offered Rate
L/C	Letter of Credit
LOI	Letter of Interest
LOS	Letter of Support
LTSA	Long Term Service Agreement
M&E	Mechanical & Electrical
MW	Mega Watt (1000 kilowatts)
NEPRA	National Electric Power Regulatory Authority of Pakistan
NEPRA Act	Regulation for Generation, Transmission and Distribution of Electric Power Act (XL of) 1997
O&M	Operation & Maintenance
PKR/Rupees/Rs.	Legal Tender of Pakistan
POE	Panel of Experts of GoPu
PPA	Power Purchase Agreement
PPIB	Private Power & Infrastructure Board of the Ministry of Water & Power, GOP
PPDP	Punjab Power Development Board
ROEDC	Return on Equity During Construction
SPV/E	Special Purpose Vehicle/ Entity
US$/$	United States Dollars; legal tender of USA
US CPI	United States Consumer Price Index

WAPDA	Pakistan Water & Power Development Authority
WUA	Water Use Agreement
WUC	Water Use Charges

Technical words or terms used but not defined herein shall bear the meanings ascribed thereto in the power industry.

CONTENTS

1. The Petitioner's Details

1.1 Name and Address

M/s Olympus Energy (Private) Limited
House # 50-B, Block D-1, Gulberg III,
Lahore
Telephone # 042-35871784/35762479
Fax # 042-35712008
E-mail: laceqahmad@hotmail.com

1.2 Authorized Representatives of Petitioner

a) Mr. Laceq Ahmad, CEO
M/s Olympus Energy (Private) Limited
House # 50-B, Block D-1, Gulberg III,
Lahore
Telephone # 042-35871784/35762479
Fax # 042-35712008
E-mail: laceqahmad@hotmail.com

b) Mr. Asim Javed, CEO
M/s AJC (Private) Limited
House # 368, Street # 70, G-11/2
Islamabad
Telephone # 051-2215534/2215538
Fax # 051-2215538
E-mail: asim@ajcl.pk

c) Mr. Shahid Javed, Financial Consultant
M/s AJC (Private) Limited
House # 368, Street # 70, G-11/2
Islamabad
Telephone # 051-2215534/2215538
Fax # 051-2215538
E-mail: javed_shahid@yahoo.com

2. INTRODUCTION

In accordance with Policy of Government of Punjab and under the NEPRA Act, Rules and Regulations made thereunder, Olympus Energy (Private) Limited is submitting this revised petition is in continuation to earlier petitions dated May 24, 2010 and October 17, 2011 to NEPRA (copies of cover letters to earlier petitions are attached as Annex-A & Annex B respectively). This Petition is filed under Rule 3 of the National Electric Power Regulatory Authority Tariff (Standard and Procedure) Rules, 1998 for determination of feasibility stage reference tariff in respect of 20 MW Lucky Hydropower Project to be set up at Marala Barrage – Gujrat, Punjab.

NEPRA against the first Petition dated May 24, 2010 raised its comments/observations vide letter No. NEPRA/TRF-164/OEPL-2010/4506-07 dated June 14, 2010 (copy attached as Annex-C) highlighting discrepancies/flaws specially relating to difference in costs estimates approved in Feasibility Report and those presented in the petition dated May 23, 2010. This requires revision of Feasibility Report to be approved by POE/PPDB and Project Sponsors approached POE/PPDB accordingly.

The POE/PPDB, after detailed deliberation, analysis and making amendments to revisions, issued a fresh approval of Revised Feasibility Report vide their letter No. PPDB/1334/2011 dated July 18, 2011 (copy of approval of PPDB for Revised Feasibility Report is attached as Annex-D) and required the Project Sponsors to approach NEPRA for determination of tariff. The copy of revised Feasibility Report – Volume I is also attached to this Petition.

The Project Sponsors again approached NEPRA through Petition dated October 17, 2011 which was returned, in original, vide NEPRA letter No. TRF-200/10556 dated November 11, 2011 on the pretext of not filing fee as per requirement of NEPRA Tariff (Standard and Procedure) Rules, 1998 and errors in Board Resolution of Project Company (copy of NEPRA letter is attached as Annex-E). NEPRA did not consider already paid fee with earlier Petition dated May 24, 2010.

This Tariff Petition is being filed in superannuation of all earlier requests after removing all anomalies as referred by NEPRA in its earlier correspondence i.e. Revised Feasibility Report duly approved by POE/PPDB, removing of almost all inconsistencies, filing of fresh tariff petition fee (copy attached as Annex-F), fresh Board resolution (copy attached as Annex-G), Affidavit of Petitioner (copy attached as (Annex-H) and Revised Feasibility Report – Volume I (Annex-I).

It may please be noted that the Sponsors prepared the revised Feasibility Study Report which is thoroughly analyzed by the Panel of Expert and was approved by POE after making necessary revisions. It was also reiterated that the estimates provided in the Feasibility Study Report are based on best international practice and reasonable assumptions duly approved by POE of PPDB and Sponsors are submitting this petition on the condition that the firm costs shall be determined at EPC Stage based on revised cost estimates supported with EPC quotes and supporting documents for other costs.

3. Project Profile

The 20 MW Lucky Hydropower Project ("the Project") is being planned and developed as a low head run-of-river scheme by M/s Olympus Energy (Pvt.) Limited, the company incorporated and designated as SPV to implement and carry out the Project. The Project is expected to generate 84.97 GWh of electrical output annually.

The Project is to be located in District Gujrat on the right bank of Marala Barrage. The Project will be planned and designed by utilizing the head and downstream discharge available at

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Barrage. The project site is about 48 KMs upstream of Khanki headwork, 45 KMs from Gujrat city, 25 KMs from Sialkot city and about 145 KMs from Lahore in Punjab Province of Pakistan.

In accordance with Hydel Policy 2006 of Government of Punjab and as per requirements of NEPRA Act and rules made thereunder, Olympus Energy (Pvt.) Limited is resubmitting this petition for determination of tariff, its adjustments/indexation and terms and conditions on the basis of technical data and cost estimates given in Feasibility Report duly approved by PPDB for implementation of project in order to make it bankable.

The Project is being developed in private sector under the Punjab Power Generation Policy 2006 and is on a Build-Own-Operate-Transfer (BOOT) basis with an expected concession period of 30 years of operation and 3 years of construction period.

4. Historical Background

Pursuant to Sponsors application and submission of Statement of Qualification to Punjab Power Development Board ("PPDB"), PPDB issued a Letter of Interest ("LOI") dated December 3, 2007 (Annex-J) in favour of M/s Olympus Energy (Pvt.) Limited vide letter No. MD-PPDB/H-5/489, to conduct the Feasibility Study of the Project, by the name of Lucky Hydropower Project.

The sponsors of the Project appointed M/s BARQAAB Consulting Services (Pvt.) Limited as consultants to conduct a feasibility study. The Geophysical investigations and the topographical surveys were conducted by M/s Geomatic & Engineering Services (Pvt.) Limited. During the feasibility stage, the Sponsor and the consultants regularly briefed the Panel of Experts (POE), appointed by the PPDB, on the progress, investigations and analyses of the feasibility level studies. The feasibility study was approved by the POE/PPDB on vide their letter No. PPDB/928/2009 dated 29-Aug-2009 (Annex-K).

5. Summary of the Project

Based on the assumptions contained in the finalized Feasibility Report, please find below summary of the Project:

Proposed Project Company	M/s Olympus Energy (Pvt.) Limited
Main Sponsors	Shareholders of M/s Olympus Energy (Pvt.) Limited
Project Capacity	20 MW
Project Location	Marrala Barrage, Gujrat
Concession Period	30 Years from COD
Power Purchaser	GEPCO (Gujranwala Electric Power Company)
Turbines	Six Kaplan Horizontal Pit Type Turbines of 3.34 MW each
Net Generation	85.85 GWh
Total Project Cost	US$ 43.720 Million including IDC
Funding Plan	Debt - 80% : Equity-20%
Equity	US $ 8.744 Millions

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Long Term Debt	US $ 34.976 Millions
Lenders	A syndicate of international development financial institutions and local financial institutions
Levelized Tariff	US ¢ 9.235 per KWh
Applicable Policy	Punjab Power Generation Policy, 2006

6. The Project Description– A Brief Detail

6.1 PAKISTAN'S ENERGY SCENARIO

The economic stability of developing countries like Pakistan depends upon the growth of the energy sector to influence social prosperity and long-term planning for utilization of domestic energy resources. Pakistan has been facing an unprecedented energy crisis since last few years. Its current energy demand far exceeds its indigenous supplies, fostering dependency on imported oil that places substantial burden on economy of the country.

In order to ensure security of our energy supplies, the Government of Pakistan is required to pursue policies of increasing our domestic supplies, attracting foreign investment, diversifying imports to include natural gas, coal and electricity, encouraging economic inter-fuel substitution, promoting energy efficiency and renewable energy, and supporting regional and interregional cooperation. In order to make Pakistan an ideal location for foreign private investment, it requires providing a deregulated transparent and level playing field to all.

Hydel power is considered as one of the cheapest and environment friendly sources of energy, however, after construction of Mangla and Tarbela reservoir-based power generation projects, no major project was constructed with the exception of Ghazi Barotha Hydropower Project which is a peaking plant.

To achieve the above objectives the GOP through WAPDA and private sector plans to concentrate on the following water and power projects in the next few years. (i) Construction of large dams including Diamer-Basha Dam for Public/Private Partnership; (ii) Construction of medium/small water storage dams (iii) construction of medium/small water storage dams (iv) construction of canals (v) construction of transmission lines for dispersal of power from hydropower project to load centres of national grid. These projects would create additional water storages, generate cheap indigenously developed electricity and prevent flood damages. All these measures would also ensure food security, employment generation and above all poverty alleviation.

Pakistan currently has 20,922 MW of installed capacity for electricity generation. Conventional thermal plants using oil, natural gas and coal account for about 67.3% of Pakistan's capacity, with hydroelectric making up 29.4% hydel and nuclear 3.0%.

National demand of electricity has been and would keep on growing rapidly. Based on the present generation capacity, the hydel:thermal mix in the country is 29.4:67.3, which is almost the reverse of an ideal Hydel:thermal mix, which should be 70:30 for overall economic development of Pakistan. Though induction of thermal generation initially helped in overcoming load shedding, it resulted in substantial increase in power tariff. Therefore, a sizeable injection of cheap hydropower through multipurpose storages is a viable option to keep the cost of electricity within affordable limits.

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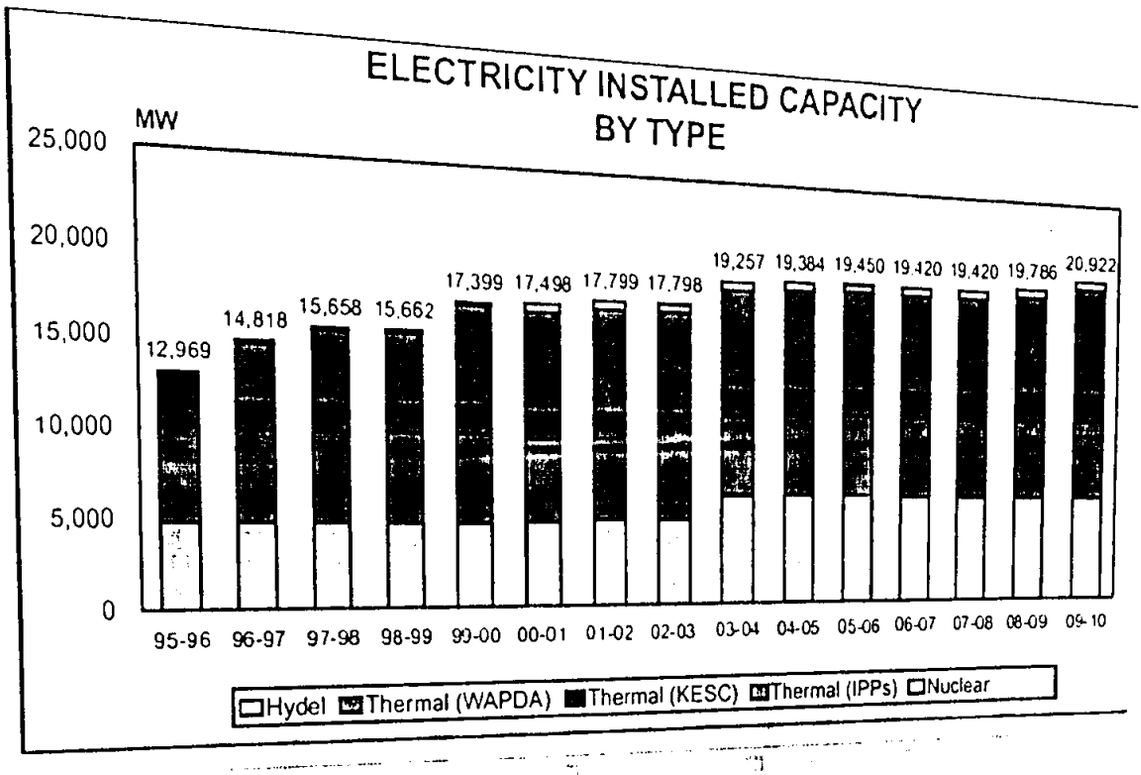
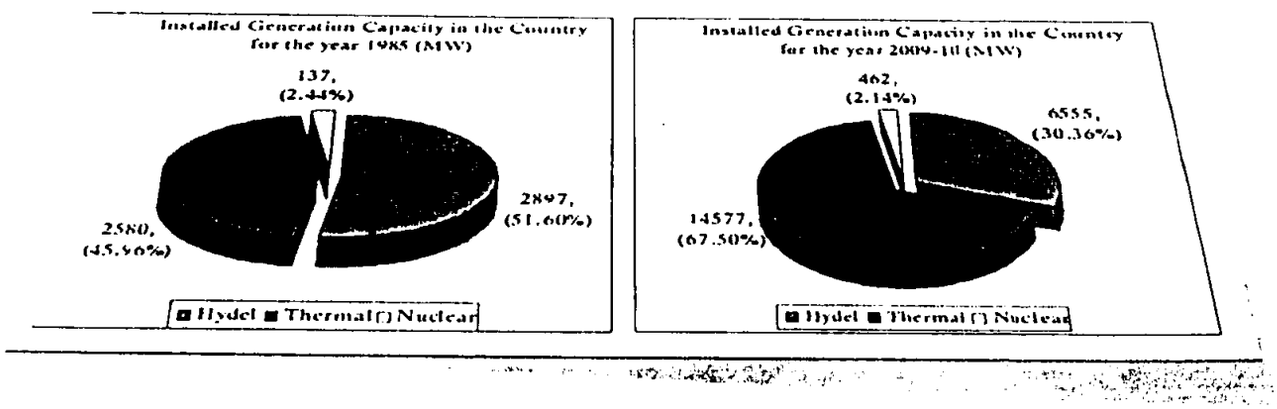


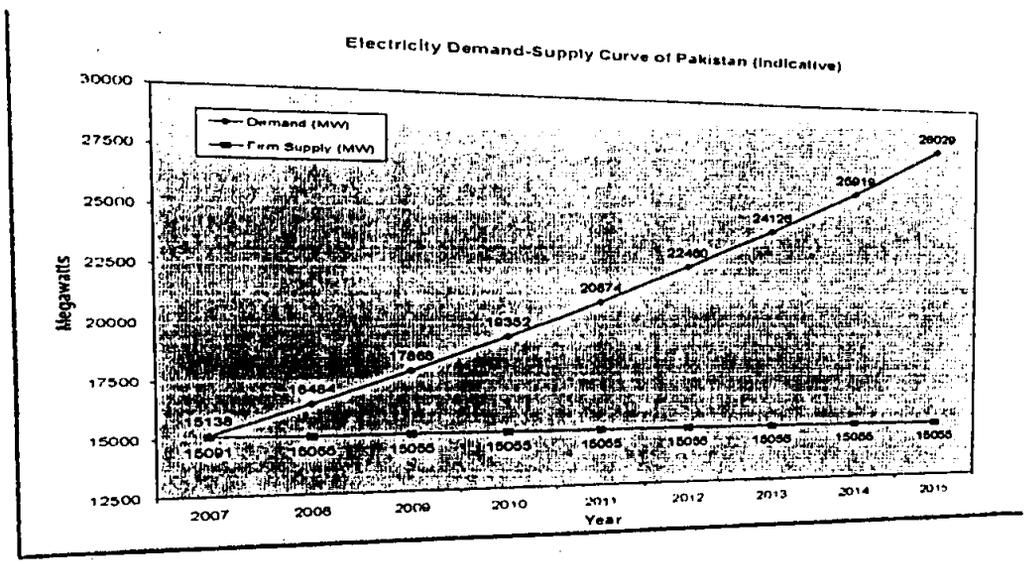


6.2FORECAST DEMAND AND OF ELECTRICITY

Sufficient power supply is a key to achieving sustainable economic growth. Presently, local demand for power exceeds supply by 6,000 MW (approx.) thereby adversely affecting the economic growth of the country. The electricity demand-supply gap, coupled with consistent

growth in demand for electricity clearly indicates the fundamental need for enhancing the country's current power generation capability.

The total electricity generation capacity currently available in the public and private sector was sufficient to meet the current power demand up to 2006-2007 but after that the gap between demand and supply of electricity started growing rapidly. The indicative demand and supply position up to year 2015, as provided by NTDC (April 2008) while preparing the "Electricity Demand-Supply Curve is shown in Figure 2.1. It indicates additional power demand up to 13000 MW by year 2015.



6.3 RATIONALE FOR HYDROPOWER PROJECTS

With unstable prices and scarce supply of oil and gas across the globe, reliance on conventional thermal sources for generation of electricity is becoming increasingly expensive and in almost beyond the reach of developing nations with dire consequences on the economy of the country.

The solution is to generate energy through renewable resources such as water, wind and solar. Of the three sources, hydropower is most economical resource available in abundance in Pakistan. Furthermore, like other renewable energy sources, hydroelectric plants are immune to price increases associated with fossil fuels such as oil, natural gas and coal. Other key advantages of electricity generation through utilization of hydropower are provided below:

- Hydroelectric plants tend to have longer lives as compares to their fuel-fired counterparts, with some plants now in service having been built 50 to 100 years ago;
- Due to the long plant life; hydropower plants are the most economical renewable energy source available;

- Hydropower generating units can start and stop quickly; this allows them to follow system loads efficiently. They can reshape water flows (through storage systems) to more closely match daily and seasonal system energy demands;

- Hydroelectric plants with reliable hydrological histories are dispatchable and can be considered firm capacity. Consequently, in normal water years hydroelectric plants designed for a firm load will have a useful amount of surplus energy that may be exportable if transmission is available;

- Hydro power plants convert about 90 percent of the energy in falling water into electrical energy. This is much more efficient than fossil-fuelled power plants, which lose more than half of the energy content of their fuel as waste heat and gases;

- Labor cost tends to be low since plants are generally heavily automated and have few personnel on site during normal operation;

- Hydropower plants provide a means for flood prevention and can act as a means of storage during drought.

6.4THE PROJECT SETTING AND SUMMARY DESCRIPTION

The Marala Barrage was part of the Indus Basin Project, planned and construction completed in 1968 under Indus Water Treaty. The Barrage length is 1363 m with 66 No. bays including 13 nos. under sluices on the left side and 7 nos. on the right side. The design discharge capacity of the Barrage is 31,149 cumecs (1,100,000 cusecs).

WAPDA, under the charter of its duties, conducted survey in the early 80's for hydropower power potential available at barrages and canal falls of the country's irrigation network wherein Marala site was indicated. The Barrage lies in 25 KMs of northeast of Sialkot.

The higher power demand against the shortages of power supply in the country necessitated to identify all the available low head potential sites on the irrigation system of the country. Accordingly, a draft inventory report, on the basis of data/information collected from Provincial Irrigation Departments was prepared in June 1992 covering 21 barrages/headworks and 586 sites on canals having cumulative potential of about 649 MW.

The Sponsors selected M/s BARQAAB Consulting Services (Pvt.) Limited as Consultants for carrying out the Feasibility Study.

6.5SALIENT FEATURES OF THE PROJECT

Salient Features of the PPIB approved facility are as follows:

Country	Pakistan
State	Punjab
Nearest Town	Marala Barrage Latitude: 32° 40' 51" N Longitude: 74° 28' 21" E
River	Chenab River
Project Location	Marala Barrage
Project Characteristics	
Gross head	5.3 m
Rated Discharge	580 cumecs
Installed capacity	20 MW (3.34 x 6 MW Kaplan Horizontal)

Net Head at rated discharge	4.7 m
Hydrology	
Average annual rainfall	1,045 mm
Period of recorded river flow	1980 to 2007 – 27 years
Local river flow gauging station	Office of Executive Engineer (Marala Barrage Division) I&P Department, GoPu
Plant Factor	50.00%
Hydro Mechanical Equipment	
Type	KAPLAN Horizontal PIT type turbine
No. of Units	6
Rated Discharge per Unit	96.67 Cumecs
Capacity per unit	3.34 MW
Runner Diameter	4.316 m
Approx. Runner Weight	21.7 Tonnes
Unit Speed	90.9 rpm
System Frequency	50 Hz
Power House Dimension	
Length	72.41 m
Width	47.34 m
Height	29.69 m
Machine Hall level	250 masl
Machine Hall length	91.41 m
Machine Hall width	14.69 m
Machine Hall height	12.25 m
Trash Racks	
Width	9.06 m
Height	16.66 m
Inclination	76 degree
Head Race Canal	
Length of Headrace Channel	705 m
Design Discharge	580 m^3/sec
Bed Width (B)	88.39 m
Depth of Water (D)	4.88 m
Flow Area	478.38 m^2
Wetted Perimeter	110.19 m
Hydraulic Radius	4.34 m
Critical Depth	1.65 m
Critical Slope	0.00763
Flow Type	Sub-Critical
Profile Type	Mild M-I
Froude No.	0.036
Velocity	1.25 m/s
Manning's n	0.03
Side Slopes of Headrace Channels (HV)	2:1 m
Water Surface Slop of Headrace Channel	0.000200 m
Bed level of Headrace at start of Intake Bay	242.30 masl
FSL of Headrace at P.H.	247.18 masl
Tail Race Canal	
Length of Tailrace Channel	366 m
Design Discharge	580 m^3/sec
Bed Width	89 m
Depth of Water (D)	4.61 m
Flow Area	454 m^2
Wetted Perimeter	109.65
Hydraulic Radius	4.13 m

Critical Depth	1.62 m
Critical Slope	0.00765
Flow Type	Sub-Critical
Profile Type	Mild M-2
Froud No.	0.042
Velocity	1.32 m/s
Manning's n	0.03
Slide Slope of Tailrace Channel (H:V)	2:1 m
Water Surface Slope of Tailrace Channel	0.000237 m
Bed Level of Tailrace at start of Intake Bay	239.47 masl
FSL of tailrace at Exit	244.08 masl

6.6 Field Surveys and Investigations

M/s Geomatics & Engineering Services (Pvt.) Limited conducted survey for topography over an area of 1243 acres at a scale of 1:1000 and contour interval of 0.25 m. Further, to examine hydraulic conditions at the tail race on its discharge into the river, an additional survey of about 80 acres was also carried out.

6.7 Geology, Geotechnics and Seismicity

6.7.1 Geology

A comprehensive survey program was conducted to cover the different components of the project. The program included topographic surveys and geological mapping, bore holes, seismic lines, exploration pits, sampling, in situ and laboratory testing.

Geologically the project area is part of Upper Indus Basin and tectonically falls in the north Punjab monocline which is a subdivision of Indus Platform and Foredeeop Zone. The rocks in the region are dominantly sedimentary (sandstone, shale, limestone and silt stone). Besides, meta morphic and igneous rocks are also present in the region.

Geological mapping of the Project area including Pond area, headrace channel, powerhouse, tailrace channel, and borrow areas of construction material were carried out on scale 1:4000. Rocks are not exposed in the project area, only alluvial deposits such as Clayey Silt, Silty Sand and Sandy Silt with Clay and Gravels are at places. All the alluvial deposits were deposited by the Chenab River and its tributaries in the area and are of reeent age

6.7.2 GEOTECHNICAL INVESTIGATION

The geotechnical investigation program for Lucky Hydropower Project Marala Barrage comprises 105 m of exploratory boreholes at Proposed Power House area and Bridge location. Test pits were also exeavated to gather information about borrow areas. Using Straight Rotary Drilling Technique and representative sampling, testing including Permeability and SPTs at different intervals were also carried out.

At the power house location, a thin layer of Silty Clay at the top is observed in BH-05 which is overlaid by poorly graded Sand and the layer comprising same material is observed in the boreholes BH-3 up to 6 m depth. Below 6m, a bed of Silty Sand with Gravel about 4 m thick has been encountered which is overlaid by 2 m thick layer of Silty Clay with Sand. About 12 m from the NSL, 2-3 m thick layer of poorly graded sand overlaid by 10 13 m thick Lean Clay layer is present. Below this, to a drilled depth of 40 m, Silty Sand is observed.

At the bridge location, typical alluvial deposition is observed during drilling and subsequent laboratory testing on selected samples of borehole BH-2.The strata comprises layers of Silty Clay (1.5m), Poorly Graded Sand (11m), Lean Clay (1.5m) and Sandy Silt (1.5m) overlaid by alternate layers of Poorly Graded Sand and Lean Clay to a maximum drilling depth of 35 m.

The ground water level is observed at an average depth of about 0.6 m below the ground surface.

The average SPT Values for the power house corresponding to Layer 1 from depth 0-08 m, Layer-2 from 8-28 m, and Layer-3 from depth 28-40 m are 04, 19 and 48 whereas corrected N70 values are 2, 14 and 30 respectively. For the bridge location, these values corresponding to Layer 1 from depth 0-06 m, Layer-2 from 06-13 m, Layer-3 from 13-18 m, Layer-4 from 18-28 m and layer-5 from 28-40 m are 08, 22, 30, 42 and 62 respectively.

In order to estimate the quantity of dewatering and recharge rate of the power house pit, field permeability testing using constant head technique at the selected depths were conducted under the supervision of experienced geologist. The permeability values ranges from 7.70 x 10-7 cm/sec to 9.96 x 10-4 cm/sec. The value of 6.00 x 10-4 cm/sec has been adopted for evaluation of dewatering requirement.

Grain size analysis tests carried out on SPT/UDS samples of the soils collected from boreholes at proposed power house and bridge location, indicate that percentage passing No.200 sieve as 2% to 20% in 16 samples (majorly comprising SP/SM, according to USCS) whereas percentage of more than 65 % for fifteen (15) samples (majorly comprising CL, according to Unified Soil Classification System).

Atterberg limit tests were performed on the fraction of clay passing No. 40 ASTM sieve. The liquid limit was determined using Casagrande apparatus. The tests have indicated that the value of liquid limit ranges from 28% to 42 % with an average value of 34% whereas plasticity index ranges from 8% to 20% with an average value of 14%.

For determining unit weight of the foundation soil, seven (7) tests have been carried out on selected samples. For CL (Lean Clay bed) the value of unit weight ranges from 18.47 KN/m3 to 19.91 KN/m3 with an average value of 19.14 KN/m^3, whereas a value of 18.87 KN/m3 is reported for SP (poorly graded sand bed).

For determining sp. gravity of foundation soil, eight (08) tests have been carried out on representative samples. For Lean Clay layer (CL), the value ranges from 2.69 to 2.71 with an average value of 2.69, whereas a value of 2.63 is evaluated for sand and silty sand subsoil.

Direct shear test were carried out on seven (7) soil samples. For Lean Clay layer (CL) the value of angle of internal friction ranges from 22o to 28o with cohesion intercept ranging from 12 KPa to 26 KPa. The average angle of internal friction of 25o with average cohesion intercept of 17 KPa. Whereas 28o with zero cohesion intercept is for poorly graded sand bed (SP).

Odometer Consolidation test was performed on three (03) samples for the determination of Compression Index (Cc). The value of Compression Index ranges from 0.0534 to 0.0692 with an average value of 0.06.

6.7.3 POWER HOUSE FOUNDATION

The power house foundation is about 72.41 m long and 47.34 m wide. On the basis of field and laboratory tests evaluation, the proposed type of foundation for the power house is Mat/

Raft Foundation. The allowable bearing capacity of the soil at the proposed depth of 16 m below ground surface level is 50 KPa (0.5 ton/ft2). The maximum total settlement (immediate + consolidation settlement) of the mat foundation corresponding to a contact pressure of 2 KN/m2 is calculated to be 9 mm.

6.7.4 BRIDGE FOUNDATION

The proposed A.R. Bridge foundation at the project site is Pile Foundation. A pile group comprising 5 piles in row, each 1.83 m apart, will be provided to a depth elevation 209.5 m and diameter of individual pile in the group will be 0.91m. Pile cap will be provided with top elevation of 249.78 m and thickness of 1.22 m. The average length of pile will be 40 m.

6.7.5 DEWATERING

The water table at the project area fluctuates between 0.4 m to 1.3 m throughout the year. A two stage dewatering system comprising dewatering well is proposed for the dewatering system. The calculation of total water quantities and the cone of depression have been carried out by using coefficient of permeability equal to 6.0 x 10-4 cm/s. A total 49 number of pumps with a capacity 0.5 cusec each will be required in the first stage and in the second stage 35 pumps with capacity of 0.5 cusec each are sufficient for this purpose.

6.7.6 CONSTRUCTION MATERIALS

Adequate fine material is available in the vicinity of the project site (clayey silt and silty clay) for the construction of embankment of the channel. The nearest barrow area is within 10 km from the Marala Barrage on Sialkot to Gujrat road near the Kurianwala Village.

Adequate fine to medium grained sand mixed with gravel and gritty material is available in the vicinity of the Project area. The nearest borrow area for the sand to construct the structures at project site; is the Chenab River's flood plain.

The rocks and gravels are not available for the aggregates in the vicinity of the Project Site. The aggregates are available from the established source, Margala hills (Texila) and Kirana hills (Sargodah) which are about 275Km from Marala Barrage.

Material for stone pitching is available from the two established sources, such as Margala hills (Texila) and Sekhanwali which are in the radius of 300 km from the Marala Barrage.

6.7.7 SEISMICITY

On the basis of earthquake data, GSP has prepared a map showing seismic Hazard zones of Pakistan. According to the seismic zoning map of Pakistan, the Project area falls in zone-3 liable for moderate to severe damage corresponding to Max. Intensity is 7.5 to 9.6 and seismic coefficient of 0.3g. Accordingly seismic factor 0.3g horizontal ground acceleration with maximum credible earthquake (MCE) is suggested for design of Lucky Hydropower Project and its appurtenant structure and the Operation Basis Earthquake (OBE) is proposed to be 0.15g.

6.8 Hydrology

Downstream flow data, upstream and downstream water levels on daily basis were collected from Office of Executive Engineer (Marala Barrage Division) I&P, Department, Government of Punjab. Daily flows and head across (Upstream El. - Downstream El.) are computed from Daily

data. Daily downstream flow data for period of 1980-2007 (27years) is used for analysis. Mean 10-Daily flow indicates that above 600 cumecs is available for month of May to mid-September and 100-250 cumecs for Jan to March , while in October to December downstream releases through Marala Barrage is less than 100 cumecs.

Pond is operated at 247.5 m in summer and 246.3m in winter. Head across the Barrage varies during the year. In the summer, it goes down to 1.5 m in high flood events, whereas in winter it is at max of 5.5 m.

In order to ascertain flow availability throughout the year, flow duration curve is drawn on 10-Daily downstream flow for period of 1980-2007. It can be concluded that 30, 35 and 40 % of time flow availability is 700, 600 and 500 cumecs respectively.

6.9Environmental Impact

The environmental considerations have formed an integral part of the evaluation of the layout and design such that all the potential effects of the project have been mitigated. The project is environment friendly. As the Project will not pose any resettlement or relocation issues therefore only Initial Environmental Examination Studies (IEE) were needed on the project. The land proposed for the project belongs to I&P Department, Government of Punjab which will be transferred according to the prevailing rules and regulations.

7. Total Project Cost

The estimate of the capital cost of the Project was prepared to cover the civil works, electrical and mechanical works and Engineering and Development Cost is provided in Chapter 8 of the Feasibility Report.

The estimation of cost of civil work is based on the preliminary planning and design of different components of the works. The quantities have been derived from the general arrangements and layout drawings of the structure developed as part of the Feasibility Report.

Due to unique nature of hydel projects where civil works represent the largest component of total project cost, it is highlighted that the cost associated with excavation works to be carried out cannot be accurately assessed at feasibility stage. Therefore, the EPC Contractor would not be willing to take on the Project if adjustment to civil work is not allowed. The EPC Contractor will be required to build a sizeable cushion to cover the risk associated with variation in rock classification from that assumed in the Feasibility Report.

The proposed tariff in this Revised Proposal for the project will, therefore, be based on the cost estimates provided in the Feasibility Report, duly revised by Project Sponsors on the basis of best practices and precedents for early determination by NEPRA. The tariff initially determined pursuant to this Proposal shall, therefore, be subject to adjustment for the following:

- EPC Price as contracted; and
- Cost reopeners due to geological conditions relevant to tunnels and other sub-surface works; and
- Civil Works cost escalation; and
- Variation in Resettlement Cost; and
- Revised General Costs on actual basis duly supported by actual documentation.

A summary of Project cost as given in Feasibility Report and subsequently revised by Project Sponsors in this Petition, based on best practices for other similar IPPs, is as follows:

S. No	Item Description	Approved Feasibility Cost (Million US$)	Petition's Estimated Cost (Million US$)
1)	Civil Works	13.664	13.664
2)	Electrical Works	3.098	3.098
3)	Mechanical Works	12.279	12.279
4)	Other EPC costs i.e. Preliminary, Building, Establishment & Misc	1.711	1.711
	EPC Cost	30.752	30.752
5)	Land Acquisition & Resettlement	0.209	0.209
6)	Environment & Ecology	0.082	0.308
7)	EPC Cost as per Feasibility Report	31.043	31.269
8)	Insurance during construction	0.419	0.769
9)	Custom Duties	0.696	0.696
10)	Port Charges & Inland Transportation	0.417	0.417
11)	O&M Mobilization	NIL	1.000
12)	Owner Engineer	1.212	1.212
13)	Owner advisor	NIL	0.615
14)	Lenders' advisor and agents	0.964	0.964
15)	Owner administration and overhead	1.063	1.538
16)	Legal fee & charges	NIL	0.500
	Base Project Cost	35.815	38.980
17)	Financial Charges	NIL	1.720
18)	Interest During Construction	5.651	3.02
	Total Project Cost	41.466	43.720

The Feasibility Report was showing an overstated EPC Cost due to the fact that the costs for Land Acquisition & Resettlement and Environmental Costs were merged in EPC and consequently cost calculated based on percentage were also escalated. Moreover, the Feasibility Report did not cater for some admissible costs which occurred during the development process of the Project activity that includes O&M Mobilization, Owner's Advisors costs, financial charges imposed by lenders for financing and charges relating to legal fee etc. and these costs have been allowed to the other hydropower projects which are under construction phase in private sector.

It is also instructive to compare the final Project Cost with other completed project costs or proposed hydropower project costs in advance stage. The costs of all these projects, especially low head hydropower projects exceed US$ 2.5 million per MW e.g. Chashma Hydropower Project, Jinnah Hydropower Project, New Bong Escape Hydropower Project & Patrind Hydropower Project.

The rationale for these costs required for development of the project is explained in trailing paragraphs.

8. Details of Project Costs – EPC Costs

Project will be executed through a Turnkey EPC Contract through competitive bidding process to safeguard the interests of all the stakeholders and to get competitive prices. Besides the information available in the feasibility report and detailed engineering if conducted, the perspective bidder will also carry out their own preliminary investigation for the execution of the Project before submitting their bids. This will enable them to assess the quantities and cost of various items. On conclusion of EPC, the EPC costs will be determined but will be subject to adjustment for variation in quantities upon finalization of detailed design and during execution

in respect of subsurface works besides adjustments for escalation in prices of inputs during and before construction period. The Sponsor will submit EPC cost and other details supported by documents to NEPRA for revision of Project Cost and tariff in order to facilitate finalization/approval of loan based on contract documents as executed and achieving of financial closing of Project as per IA/PPA requirements.

The Power Policy and Mechanism acknowledge the fact that the costs for hydropower projects are not comparable with each other as all the projects are having different dynamics and vary considerably depending upon size, design, resettlement and environment issues and location of the Project activity.

The detail bifurcation of EPC Cost is as follows:

S.No.	Item Description	Estimated Cost (Million US$)
1.	Civil Works	13.664
2.	Electrical & Mechanical Equipment	15.377
3.	Other EPC costs (Preliminary & Buildings Expenses including residential offices, camps, facilities and tubewell)	1.711285
4.	EPC Cost	30.752
5.	Per MW Cost	US $ 1.53 million per MW

It may please be noted that low hydropower projects with low head nature and size of turbines/generator constitute approx. 50% of EPC Cost is represented by E&M Costs which normally ranges about 25% to 30% for high head projects.

The details of EPC costs are as follows:

8.1 Civil Works

Total cost for Civil Work as estimated in the Feasibility Report is US $ 13.6641 million which will be subject to variation due to geological conditions and finalized designed opted by EPC Contractor. The quantities given in Feasibility Report will be considered as benchmark and any variation in benchmark quantities necessitated due to different geological conditions and revision in design during execution of work will be adjusted on actual basis and Sponsor will submit necessary details for revision of the tariff at EPC Level and COD.

The details of Civil Work, as per Feasibility Report, are as follows:

S.No.	Item Description	Estimated Cost (Million Pak Rupees)	Estimated Cost (Million US$)
1	Dewatering	315.934	3.761
2	Excavation	23.235	0.277
3	Structure Works	593.766	7.069
4	Sheet Pilling	64.135	0.763
5	Head Race	89.301	1.063
6	Tail Race	28.708	0.342
7	A.R. Bridge	18.183	0.216
8	Intake structure	14.518	0.173
	Total Civil Works	1,147.780	13.664

8.2 Other EPC Costs

The Feasibility Report has considered this amount as US$ 2.0028 million which includes Land Acquisition, Preliminary Work and cost of environment mitigation. The non-EPC costs are excluded from this head and separate head in non-EPC costs have been defined.

An amount of US$ 1.711285 million has been allocated by the Project Consultant for other EPC costs which include residential and non-residential buildings, both permanent and temporary, based on the expected size of the organization at the site (excluding contractor's labour) for the execution of the project and taking into account the requirements for the construction facilities to be developed. Building facilities such as temporary and permanent colonies, workshops and offices come into this category.

8.3 Land Acquisition & Resettlement

An amount of PKR 17.58 million/US$ 0.20934 million for land acquisition and resettlement has been included in the cost estimates. It includes the compensation for costs of land for 77.71 Acres. The compensation costs for land shall be incurred through Government of Punjab. Any additional cost shall require proportionate enhancement of the Reference Tariff for which the Sponsor shall provide necessary details for revision.

8.4 Environment & Ecology

An amount of 1% of EPC Cost amounting to US$ 0.308 million for environment and ecology cost is included in the cost estimates. This is required to meeting company's obligations comprises legal obligations under the law for environmental mitigation during construction period; (b) costs for water supply, sewerage, income generation and community support program, site protection and rehabilitation programs, monitoring program, fish hatchery and recreational facilities; (c) fee to environmental consultants; and (d) fee and expenses required for registering Project as CDM activity and its WCD Compliance.

The Project Sponsors are considering the Project as CDM project activity to make the Project Financially viable and attractive for equity investors by providing them attractive benchmarks and further to mitigate risks associated with higher construction costs and longer construction period. Furthermore, given the high equity requirement of the Project, the risk of slight delay in the Project can have detrimental impact on the Project returns; an IRR of 17% (net of taxes) is not commensurate with the risk identified and borne by the equity investors of hydropower Projects.

For this purpose, the Sponsors shall be required to pay heavy consultancy fees for CDM, WCD Compliance and Environmental Consultants, validation costs from independent Designared Operational Entity approved by UNFCCC, UNFCCC registration cost, cost related to advanced sales and CDM implementation costs.

The Project Sponsors are also interested for compliance of Project with World Commission on Dam in order to trade the credits in European Markets which requires different documentations, environmental mitigation requirements and consultancy costs during validation, registration and implementation phase.

Any additional cost shall require proportionate enhancement of the Reference Tariff for which the Sponsor shall provide necessary details for revision.

8.5 Insurance during Construction

The Feasibility Report has considered an amount of US$ 0.419 (1.35% of the EPC Cost) as cost for Insurance during Construction. This insurance cost is for the period of three years which we understand is not possible. The current projects under construction phase in private sector could hardly get the quotes of 2.5% as insurance during construction for identical construction period. As this project is smaller in size and cost, therefore, it would be very difficult to get the 2.5% quote from the market.

The Project Sponsors has, therefore, estimated an amount of US$ 0.769 million for Project Insurance during construction which amounts to 2.5% of the EPC Cost due to longer construction period, high risk profile, location of the Project and security situation of Pakistan. The hydropower projects are exposed to higher construction risks (especially civil works failure), long construction period (3 to 4 years) compared with thermal projects (1.5 to 2 years). It may please be noted that similar percentage on insurance has already been provided to the Project under construction i.e. New Bong Escape Hydropower Project & Patrind Hydropower Project.

8.6 Custom Duties & Other Charges

The estimated custom duty at a rate of 5% has been assumed on the import of plant and equipment for the project which amounts to US$ 0.696 million. The cost of the Project also assumed 3% as port clearance, handling and inland transportation for import of plant and equipment for the Project which amounts to US $ 0.417.

Any increase in Custom Duties, port clearance, handling and inland transportation beyond above referred amount will be treated as an adjustment in Project Cost and other relevant tariff component at EPC and COD level tariff.

8.7 O&M Mobilization

An amount of US$ 1 million has been allocated for O&M Services before Commercial Operation Date. The services include operational design review, testing, commissioning, development of O&M and other manual, operations and maintenance before COD.

O&M mobilization cost includes personnel cost, temporary technical support from head office (hiring and training), services and supplies (communications, third party and professional liability insurance, security, transportation, safety equipment, tools, uniforms and staff colony), maintenance cost (generating facilities, substation, civil and general), management and support cost from head office (office maintenance, travel, legal, other overheads) and vehicles and equipment depreciation.

8.8 Engineering & Supervision

The Feasibility Report has considered an amount of US$ 1.212 million for Consultancy relating to EPC Contract (Engineering & Supervision) and pre-construction costs already incurred which include Pre-qualification of Project from PPDB, cost of feasibility report and field investigation. This budget amounts to 3.94% of the EPC Cost. Moreover, Feasibility Report has set an amount of US$ 0.964 million amounting to 3.35% of EPC Cost required for costs relating to Lender's Advisor for their due diligence, cost of technical & legal advisors and cost of registration of documents.

The Project Sponsors has considered the above referred amount as insufficient as it does not cover the detailed engineering and design costs component, cost of construction supervision and

cost of Independent Engineer for Power Purchaser. It is fact that detailed engineering and design costs is essential component and has to be borne by the Project whether it is borne directly by the Sponsors or it is made part of the EPC Cost. The Project Sponsors, based on the experience of other Project Developers and as per international practice, understand that detailed engineering design carried out before the EPC tenders is more costs effective as EPC bidders will be better informed and provide more competitive bids and keep the padding of low cost which would otherwise be a large proportion due to availability of only feasibility stage design information to bid on.

The Project Sponsors, therefore, understand that an amount of 10% of the EPC Costs should be considered as Engineering and Supervision with bifurcated details are as follows:

S.No.	Item Description	% of EPC Cost	Estimated Cost (Million US$)
1.1	Owner's Engineer	3.94%	1.212
1.2	Owner's Advisor	2%	0.615
1.3	Lenders' Advisor & Agents (as per feasibility report)	3.13%	0.964
	Engineering & Supervision	9.07%	2.791

Owner's Engineer: The Owner's Engineer cost include cost of feasibility and technical study, design review, detailed bidding documents, cost of Independent Engineer for Power Purchaser and EPC contract implementation and supervision during construction period of three years.

Owner's Advisor: The costs include costs of financial advisors, tax & corporate advisors, insurance advisors, land acquisition advisor etc.

Lender's Advisor: The costs includes costs of financial advisors, technical advisors, Legal Advisors, tax advisor, insurance advisor etc.

It may please further be noted that above referred costs are on the pretext that these shall be revised during EPC Level tariff determination on the basis of actual expenses on provision of necessary proofs/documentation.

8.9Owner's Administration & Overhead

The cost for Owner's Administration and overhead includes Project Development cost which has been estimated by the Consultants on the basis of their past experience for development of hydropower Project which has been declared it as 10% of the EPC Cost. The Project Sponsors are always striving to curtail this cost knowing the fact that this cost has to be within reasonable limits. Due to above, the Project Sponsors has decreased it to 5% (amounting to US$ 1.538 million) of EPC Costs on the pretext that any increase to above level shall compensated by revision at EPC level and subsequently at COD level. I

This head shall cover day to day expenditures for Project Development Company (SPV Company) running its affairs from the start of the project activity till completion of its construction i.e. COD. The administrative and operational cost is estimated for a period from issuance of LOI to Financial Close and the costs required during long construction period of 3 years. These costs will be incurred for a period from 8 to 10 years and includes all the costs, fees and expenses incurred or to be incurred for such purpose.

The Owner's administration cost includes salaries, wages, utilities, vehicles, travel and conveyance, office supplies, rent and rates, medical, insurance, depreciation, Auditor's remunerations, amortization, lease rentals, inventory, computer software, site office expenses for the owner as well as lenders for a period of 8 to 10 years.

It may please be noted that the Project Development Cost does not differ extensively with size of the Project as same team and expenses are involved for management of the projects and the much more costs have been approved in case of other project under construction phase.

It may please be noted that these costs shall be incurred by SPV Company shall be audited by the Independent Auditors acceptable to Lenders.

8.10 Legal Fee & Charges

Legal fee and charges include the costs associated with engagement of the Project legal consultants and governmental fees required to be paid at different phases of project implementation. It is pertinent to mention here that given the long gestation period of the Project, the services of the legal consultants shall be required throughout the construction period. This is to ensure that Project construction milestones, compliance with legal framework, if any are identified and appropriately rectified in a timely manner. Furthermore, the costs associated with appointment of PPDB legal counsel are also included under this head.

The charges also include import tax, Sindh Infrastructure Cess, Special Excise Duty at the time of import of machinery, equipment, goods, spares and materials for the Project. The Special Excise duty has been assumed at 1.00% of M&E, 0.5% is assumed as Sindh Infrastructure Cess and 0% has been assumed as Advance Income Tax.

The charges also include the costs relating to stamp duty and registration of the finance documents, shareholding documents, security documents and concession documents to be signed between Project Sponsors and Lenders.

For the purpose, an amount of US$ 0.5 million is estimated subject to revision at EPC and COD on actual basis.

8.11 Financial Charges Relating To Debt and L/C (Debt Arrangement Fee)

Financial charges are costs related to Debt financing of the Project. Such costs may include lender's upfront fee, working fee, arrangement fee, commitment fee, participation fee and charges related to various letter of credits. The financial charges related to debts and L/C have been anticipated at 4% on the basis of past experience for similar projects, therefore, it is estimated that financial charges shall be 4% of total debt i.e. US$ 1.720 million. The financial charges figure shall be adjusted and finalized at Financial Close as per actual basis on the basis of actual borrowing composition on determination of EPC Level Tariff.

9. Financing Plan

The Project is proposed to be financed at a debt equity ratio of 80:20 as follows:

Description	US$ million
Total Financing	43.72
Loan (Debt Financing) (75%)	34.98
Equity Financing (25%)	8.74

The Debt Service component has been initially assumed on 100% local financing, however, keeping in view the interest of Asian Development Bank, Chinese Banks for investment in renewable energy, we have assumed the debt financing for local and foreign financing proportionately. If the actual debt composition is different, repayment terms and interest rate benchmarks shall be affected and adjustment/indexation shall be made accordingly.

10. Interest during Construction

The Interest during Construction ("IDC") has been calculated on the terms anticipated to be offered by local and international development financial institutions to the Project Company. For the purpose of this Tariff Proposal, a base rate equal to 6-month LIBOR of June 29, 2012 plus a margin of 475 basis points for foreign lending and 6-month KIBOR of June 29, 2012 has been assumed. Actual IDC, however, shall be subject to change depending on fluctuations in the base-rate (6-month LIBOR & 6-month KIBOR), funding requirement (draw-downs) of the Project during the construction period, changes in Project Cost including changes due to Re-Openers, taxes and duties and variation in Pak Rs./USD exchange rate etc.

The margin of 475 basis points for foreign lending and 350 basis points for local lending is considered to be reasonable given (i) current financial situation in the international markets which are currently facing a liquidity crunch, (ii) Pakistan's security situation, due to which international lenders shall require a premium to compensate for additional risk, and (iii) Pakistan's credit ratings which have been deteriorated significantly during the past years.

Furthermore, NEPRA in its recent determination for other hydropower projects, for which LIBOR based Financing was arranged through international development financial institutions and KIBOR based Financing through local financial institutions has already been allowed a margin of 475 basis points and 325 basis points respectively.

11. Equity

The Sponsors of the Project and various other large institutional investors with whom the Sponsors are already in negotiations shall subscribe to the equity requirement of the Project. The tariff once determined by NEPRA, shall further strengthen the Sponsors ability to secure equity funding for the Project as it shall provide a basis on which the potential return to equity investors can be estimated.

11.1 Return on Equity and Return on Equity during Construction

The Return on Equity (ROE) and Return on Equity during Construction (ROE-DC) has been estimated separately and the same are provided under below in section-12 (Reference Generation Tariff).

Since the Project is based on energy production through hydropower (renewable source), a sector in its infancy for private investors, in Pakistan, the Project Company is proposed a return on invested Equity of 20.00% (IRR), net of 7.5% withholding tax on dividends. This benchmark is derived from following factors:

Capital Asset Pricing Model:

The IRR computed based on Capital Asset Pricing Model, representing the real risks attached to the Project is 20.18%. The established practice for computing IRR, in accordance with NEPRA practice, provides an IRR for hydropower projects computed as shown below:

$$k_e = R_f + \beta (R_m - R_f)$$

k_e = Cost of Equity

035

R_f	=	Risk-free rate of return
R_m	=	Market rate of return
ß	=	Beta, the measure of systematic risk i.e. market risks that cannot be diversified away; interest rates, recessions and wars are examples of systematic risks.

The values used were:

Risk-free rate	=	14.02 based on current yield for 10-year PIB
Market Risk Premium	=	4.10% based on KSE-100 index return differential with risk free rate
Beta	=	1.15 using a proxy asset beta and re-leveraging the proxy asset to the Company's capital structure of 75:25 based on current investor evaluation of systematic risk for hydropower projects

Accordingly, ke = 13.46% + 1.15 (17.56% – 13.46%) = 18.18% for thermal; to allow for the higher risk (and benefits) hydropower projects have been provided an additional incentive of 2% thus the IRR for hydropower projects would have a benchmark IRR of 18.18% + 2.00%= 20.18%.

12. Tariff & Cost of Operations

The Reference Tariff has following typical two-part structures and formulae having different tariff components which are explained in following paras:

Capacity Purchase Price;

Capacity Price = Fixed O&M + Insurance + ROE + ROEDC + Debt Service

AND

Energy Purchase Price

Energy Price = Water Use Charges + Variable O&M

12.1 Fixed O&M

Comparison of Annual O&M cost with the total Project Cost in case of other run-of-river hydropower Projects being developed in the country indicated a range of approximately 2% of total Project Cost. The O&M Cost in various other countries for small hydropower projects (1MW to 20MW) as reported by International Energy Agency of Organization for Economic Cooperation and Development (OEDC) range between Rs.0.3574/kWh to 0.8233/kWh (Greece).

The O&M estimated in the Feasibility Report is 2% of the Capital Cost of the Project i.e. US$ 0.791 million per annum (20% foreign & 80% local) which will include personnel cost, temporary technical support from head office (hiring and training), services and supplies (communications, third party and professional liability insurance, security, transportation, safety equipment, tools, uniforms and staff colony), maintenance cost (generating facilities, substation, civil and general), management and support cost from head office (office maintenance, travel, legal, other overheads), vehicles and equipment depreciation and overhaul amortization. The Fixed O&M will also include Owner's Administration & Overhead that inter-alia include salaries and wages, utilities, vehicles, travel and conveyance, office supplies, rent and rates, medical insurance, lenders/owner advisors cost, Debt Service Reserve Account L/C charges and site office expenses. This cost is translated in terms of KWh as follows:

S.No.	Item Description	Foreign	Local	Total
1.1	Fixed O&M (US$ million per annum)	0.1582	0.6328	0.7910
1.2	Fixed O&M Component (US Cent/KWh)	0.1843	0.7371	0.9214
1.3	Fixed O&M Component (PKR/KWh)	0.1548	0.6192	0.7740

It may be noted that O&M Costs are on reasonable assumptions; however, it is subject to change/adjustment as per actual at COD.

The Foreign portion of Fixed O&M Component is subject to indexation/adjustment both for US CPI inflation as well as PKR/US$ exchange rate variation.

The Local portion of Fixed O&M Component is subject to indexation/adjustment for WPI inflation over time.

12.2 Insurance during Operations

The Project Company has assumed a sum of 1.35% of total Project Cost as Insurance cost during operation which is reflected in tariff component at 0.4527 US cents/kWh and in Pakistani currency at 0.3803 PKR/kWh, against historical average annual energy of 85.85 GWh. The total insurance cost per year, in absolute value, is estimated at 0.3886 USD million.

This component will be readjusted on COD based on EPC cost and actual cost of insurance.

The Insurance Component is subject to indexation/adjustment both for US CPI inflation as well as PKR/US$ exchange rate variation over time

12.3 Return on Equity (Roe)

As mentioned earlier that the Project Company has assumed yearly 20% IRR. Furthermore as per Punjab Power Generation Policy 2006, ROE should be allowed in only US dollars at reference rate. The reference rate applied is PKR 84 per US dollar.

S.No.	Item Description	Amount

037

S.No.	Item Description	Amount
1	Total Equity Investment (USD 000's)	8.744
2	ROE for 1-10 Years (US¢/KWh)	2.0371
3	ROE for 1-10 Years (PKR/kWh)	1.7112
4	ROE for 10-30 Years (US¢/KWh)	2.0917
5	ROE for 10-30 Years (PKR/kWh)	1.7570

The Company has considered redemption of equity (straight line) from year 10 onward (after repayment of loans) as the Project is on BOOT basis and Company is required to redeem the equity and repay its shareholders before the Complex is handed over to Government free of cost. GOP's guidelines for Determination of Tariff for IPPs allow the redemption of equity after completion of debt servicing.

12.4 Return on Equity during Construction (ROEDC)

Return on Equity During Construction (ROEDC), calculated at 20% yearly IRR is USD 2.7535 million with tariff component of US cents/kWh and PKR/kWh as follows:

S.No.	Item Description	Amount
1	Total Return on Equity During Construction (USD 000's)	2.7535
2	ROEDC (US¢/KWh)	0.6442
3	ROEDC (PKR/kWh)	0.5411

12.5 SPECIAL RETURN ON EQUITY

The Project Sponsors has been required to invest in the Project from issuance of LOI and further required injection of considerable equity amount to Project Company till Construction Start i.e. Development Phase. An amount of US$ 1.7488 million has been estimated to be spent till Construction Start in terms of development costs, land acquisition and resettlement, owner's administration/advisory costs and equipment advance. The Government has also decided to compensate by allowing real IRR i.e. from LOS to Financial Close (3 years). The Return on Equity for the said period has been included in ROEDC in order to ensure the real return to equity investor.

12.6 DEBT SERVICE COMPONENT

Based on the assumptions provided in paras above, the Debt Service based on LIBOR i.e. financing from international financial institutions i.e. is calculated as follows:

Year	Principal	Interest	Principal	Interest
	PKR/KWh	PKR/KWh	US Cent/KWh	US Cent /KWh
1	2.0977	3.6296	2.4973	4.3210
2	2.3026	3.4248	2.7412	4.0771
3	2.5331	3.1943	3.0156	3.8027
4	2.7929	2.9344	3.3249	3.4933
5	3.0865	2.6409	3.6744	3.1439
6	3.4187	2.3087	4.0699	2.7484
7	3.7953	1.9320	4.5182	2.3001
8	4.2230	1.5043	5.0274	1.7909
9	4.7095	1.0178	5.6066	1.2117

10	5.2638	0.4636	6.2664	0.5519

The Principal portion of loan is subject to indexation for PKR/US$ exchange rate variation over time. The Interest portion of loan is subject to indexation for PKR/US$ exchange rate and interest rate variation over time.

12.7 WATER USE CHARGES

The agreed Water Use Charge is Rs. 0.15 per Kwh of the Net Electrical Output, for use of water by the Company at the Complex has been assumed. The Water Use Charges will be paid to Government of Punjab. Change in Water Use charges will be a pass through item.

12.8 VARIABLE O&M COMPONENT

Variable O&M Cost has been calculated based on the average annual net energy generation of 85.85 GWh worked out from hydrological data of Marala Barrage. This component caters for cost of the services of the O&M operator on a kWh basis for day to day management of the hydropower plant. In addition, it also includes replacement of spare parts on completion of their service life as well as replacement on account of premature failure of the parts. It also includes cost of maintenance for unforeseen /unscheduled outages, consumption of lubricants, chemicals, etc. This component has also US Dollar portion to cater for the procurement of the spare parts as well as technical services from abroad. This also include O&M of plant during abnormal hydrology and sedimentation pattern which are beyond the scope of O&M Operator, stabilization of storage area and other maintenance requirements.

The variable O&M Component is assumed as US $ 04380 million per annum with a foreign portion of US$ 0.3504 million and local portion of US$ 0.0876 million per annum.

S.No	Item Description	Foreign	Local	Total
1.1	Variable O&M (US$ million per annum)	0.3504	0.0876	0.4380
1.2	Variable O&M Component (US Cent/KWh)	0.4082	0.1020	0.5102
1.3	Variable O&M Component (PKR/KWh)	0.3429	0.0857	0.4286

The Variable O&M Component is subject to US CPI indexation and local WPI indexation.

13. REFERENCE TARIFF TABLE

The Reference Tariff Table showing Energy Purchase Price is attached as Annex – A and a Summary of the Reference Tariff levelized for 30 years is shown below:

Component of Tariff	US cents/KWh	PKR/KWh
Energy Purchase Price		
Water Use Charge	0.1786	0.1500
Variable O&M	0.5102	0.4286
Sub total	0.6888	0.5786
Capacity Purchase Price		
Fixed O&M	0.9214	0.7740
Insurance	0.4527	0.3803
Return on Equity	2.0561	1.7271
ROEDC	0.6442	0.5411
Debt Service Component	4.4442	3.7332
Subtotal	8.5186	7.1556
Total Tariff Year 1-10	11.7635	9.8814

Total Tariff Year 11-30	5.9570	5.0039
Levelized Tariff	9.4099	7.9043

14. ESCALATIONS AND INDEXATIONS

14.1 CIVIL WORKS COST ESCALATION

Due to long gestation period of the Project, it is not possible to accurately estimate the cost of Civil Works for the Project at this Stage. Even if Company demand for firm and final price for Civil Work in the bidding documents, the perspective EPC Contractor may not agree to it or may build a very high escalation in their bid prices to cover up their risks. The normal practice followed in such cases is to include an escalation formula in EPC Contract to provide compensation for any variation in the base price of certain major inputs like cement, steel, labour (skilled & unskilled), diesel etc. The cost of civil works will be adjusted due to variation in the prices/indices of a selected number of cost elements.

The variables in the Escalation Formula and base rates will be firmed up on conclusion of the EPC contract. The prices of the components subject to escalation shall be as notified by the relevant agencies specified by NEPRA. The proposed escalation will be applied to all the Civil Works in accordance with provision made in EPC Contract. The Company will submit necessary details supported by document to NEPRA upon completion of the work for revision of the Project Cost and Reference Tariff accordingly.

14.2 COST VARIATION DUE TO GEOLOGY

Cost variation due to geological conditions will be sought, if required, at EPC Stage and COD in terms of the Hydropower Tariff Mechanism.

14.3 COST OF DEBT

The Debt Service component has been initially assumed on 50% foreign financing and 50% from local financing. If the actual debt composition is different, repayment terms and interest rate benchmarks shall be affected and adjustment/indexation shall be made accordingly.

The total amount of debt has been assumed at 80% of the total project cost. The Principal repayment and the cost of debt shall be adjusted at Financial Closing as per actual borrowing composition i.e. Local and/or Foreign and the interest rates as the case may be.

14.4 INTEREST DURING CONSTRUCTION

Interest during Construction (IDC) will be adjusted at Financial Close & COD on account of actual variation in interest on the basis of actual drawdown for the period of 3 years of project construction.

14.5 ADJUSTMENT DUE TO CUSTOM DUTY AND TAXES

Custom Duty, as determined in Feasibility Report on the import of some equipment, at rate of 5% million has been taken as reference. The Company shall be allowed adjustment in the relevant components of tariff due to any variation on account of actual payment of custom and other duties through provision of documentary evidence at the time of COD. Any imposition of Withholding tax shall also be adjusted in the cost at COD.

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14.6 ADJUSTMENT FOR VARIATION IN DOLLAR/RUPEE PARITY

Relevant components of the tariff shall be adjusted at COD on account of actual variation in PKR/USD parity over the reference PKR/USD rate of Rs. 84.

14.7 PASS-THROUGH ITEMS

No provision for income tax has been accounted for in the tariff. If the power producer is obligated to pay any tax, the exact amount paid by the company shall be reimbursed by the Power Purchaser to the Company on production of original receipts. This payment should be considered as pass-through payment.

Withholding tax on dividends is also a pass through item just like other taxes as indicated in the government Guidelines. Withholding tax shall be paid @ 7.5% (or the applicable rate) of the reference equity. The Power Purchaser shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% (or the applicable rate) of equity according to the following formula:

Withholding Tax Payable	=	$[\{20\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] \times 7.5\%$
Where:		
$E_{(Ref)}$	=	Adjusted Reference Equity at COD
$E_{(Red)}$	=	Equity Redeemed
$ROEDC_{(Ref)}$	=	Reference Return on Equity During Construction

In case the Company does not declare a dividend in any particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what has been paid in that year and the total entitlement as per the Net Return on Equity) would be carried forward and accumulated so that the Company is able to recover the same as a pass through item from the Power Purchaser in future on the basis of the total dividend payout.

14.8 HYDROLOGICAL RISK

Hydrological risk will be borne by the Power Purchaser in accordance with the Punjab Power Generation Policy 2006.

14.9 INDEXATIONS

The following indexation shall be applicable to the tariff:

Indexation applicable to O&M: The local part of O&M cost will be adjusted on account of Inflation (WPI). The foreign component of O&M shall be indexed to the USD exchange rate variation and US CPI. Quarterly Adjustment for local inflation and exchange rate variation will be made on 15th July, 1st October, 15th January & 15th April respectively on the basis of the latest available information with respect to WPI (notified by the Federal Bureau of Statistics). The mode of indexation will be as under:

Local Component

$F O\&M_{(LRev)}$	=	Rs 0.6192/kWh * $WPI_{(Rev)}$/ $WPI_{(Ref)}$
Where:		
$F O\&M_{(LRev)}$	=	the revised applicable Fixed O&M Local Component of the Fixed Charges indexed with WPI
$WPI_{(Rev)}$	=	the Revised wholesale Price Index (manufactures) of the latest available

		month
$WPI_{(Ref)}$	=	Reference wholesale price index (manufactures) which is that of June 2011 as notified by the Federal Bureau of Statistics

Foreign Component

F O&M$_{(FRev)}$	=	Rs 0.1548/kWh * $ER_{(Rev)}/ER_{(Ref)}$ * $USCPI_{(Rev)}/ USCPI_{(Ref)}$
Where:		
F O&M$_{(FRev)}$	=	the revised applicable Fixed O&M Foreign Component of the Fixed Charges
$ER_{(Rev)}$	=	Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month
$ER_{(Ref)}$	=	Rs. 84.00/USD
$USCPI_{(Rev)}$	=	the Revised US CPI (All Urban Consumers) of latest available month
$USCPI_{(Ref)}$	=	the Reference US CPI (All Urban Consumers) as that of June 2011

Variable O&M

The formula for indexation of Variable O&M component will be as under:

Local Component:

V O&M$_{(LRev)}$	=	0.0857/kWh * $WPI_{(Rev)}/ WPI_{(Ref)}$
Where:		
V O&M$_{(LRev)}$	=	the revised applicable Fixed O&M Local Component of the Fixed Charges indexed with WPI
$WPI_{(Rev)}$	=	the Revised wholesale Price Index (manufactures) of the latest available month
$WPI_{(Ref)}$	=	Reference wholesale price index (manufactures) which is that of June 2011 as notified by the Federal Bureau of Statistics

Foreign Component

V O&M$_{(FRev)}$	=	Rs 0.3429/kWh * $ER_{(Rev)}/ER_{(Ref)}$ * $USCPI_{(Rev)}/ USCPI_{(Ref)}$
Where:		
V O&M$_{(FRev)}$	=	the revised applicable Fixed O&M Foreign Component of the Fixed Charges
$ER_{(Rev)}$	=	Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month
$ER_{(Ref)}$	=	Rs. 84/USD
$USCPI_{(Rev)}$	=	the Revised US CPI (All Urban Consumers) of latest available month
$USCPI_{(Ref)}$	=	the Reference US CPI (All Urban Consumers) as that of June 2011

Water Use Charge: Water Use Charge will be paid on units delivered basis and will be indexed with Wholesale Price Index (WPI) annually from the date of COD. The first such adjustment shall be due after one year of commercial operation from COD, according to the formula:

$WUC_{(Rev)}$	=	Rs 0.1500 /kWh * $WPI_{(Rev)}/ WPI_{(Ref}$
Where:		
$WUC_{(Rev)}$	=	The revised Water Use Charge component indexed with Whole Sale Price Index (WPI)
$WPI_{(Rev)}$	=	Revised wholesale Price Index (manufactures) of latest available month

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		as notified by the Federal Bureau of Statistics
$WPI_{(Ref)}$	=	Reference wholesale price index (manufactures) which is that of June 2011 as notified by the Federal Bureau of Statistics

Insurance: Insurance cost component of tariff will be adjusted on account of PKR/USD exchange rate variation at COD and thereafter on an annual basis at actual subject to the maximum of 1.35% of the Total Project Cost according to the following formula;

$I_{(Rev)}$	=	Rs 0.3803 /kWh * $ER_{(Rev)}$/ $ER_{(Ref)}$
Where:		
$I_{(Rev)}$	=	Revised Insurance cost component of tariff adjusted with the exchange rate variation (PKR/USD)
$ER_{(Rev)}$	=	Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month
$ER_{(Ref)}$	=	Rs. 84/USD

Adjustment for LIBOR variation: The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variation in interest rate as a result of quarterly variation in three (6) month LIBOR, while premium over LIBOR remaining the same i.e. 4.75%, according to the following formula:

ΔI	=	$P_{(Rev)}$* ($LIBOR_{(Rev)}$– 0.74%) / 2
Where:		
ΔI	=	the variation in interest charges applicable corresponding to variation in six month LIBOR. ΔI can be positive or negative depending upon whether $LIBOR_{(Rev)}$ > or < 0.74%. The interest payment obligation will be enhanced or reduced to the extent of ΔI on Half Yearly Basis
$P_{(Rev)}$	=	the outstanding principal on quarterly-annual basis on the relevant calculations date. Period 1 shall commence from the date on which the 1st installment is due after availing the grace period

Adjustment for KIBOR variation: For the local debt, if used, the interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variation in interest rate as a result of quarterly variation in three (6) month KIBOR, while premium over KIBOR remaining the same i.e. 3.5%, according to the following formula:

ΔI	=	$P_{(Rev)}$* ($KIBOR_{(Rev)}$– 12.06%) /2
Where:		
ΔI	=	the variation in interest charges applicable corresponding to variation in six month KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(Rev)}$ > or <3.5%. The interest payment obligation will be enhanced or reduced to the extent of ΔI on each interest Payment date
$P_{(Rev)}$	=	the outstanding principal on quarterly -annual basis on the relevant calculations date. Period 1 shall commence from the date on which the 1st installment is due after availing the grace period

Return on Equity/ROEDC: Return on equity and ROEDC component of tariff shall be adjusted quarterly for variation in PKR/USD exchange rate according to the following formula;

$ROE_{(Rev)}$	=	$ROE_{(Ref)}$* $ER_{(Rev)}$/ $ER_{(Ref)}$
$ROEDC_{(Rev)}$		$ROEDC_{(Ref)}$* $ER_{(Rev)}$/ $ER_{(Ref)}$
Where:		

$ROE_{(Rev)}$	=	Revised Return on Equity component of tariff expressed in Rs/kWh adjusted with exchange rate variation (PKR/USD)
$ROEDC_{(Rev)}$	=	Revised Return on equity during construction component of tariff expressed in Rs/kWh adjusted with exchange rate variation (PKR/USD)
$ROE_{(Ref)}$	=	Reference ROE component of tariff expressed in Rs/kWh as adjusted at COD
$ROEDC_{(Ref)}$	=	Reference Return on equity during construction component of tariff expressed in Rs/kWh as adjusted at COD
$ER_{(Ref)}$	=	Rs. 84/USD
$ER_{(Rev)}$	=	Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month

15. GENERAL ASSUMPTIONS OF TARIFF

In addition to the Assumptions provided in foregoing paragraphs, the following general assumptions have been taken into account while calculating the tariff. Change in any of these assumptions could result in adjustment to Reference Tariff.

- The Tariff has been calculated based on Average Energy of 84.85 GWh by dividing the relevant component with the figure of Average Energy;
- A construction period of 36 months has been assumed; and time for COD shall be 42 months from financial close;
- Reference US$/PKR exchange rate has been assumed as US$1=PKR 84;
- The cost of working capital has not been claimed or included in the project cost;
- No other tax (including Federal Excise Duty) has been assumed except Customs Duty of 5% at import stage. It is assumed that no part of the power plant and the associated equipment supplied under the "equipment supply contract" will be treated as locally manufactured;
- Any tax on income of the Company from the sales of electricity to GEPCO, general sales tax and all other corporate taxes will be treated as pass-through items.
- No withholding tax on supply of plant and equipment is assumed.
- Withholding tax on dividend is assumed as pass through item.
- Any taxes, duties and cess whether pursuant to a change in law or otherwise (where such tax, duty or cess has not been expressly assumed herein) shall be treated as a pass-through item.
- No hedging cost has been assumed for exchange rate or interest rate fluctuations during construction period;
- GEPCO will be responsible for procuring, financing, constructing, operating and maintenance of the interconnection, Metering System and the Power Purchaser transmission facilities at Project site.
- Interconnection with the Power Purchaser's transmission at 132 kV is assumed. In case the interconnection is required at a higher voltage, the additional cost will be made part of the Project cost and will be reflected in the tariff at the time of COD.
- No security trustee fee and or agency (local and or foreign agency) fee assumed.
- No L/C confirmation charges have been assumed. If applicable, the adjustment based on actual shall be treated as a pass through item;

- Reference Tariff Table will be updated at COD on account of various adjustments provided in this proposal and subsequently at EPC level tariff;
- Any incentive given to any other IPP/project even after tariff finalization shall also be given to the Company.
- The Company remains entitled to all re-openers allowed under Hydropower Tariff Mechanism

Reference Tariff Table

Year	Energy Purchase Price-EPP (Rs./kWh)				Capacity Purchase Price - CPP (Rs./kW/Month)									Capacity Charge	Total Tariff	
	Water Use Charges	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Insurance	ROE	ROE DC	Withholding Tax @ 7.5%	Loan Re-payment	Interest Charges	Total	Rs. Per kWh	Rs. Per kWh	US ¢ per kWh
1	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	750.364	1,298.311	3,327.612	9.303	9.881	11.764
2	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	823.638	1,225.038	3,327.612	9.303	9.881	11.764
3	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	906.084	1,142.592	3,327.612	9.303	9.881	11.764
4	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	999.036	1,049.639	3,327.612	9.303	9.881	11.764
5	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,104.036	944.640	3,327.612	9.303	9.881	11.764
6	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,222.865	825.811	3,327.612	9.303	9.881	11.764
7	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,357.583	691.092	3,327.612	9.303	9.881	11.764
8	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,510.576	538.100	3,327.612	9.303	9.881	11.764
9	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,684.601	364.074	3,327.612	9.303	9.881	11.764
10	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,882.853	165.823	3,327.612	9.303	9.881	11.764
11	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
12	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
13	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
14	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
15	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
16	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
17	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
18	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
19	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
20	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
21	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
22	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
23	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
24	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
25	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
26	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
27	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
28	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
29	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
30	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
Average Tariff																
1-10 Years	0.150	0.343	0.086	0.579	55.370	221.480	136.024	612.082	193.558	60.423	1,224.164	824.512	3,327.612	9.303	9.881	11.764
11-20 Years	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
21-30 Years	0.150	0.343	0.086	0.579	55.370	221.480	136.024	628.475	193.558	61.652	-	-	1,296.559	3.625	4.203	5.004
1-30 Years	0.150	0.343	0.086	0.579	55.370	221.480	136.024	623.011	193.558	61.243	408.055	274.837	1,973.576	5.517	6.096	7.257
Levelized Tariff	0.150	0.343	0.086	0.579	55.370	221.480	136.024	617.790	193.558	60.851	736.556	598.793	2,620.421	7.326	7.904	9.410

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ANNEX-A

OLYMPUS ENERGY PVT LTD

The Registrar
National Electric Power Regulatory Authority (NEPRA)
OPF Building, Shahrah-e- Jamhuriat, G-5/2,
Islamabad.

May 24, 2010

Subject: **Tariff Petition for 20Mw Lucky Hydro power Project (Project) at Marala Headworks, Gujrat Punjab, Pakistan**

Dear Sir,

1. The letter of Interest (LOI) to conduct the feasibility study of the Project was issued to Olympus Energy (Pvt) Limited ,("Petitioner") by the Punjab Power Development Board (PPDB) under Punjab Power Generation Policy ,2006.The Policy is mainly the adoption of Power Policy 2002 announced by the Federal Government.

2. Sponsors have conducted the feasibility study through reputable Consultants and the same has been approved by the Panel of Experts.

3. The Authority has issued Generation License No .IGSPL /24/2010 on 26th January 2010.

4. This Tariff Petition is being submitted for the determination of Generation Tariff as per the Guidelines for the Determination of Tariff announced by GOP and the " Mechanism for Determination of Tariff for Hydropower Projects" announced by NEPRA on 18th July,2008.

5. It is respectfully submitted to the Authority to determine Generation Tariff for the Electricity produced by the Project in accordance with para 4 and with due consideration to the assumption forming the basis of the Petition.

A cross Cheque amounting Rupees Seven Hundred & Fifteen thousand (Rs. 715,000 only is enclosed) as fee for the petition.

Thanks and best regards,

(Laeeq Ahmad)

Chief Executive Offcer

البنك السعودي الباكستاني التجاري المحدود
Saudi Pak Commercial Bank Limited

CHEQUE NO.

DATE 24-05-2010

PAY M/s Registrar (NERRA) Islamabad OR BEARER

Seven hundred fifteen thousand

Rs. 715,000/-

Please do not write or stamp below this line

⑈691300⑈06600131:00110412621⑈000⑈

A. [illegible]

OLYMPUS ENERGY

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F/C

ANNEX-2

OLYMPUS ENERGY PVT LTD

The Registrar
National Electric Power Regulatory Authority (NEPRA)
OPF Building,
Shahrah-e- Jamhuriat, G-5/2,
Islamabad.

October 17, 2011

Subject: **Tariff Petition for 20Mw Lucky Hydropower Project (Project) at Marala Headworks, Sialkot, Punjab, Pakistan**

Dear Sir,

1. The letter of Interest (LOI) to conduct the feasibility study of the Project was issued to Olympus Energy (Pvt.) Limited ,("Petitioner") by the Punjab Power Development Board (PPDB) under Punjab Power Generation Policy ,2006.The Policy Is mainly the adoption of Power Policy 2002 announced by the Federal Government.

2. Sponsors have conducted the feasibility study through reputable Consultants and the same has been approved by the Panel of Experts. Upon the directives of the Authority, feasibility study has been amended to include certain cost items and the feasibility study after the incorporation of the same has been approved by POE (Letter enclosed).

3. The Authority has issued Generation License No .IGSPL /24/2010 on 26th January 2010.

4. This Tariff Petition is being submitted for the determination of Generation Tariff as per the Guidelines for the Determination of Tariff announced by GOP and the " Mechanism for Determination of Tariff for Hydropower Projects" announced by NEPRA on 18th July,2008.

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

5. It is respectfully submitted to the Authority to determine Generation Tariff for the Electricity produced by the Project in accordance with para 4 and with due consideration to the assumption forming the basis of the Petition.

Thanks and best regards

(Laeeq Ahmad)
Chief Executive Officer

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

ANNEX-C

National Electric Power Regulatory Authority

Islamic Republic of Pakistan

2nd Floor, OPF Building, G-5/2, Islamabad
Ph: 9206500, 9207200, Fax : 9210215
E-mail: registrar@nepra.org.pk

Registrar

No. NEPRA/TRF-164/OEPL-2010/ 4506-07

June 14, 2010

Mr. Laeeq Ahmad,
Chief Executive Officer,
Olympus Energy Pvt. Ltd.
House # 50-B, Block-D-1,
Gulberg-III, Lahore

Subject: **TARIFF PETITION FOR THE 20 MW HYDRO POWER PROJECT**

During initial scrutiny of your tariff petition filed for determination of feasibility stage reference tariff for the 20 MW hydropower plant envisaged to be set up at Marala Headworks, Gujrat, Punjab, following serious discrepancies/flaws have been observed in the tariff petition filed:

i) There is cutting/amendment on the board of director's resolution which has not been properly authenticated.

ii) There are differences in project costs given in the tariff petition/feasibility as detailed below:

	US $ ('000)
Total project cost according to paragraph 4.1 of the tariff petition (page 9)	41,703
Correct sum of item wise break-up of project cost given in paragraph 4.1 (page 9)	41,516
Project cost according to unsigned annexure attached to the petition	41,253
Project cost according to feasibility report	39,946

iii) According to assumption # 7 in the main tariff petition, reference conversion rate is taken as PKR 84 = 1 US$. However, according to feasibility report paragraph 8.10, reference conversion rate is taken as PKR 80 = 1 US$.

iv) The figures of tariff requested are not included in the main tariff petition. However, following figures are quoted on unsigned paper attached to the tariff petition (titled as executive summary) which are reproduced below along with our remarks:

		Tariff	Remarks
Average year 1-10	(US cents/kWh)		No figure has been quoted
Average year 1-30	(US cents/kWh)	5.742	Nil
Levelized	(Rs./ kWh)	(7.73)	Negative figure has been quoted

The tariff table (again unsigned and on plain paper) attached to the tariff petition does not contain average figures. The levelized tariff in this table is also negative.

Further, tariff summary according to the approved feasibility report is as follows:

	Tariff (US cents/ kWh)	Total Tariff (Rs. / kWh)
Average year (1-10 years)	9.74	7.79
Average year (11-30 years)	5.60	4.48
Average year (1-30 years)	6.98	5.58
Levelized tariff (Real)	8.45	6.76

It is evident from above that your figures submitted do not reconcile with one another. Further, some of the figures (e.g. negative figure quoted as levelized tariff) are not logical at all.

v) Name of UCH II has been mentioned at some places in the tariff petition without any logical grounds and explanation e.g. paragraph 2.5.4 and paragraph 2.6.1.

2. Although you have filed petition for determination of feasibility stage tariff, however, your cost components, tariff, assumptions, etc. on number of occasions do not match with the approved feasibility report, neither they are consistent with one another within the petition or documents attached to the petition.

3. In pursuance of rule 4(2) of the NEPRA (Tariff Standards and Procedure) Rules, 1998, you are hereby required to submit further supporting communication on the above mentioned anomalies within 14 days of receipt of this notice, clarifying the issues mentioned above.

4. The Authority will not process the subject petition until such supporting communication is furnished.

(Syed Safeer Hussain)
Registrar

CC:

Managing Director, Punjab Power Development Board, Old Anarkali, 1st Floor, Central Design Building, Irrigation Secretariat, Lahore

ANNEX-I

No. PPDB/1334/2011

PUNJAB POWER DEVELOPMENT BOARD
ENEBGY DEPARTMENT
1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 042-99212794 Fax: 042-99212796)

Date 18/07/2011

M/s Olympus Energy (Pvt) Ltd
House # 50-B, Block-D-1, Gulberg-III
Lahore.

Sub: UPDATED FEASIBILITY STUDY REPORT OF 20 MW LUCKY HYDRO POWER PROJECT AT MARALA HEADWORKS

Reference: 1. Minutes of Meeting of Panel of Experts (POE) dated 23.05.2011
2. Your letter No. OEL.IR/09/171 dated 22.06.2011

As already conveyed vide our letter No.PPDB/985/2011 dated 11.05.2011 that Panel of Expert (POE) appointed by PPDB Board, has approved the updated Feasibility Study Report in respect of your project in light of direction of NEPRA vide letter No. NEPRA/TF-100/2074-76 dated August 27, 2010. Therefore, now, you may proceed further in light of Hydro Power Mechanism – July 2008 issued by NEPRA with the respect to Hydropower Project.

MANAGING DIRECTOR
Punjab Power Development Board

CC:
1. The Chairman PPDB, 10-A, Ali Block, New Garden Town, Lahore.
2. The Secretary, Govt. of Punjab, Energy Department, Lahore.

053

F/O

ANNEX-E

National Electric Power Regulatory Authority

Islamic Republic of Pakistan

2nd Floor, OPF Building, G-5/2, Islamabad
Ph: 9206500, 9207200, Fax: 9210215
E-mail: registrar@nepra.org.pk

Registrar

No. TRF-200/10556

November 4, 2011

Mr. Laeeq Ahmad
Chief Executive Officer
Olympus Energy Pvt. Ltd
House No. 50-B, Block D-1, Gulberg III
Lahore.

Subject: **Tariff Petition for 20 MW Lucky Hydropower Project at Marala Headworks, Sialkot, Punjab, Pakistan**

Ref:
1. OEPL's letter dated 17th October, 2011and 25th October, 2011.
2. NEPRA letter dated 03-01-2011 whereby determination of the Authority was communicated.

During the initial scrutiny of the subject tariff petition, the following has been observed:

(1) The subject tariff petition has been filed without tariff petition filing fee as per the requirement of Rule 3(1) of NEPRA Tariff (Standards and Procedure) Rules, 1998 (Tariff Rules).

(2) The Board Resolution does not authorize the filing of fresh tariff petition rather it speaks of completing necessary formalities regarding earlier filed petition.

2. The subject tariff petition received vide OEPL's letter dated 17th October, 2011 is hereby return, in orginal, herewith in pursuance of rule 3 (2) (a) of Tariff Rules with the direction to re-file the same after complying with the requirements of law.

Encl: Original Tariff Petition

(Syed Safeer Hussain)

ANNEX-F

PAY ORDER

Silk Bank Ltd. 6-Q Block Gulberg II Branch
Lahore-Pakistan.

A/C PAYEE ONLY

DATE
22 JUN 2012

P.O. NO.
1156187

NOT OVER RS. 353,928.00

AMOUNT
353,928.00

PAY TO THE ORDER OF
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ISLAMABAD

AMOUNT
THREE HUNDRED AND FIFTY THREE THOUSAND NINE HUNDRED AND TWENTY EIGHT ONLY

For Silkbank Limited

ASIF KAMAL
IBS No. 226
Authorized Signature

MAJID ALI
IBS No. 681
Authorized Signature

payable at any Silkbank Branch in Pakistan

Please do not write or stamp below this line

⑈1156187⑈ 066006 1⑈ ⑈000,⑈

SILKBANK

CUSTOMER COPY

CUSTOMER

BENEFICIARY OLYMPUS ENERGY PVT LTD

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ISLAMABAD

P.O. NO.	DATE		
1156187	22 JUN 2012		
P.O. AMOUNT	COUNTER VALUE	CHARGES	TOTAL
353,928.00		0.00	353,928.00

ANNEX-G

OLYMPUS ENERGY PVT LTD

RESOLUTION OF THE BOARD OF DIRECTORS
OF OLYMPUS ENERGY (PVT.) LIMITED HELD ON 25TH JUNE, 2012

RESOLVED that a revised Tariff Petition for and on behalf of Olympus Energy (Private) is filed Limited before National Electric Power Regulatory Authority in the light of PPDB'S approved reviseFeasibility Report for determination and approval of the Generation Tariff for 20 MW Lucky Hydropower Project to be constructed on MarralaHeadworks, Gujrat/Sialkot.

FURTHER RESOLVED that Mr. Laeeq Ahmed Sheikh, CEO Olympus Energy (Private) Limited be and is hereby authorized to sign the Tariff Petition and the necessary documents, pay necessary filing fees, provide any information required by NEPRA in respect of Project, appoint and designate the Consultant to appear before NEPRA and do all things necessary for the processing, completion and finalization of the Tariff Petition.

Signed

Laeeq Ahmed Sheikh
Chief Executive

OLYMPUS ENERGY LAHORE

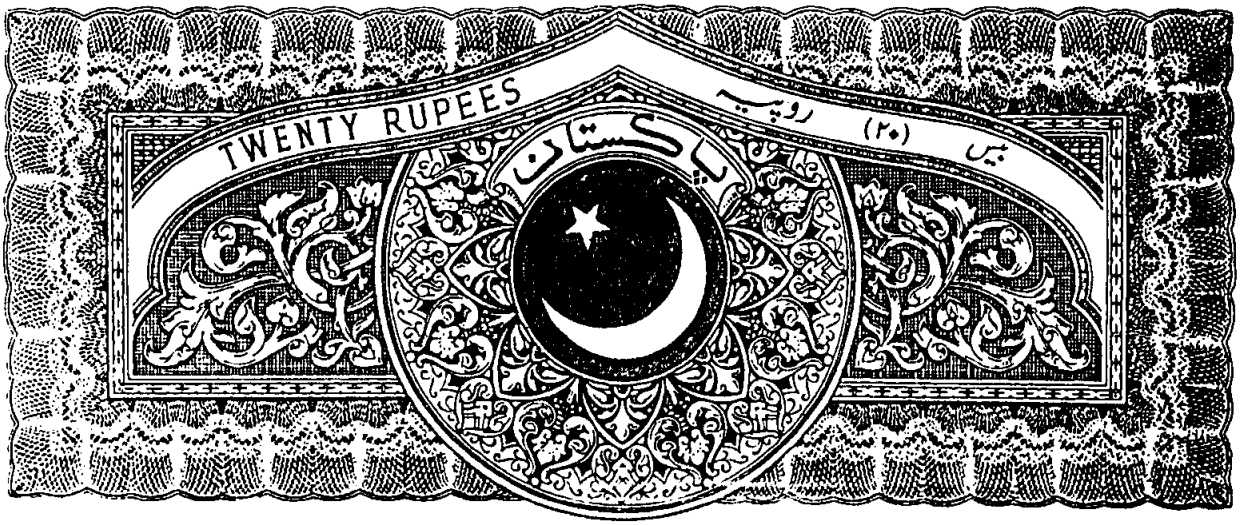
Signed

Sikander Laeeq
Director

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

ANNEX-H

PAKISTAN 20 RS.



BEFOPRE THE NATIONAL ELECTRIC POWER REGULATRY AUTHORITY

AFFIDAVIT

I, Laeeq Ahmed Sheikh, Chief Executive, Olympus Energy (Pvt.) Ltd being duly authorized representative/attorney of Olympus Energy (Pvt.) Ltd, hereby solemnly affirm and declare that the contents of the accompanying Tariff Petition dated 25.06.2011 including all supporting documents are true and correct to the best of my knowledge and belief and that nothing has been concealed.

I also affirm that all further documentation and information to be provided by me in connection with the accompanying petition shall be true to the best of my knowledge and behalf.

DEPONENT

ANNEX-I

GUJRANWALA ELECTRIC POWER COMPANY LIMITED.
565-A MODEL TOWN G.T ROAD GUJRANWALA.

9200519-26, 9200511
Fax: 9200594

OFFICE OF THE
CHIEF EXECUTIVE OFFICER
GEPCO, GUJRANWALA

Memo No. 72399 /Dev/ Dated 31 Oct, 2009

To,

The General Manager
CPPA, 107-Wapda House
Lahore.
Fax: 042-99203996

Attention: Mr. Nisar Ahmed Bazmi Director Technical (CPPA)

Sub: **PURCHASE OF POWER FROM SMALL HYDRO POWER PROJECTS IN GEPCO AREA.**

Ref: Your Telephonic message dated 31-10-2009.

GEPCO has no objection for the purchase of power from the following Small Hydro Power Projects in its area.

Sr. No.	Name of Project	Sponsor	Capacity
1	20 MW Hydro Power Plant at Rasul Barrage	Habib Rafique Pvt. Ltd.	20 MW
2	20 MW LUCKY Hydro Power Project at Marala.	OLYMPUS Energy Pvt. Ltd	20 MW
3	1.8 MW Jhang Branch at RD 69 Hydro Power Project	ALKA Power Pvt. Ltd	1.8 MW

Subject to the condition that the tariff is to be determined by NEPRA, connectivity cost is to be born by Power Producers and as per other terms and conditions of PEPCO/GOP.

(Muhammed Ibrahim Majoka)
Chief Executive Officer
GEPCO, Gujranwala

ANNEX-J

No. MD-PPDB/H-5/484 /2007

OFFICE OF THE MANAGING DIRECTOR
PUNJAB POWER DEVELOPMENT BOARD
IRRIGATION & POWER DEPARTMENT
1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 9212794 Fax: 9212796)

Date 03-12-/2007

To:

Olympus Energy (Pvt) Limited,
69-B-1, Gulberg-III,
Lahore.

Subject: **LETTER OF INTEREST (LOI) FOR APPROXIMATELY 20 MW HYDRO POWER PROJECT AT MARALA RIVER CHENAB.**

Reference: Your proposal, dated 28.05.2007 in response to Expression of Interest invited by the Punjab power Development Board through advertisement in the daily "NAWA-I-WAQAT" (dated 29.03.2007), which has been duly considered by the Board in hits meeting held on 22.10.2007 whereby your firm / company has qualified the eligibility criteria as set out in the policy of the Provincial Government regarding power generation i.e. the Punjab Power Generation Policy, 2006 (hereinafter referred to as the "Policy") upon provision of performance guarantee No.451-02-0011553 dated 01-12-2007 amounting to US$20,000.00.

Now, this letter of interest (hereinafter referred to as "LOI") is being issued on behalf of the Government of the Punjab, in terms of the provisions of the Policy. The Government of Punjab hereby confirms its interest in your proposal for conducting a feasibility study (hereinafter referred to as the "Feasibility Study") for establishing an approximately 20.00MW private power project to be located at Marala River Chenab subject to the following: -

a) As per the Policy, you are required to complete your Feasibility Study for the Subject Project, at no risk and cost to, and without any obligation on the part of, the Govt. of the Punjab and its agencies, within twelve (12) months from the date of this LOI.

b) You are required o carry out the Feasibility Study; complete, at internationally acceptable standards and in accordance with the terms and conditions stipulated in the Policy. The Feasibility Study must include an Environmental Impact Assessment Study, detailed design of power house, load flow and stability studies, design of interconnection / transmission lines, details pertaining to infrastructure, project cost, financing and, financing terms, tariff calculations and assumptions of financial calculations including economic / financial analysis. You are advised to liaise with the power purchaser while determining your plant size and site, project layout, transmission line and interconnection arrangements, etc.

c) You will carryout the Feasibility Study according to the specific milestones appended herewith at Annex – A, and submit monthly progress reports showing progress against these milestones.

d) PPDB will appoint a Panel of Experts to monitor the conduct of the Feasibility Study and its progress, to verify attainment of the aforesaid milestones and to ensure implementation of the project consistent with national and provincial needs.

e) The Main Sponsor will be liable for all obligations and liabilities of and on behalf of other Sponsors. Further processing of the Feasibility

Study is subject to Govt. of the Punjab acceptance in accordance with the Policy.

f) The validity of this LOI is twelve (12) months from the date of its issuance, where after it will automatically lapse immediately. Issuance of this LOI or the lapsing of its validity, or your conducting a Feasibility Study there under, cannot form the basis of any claim for compensation or damages by the Sponsors or the project company or any party claiming through them against the Government or Punjab / PPDB or any of its agencies, employees or consultants on any grounds whatsoever, during or after the expiration of its validity.

g) You are, therefore, required to complete the Feasibility Study for the Subject Project within the validity of this LOI. In case there is delay in completion of the Feasibility Study within the validity of this LOI, a one-time extension may be granted up to a maximum period of 180 days, provided the Panel of Experts is satisfied that the Feasibility Study is being conducted in a satisfactory manner and is likely to be completed shortly. Furthermore, extension in validity of the LOI will only be provided upon submission of a bank guarantee in double the original amount and valid beyond six months of the extended LOI period.

h) **In case, if you fail to meet the relevant milestones and standards, PPDB will terminate this LOI and encash the Bank Guarantee.**

i) This LOI has been issued in duplicate on the date hereof, and it shall come into effect when one copy hereof is received by PPDB after having been duly countersigned by you. Nevertheless, this LOI shall lapse if the countersigned copy is not received at PPDB within thirty (30) days of its issuance.

(Engr. Muhammad Yaqoob)
MANAGING DIRECTOR
PUNJAB POWER DEVELOPMENT BOARD

Accepted and agreed
for & on behalf of OLYMPUS ENERGY (PVT) LTD.
[illegible] Building-III, Lahore

Date: 6-01-2008

Encl: As stated above

CC:

1. Secretary, Ministry of Water & Power, Islamabad
2. Chairman, NEPRA, Islamabad
3. Secretary Irrigation & Power Department, Govt. of the Punjab, Lahore.
4. Chairman, P & D, Govt. of the Punjab, Lahore
5. Chairman WAPDA, Lahore
6. Chief Executive Officer, DISCO

ANNEX-K

No. PPDB/928 /2009

OFFICE OF THE MANAGING DIRECTOR
PUNJAB POWER DEVELOPMENT BOARD
IRRIGATION & POWER DEPARTMENT
1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 9212794 Fax: 9212796)
Date 29-08-2009

To:

M/S Olympus Energy (Pvt) Ltd.
69-B-I, Gulberg-III,
Lahore

Subject: **APPROVAL OF FEASIBILITY STUDY FOR 20 MW HYDRO POWER PROJECT AT MARAL (CHENAB) CONDUCTED BY BARQAAB CONSULTING SERVICES (PVT) LIMITED LAHORE**

Reference Letter of Interest (LOI) No. MD-PPDB / II-05/ 489/2007 dated 13.12.2007 to conduct feasibility study for the development of subject noted Hydro Power Project.

Final feasibility study completed by you after incorporating the recommendations of Panel of Experts (POE) has been reviewed by the POE and following is the decisions of Panel of Experts (POE) during meeting dated 08.08.2009.

(i) The Feasibility Study for 20 MW Hydro Power Project at Marala (Chenab) conducted by M/s Barqaab Consulting Services (Pvt) Limited Lahore for Olympus Energy Pvt. Ltd. Lahore has been approved.

(ii) POE certifies only the completion of the Feasibility Study. However, due to nature of data and resultant conclusions, POE jointly and/or individually will not be responsible for reliability of data contents and conclusions given in the feasibility study.

In accordance with the provisions of the Punjab Power Generation Policy 2006 and its subsequent amendments, upon the approval of the feasibility study by the POE, you are required to approach Power Purchaser / NEPRA for approval of the proposed tariff within stipulated period under the provisions of Punjab Power Generation Policy 2006 revised 2009 (copy enclosed).

Your effort for timely completion of the feasibility study is appreciated. You are requested to keep up same pace and spirit for negotiation of the tariff for early development of the Hydro Power Project to meet the energy needs of the country.

MANAGING DIRECTOR
PUNJAB POWER DEVELOPMENT BOARD

Endorsement No. PPDB/ /2009 Dated /2009

A copy is forwarded for kind information to:-

1. The Secretary, Irrigation & Power Department, Govt. of the Punjab, Lahore.
2. The Chairman NEPRA, OPF, Building G-5/I, Islamabad.
3. The Member (Power) WAPDA, WAPDA House, Lahore.
4. The General Manager (WPPO) WAPDA, WAPDA House Lahore.
5. CEO GEPCO, Gujranwala.

MANAGING DIRECTOR
PUNJAB POWER DEVELOPMENT BOARD

ANNEX-L

OLYMPUS ENERGY PVT LTD

The Deputy Director (EIA)
Environmental Protection Agency
Environment Protection Department
Government of the Punjab
National Hockey Stadium
Lahore.

Date:

Subject: **NOC-ENVIRONMENTAL APPROVAL FOR CONSTRUCTION OF HYDRO POWER PROJECT AT MARALA BARRAGE DISTRICT SIALKOT.**

Dear Sir,

Kindly find enclosed herewith initial environmental examination report of 20 MW Lucky Hydro Power Project to be constructed on right bank of the river Chenab at Marala Barrage duly completed and prepared by M/s. Barqab Consulting Services (Pvt.) Ltd, Environmental consultant in requisite number of hard copies.

The Proposed project is a 20MW Hydro Power Project. Feasibility Study has been approved by Punjab Power Development Board, Generation License and Tariff Petitions have been processed by NEPRA. Primary object of the project is to provide 87.4 GWh Energy into the National Grid and share the burden to meet the shortage of energy in the country. Project will be constructed on 216.58 Acres area. All prerequisite of the project like feasibility study, plant layout, detailed engineering designs and cost estimates are complete and actual physical works is about to start. Finding of IEE study will have no adverse impact and will improve socio economic status of the area. IEER has mentioned all mitigation plans proposed by the consultants and will be implemented under the guidelines of the consultants.

House # 50-B, Block D-1, Gulberg III, Lahore, Pakistan. Tel: (042) 5871784/5762479 Fax: (042) 5712008

OLYMPUS ENERGY PVT LTD

The project is a renewable energy producing unit and totally environment friendly.

It is requested to kindly issue environmental approval (NOC) for construction of the project.

Yours, sincerely,

Laeeq Ahmad Sheikh
Chief Executive Officer
Olympus Energy (Pvt.) Ltd
50-B, Block, D-1, Gulberg III, Lahore.
Tell: (042) 35871784-35762479
Fax: (042) 35712008

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