三峡巴基斯坦第一风电有限公司

Three Gorges First Wind Farm Pakistan (Pvt) Limited

Ref: TGF/EX/OUT/2011-005 Date: 8th June, 11

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

Subject: ***Tariff Petition for 49.5 MW Wind Power Project at Jhimpir of Three Gorges First WindFarm Pakistan (Pvt.) Limited***

The company, Three Gorges First Wind Farm Pakistan (Private) Limited by virtue of Board Resolution dated 6th June, 10, is pleased to submit Tariff Petition of 49.5 MW Wind Power Project at Jhimpir, Sindh . The tariff is submitted in pursuant to the relevant provision of the NEPRA (Tariff Standards and Procedure Rule, 1998), read with the Provision of the Regulation for Generation Transmission and Distribution of Electric Power Act (XL of 1997) and the Rules and Regulations made there under; And in accordance with the RE Policy 2006; and the Guidelines for Determination of Tariff for Wind Power Generation 2006.

The Company has also submitted the Generation License along with this Tariff Petition via cover letter No TGF/EX/OUT/2011-004 dated 8th June,11. We request that this petition may kindly be considered concurrently withthe application for Generation License.

The Tariff petition (including its Annexures) is submitted in triplicate; with the requisite tariff fee of ***PKR 429,696*** in the form of pay order in the name of National Electric Power regulatory Authority. The original pay order and affidavit are attached herewith and the copies of the same are annexed to the petition.

We look forward to responding positively for early determination of conclusion in order to achieve the project completion within timelines in the national interest of Pakistan and to develop the renewable energy based power generation capacity in the country.

Thanking You
For and on behalf of Three Gorges First Wind Farm Pakistan (Pvt.) Ltd

王燊良

Wang Shenliang
Director / CEO
Three Gorges First Wind Farm Pakistan (Pvt) Ltd

AD(MR)

Registrar
Dy. No. 2900
Dated 09-06-2011

Address: House No.87, Str. 59,F 10/3, Islamabad, Pakistan
Email:TGFW@yahoo.com
Tel: 051-2101359
Fax: 051-2103275

askaribank

PAYEE's A/C ONLY

No. P.O. 1969503

(0008) JINNAH AVENUE BRANCH,
ISLAMABAD, PAKISTAN.

REFERENCE NO.	DATE
01969503/ 0008/2263	Jun 08,2011

Pay to the Order of NATIONAL ELECTRIC POWER REGULATORY######
##AUTHORITY##########################

PAKISTANI RUPEE

AMOUNT IN WORDS

MILLIONS	THOUSANDS	HUND	TENS	UNITS	DECIMAL VALUE	AMOUNT
***** ***** *****	FOUR TWO NINE	SIX	NINE	SIX	ZERO ZERO *****	***Rs.****429,696.00*

NOT OVER Rs.*****429,696.00*****

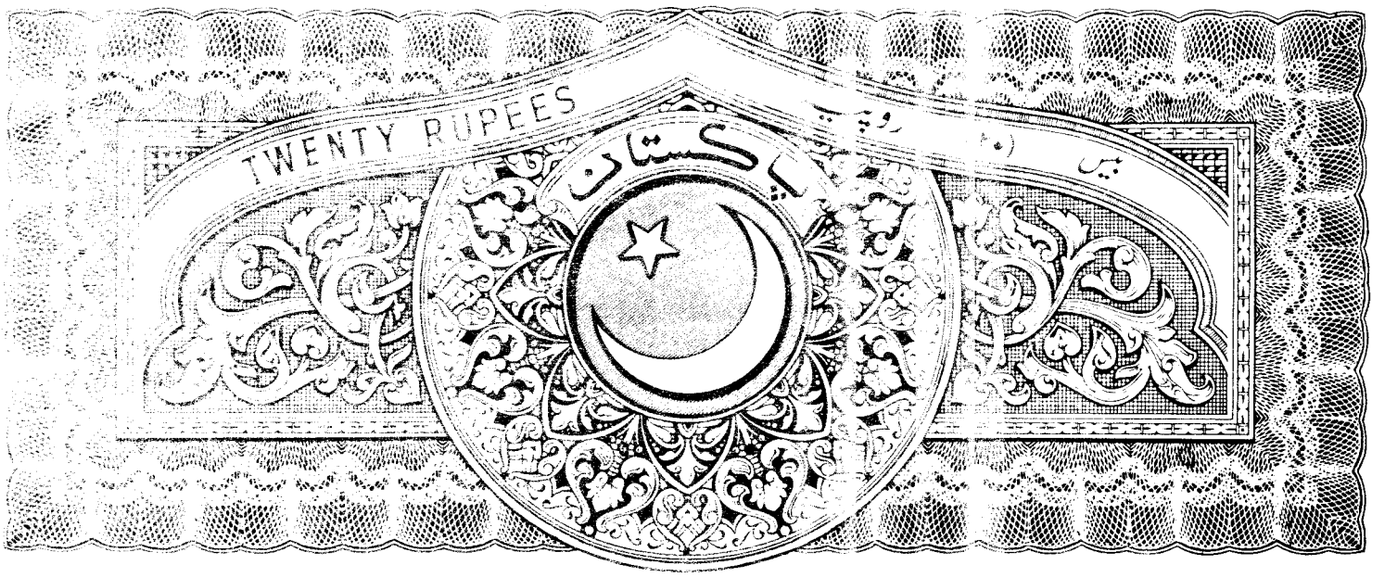
FOR ASKARI BANK LIMITED

AUTHORIZED SIGNATURE

AUTHORIZED SIGNATURE

⑈1969503⑈021700081⑆ ⑈020⑈

PAKISTAN 20 RS.



AFFIDAVIT

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

Affidavit of **Mr. Wang Shenliang**, national of the People's Republic of China, resident at House # 87, Street # 59, Sector F-10/3, Islamabad, Pakistan, chief executive officer of Three Gorges First Wind Farm Pakistan (Private) Limited ("Company").

I, the above named deponent, do hereby solemnly affirm and declare that:

1. I am the authorized representative of the Company by virtue of the Board Resolution dated 6th June 2011.

2. The contents of the accompanying Tariff Petition dated 8th June 2011, including all supporting documents are true and correct to the best of my knowledge and belief and nothing relevant has been concealed or withheld.

3. I also affirm that further documentation and information to be provided by me in connection with the aforesaid Tariff Petition shall be true and correct to the best of my knowledge and belief.

王樂義

Deponent

Dated: 8th June 2011

Verification

It is hereby verified on solemn affirmation at Islamabad, Pakistan on this 8th June 2011 that the contents of the above Affidavit are true and correct to the best of my knowledge and belief and that nothing material or relevant has been concealed or withheld.

ATTESTED

AAMIR REHMAN MUGHAL
Oath Commissioner
Islamabad
Islamabad High Court

王樂義

Deponent

BEFORE

THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

TARIFF PETITION

OF **THREE GORGES FIRST WIND FARM PAKISTAN (PRIVATE) LIMITED**

PURSUANT TO

- THE REGULATION OF GENERATION, TRANSMISSION AND DISTRIBUTION OF ELECTRIC POWER ACT (XL OF 1997) AND RULES AND REGULATIONS MADE THERE UNDER;
- NATIONAL ELECTRIC POWER REGULATORY AUTHORITY (TARIFF STANDARDS AND PROCEDURES) RULES, 1998;
- THE FEDERAL GOVERNMENT'S "POLICY FOR RENEWABLE ENERGY FOR POWER GENERATION 2006";
- THE "GUIDELINES FOR DETERMINATION OF TARIFF FOR WIND POWER GENERATION 2006"; and
- ALL OTHER ENABLING PROVISIONS

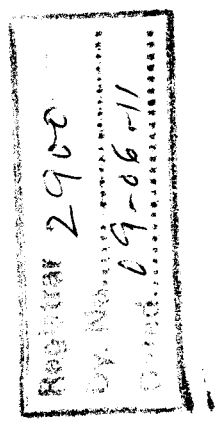
FOR NEPRA'S APPROVAL OF REFERENCE GENERATION TARIFF FOR A WIND POWER PROJECT OF 49.5MW OF THE PETITIONER

AT

JHIMPIR, SINDH

DATED: 8th June, 2011

THREE GORGES FIRST WIND FARM PAKISTAN (PRIVATE) LIMITED
ADDRESS: 87, STREET 59, SECTOR F-10/3, ISLAMABAD – PAKISTAN
TEL: +92-51-2101359
FAX: +92-51-2103275



TARIFF PETITION

49.5 MW WIND PROJECT AT JHIMPIR, SINDH

PROJECT COMPANY:

THREE GORGES FIRST WIND FARM PAKISTAN (Private) Limited

PROJECT CONSULTANTS:

RENEWABLE RESOURCES (Private) Limited

LEGAL COUNSEL:

AQLAAL ADVOCATES

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LIST OF ANNEXURE:

LIST OF SEPARATE REPORTS:

- Project Feasibility Study
- Electrical and Grid Interconnection Studies
- Initial Environmental Examination Report

1 EXECUTIVE SUMMARY

THE PETITION

This petition is filed by **Three Gorges First Wind Farm Pakistan (Private) Limited** (also referred as "Project Company", "TGF" or "Petitioner"), a company incorporated under the laws of Pakistan for implementation of an approximately 49.5 MW wind power Project ("Project"). Through this petition, the Petitioner seeks approval of the National Electric Power Regulatory Authority ("NEPRA") of (i) the Reference Generation Tariff for the Project, (ii) the assumptions forming the basis of the Reference Generation Tariff, and (iii) other relief and matters set forth herein.

PARTICULARS REQUIRED UNDER TARIFF RULES

Pursuant to Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedures) Rules, 1998 ("Tariff Rules"):

- The **name and address** of the Petitioner is given in the title page;
- The **grounds giving rise to the Petitioner's interest** in the instant Petition are that the Petitioner holds a Letter of Intent dated 29th June 2005 issued by the Alternative Energy Development Board ("AEDB") and intends to set up the Project;
- The Petitioner is filing Generation License application in parallel with this Petition;
- The **grounds and facts forming the basis of this Petition** are set forth in the main body of this Petition and the Annexes;
- The **reliefs sought** by the Petitioner are set forth in Section 13 of this Petition;
- The Petitioner does not have any existent schedule of tariff or tariff design to append herewith (such requirement being for distribution companies); and
- The **summary of evidence** is this Executive Summary, with the details of the facts, evidence and documents in support set forth in the Annexes.

The **fees** for the Petition, the **Board Resolution** and the **Affidavit** are at **Annex 1**.

PETITION DESIGN

This Petition is intentionally designed with the aim towards simplicity of review and analysis. With this aim the main body of the Petition focuses on salient features of the Reference Tariff and the reliefs sought, enabling a quick review of the key cost drivers and the tariff structure. However, the details of the Project are not omitted; the Project details along with documents and facts in support are set forth in the Annexes.

In particular, in order not to reinvent the wheel, the Petitioner has adopted the framework of earlier petitions approved by NEPRA. The various cost heads, terminology and rationales in earlier petitions approved by NEPRA have been used here. It is expected that this approach will expedite the tariff analysis and approval process.

BRIEF PROJECT OVERVIEW

AEDB issued the **LOI** to the sponsors in 2005 to set up the Project in Sindh. In July 2009, the **Agreement to Lease** was signed, enabling the sponsors to do the real time feasibility study of the Project. The **feasibility study** was submitted to AEDB on 20th December 2010 and production numbers were **approved by AEDB** vide their letter number B/3/1/CWE/07 dated 24th May 2011. The formal final approval of the feasibility by AEDB is awaiting approval of grid studies by NTDC. The **Initial Environmental Examination (IEE)** has been done and NOC has already been obtained from the Sindh Environmental Protection Agency. **Electrical studies** have also been conducted and submitted to NTDC on 22nd December 2010. The approval for electrical studies is at the final stages with NTDC, however, CPPA has already requested NEPRA for the purchase of power from the Project. The above referred letters / approvals are attached at **Annex 2**.

The Project information in brief along with milestones and construction schedule is given in section 4 of the Petition. Petitioner has selected a professional and competent team to develop and execute the Project; brief particulars of the team are at section 2 of this Petition. **Detailed description of the Project**, its rationale, the milestones, the turbine supplier, the Project team, the case for comparative preference to renewable energy and other pertinent facts and evidence in support of this Petition are at **Annex 3**.

On 13th May 2011, the **EPC Contract** was signed. The EPC Contract is in fact two Contracts, namely, the **On-shore** and **Off-shore** Contracts with China International Water and Electric Corporation (CWE) and China Huashui Hydro Power Development Corporation (CHHH) respectively, after a comprehensive bidding process. Details of the EPC arrangement and the bidding process are at **Annex 4**.

The Petitioner will proceed to negotiate the **Energy Purchase Agreement (EPA)** and the **Implementation Agreement (IA)** soon after the filing of this Petition.

The Petitioner has commenced negotiations with **China Development Bank (CDB)** over the **Financing Documents**. The terms of the debt, forming the basis of this Petition are based on the **Term Sheet** issued by CDB, is at **Annex 5**.

Xinjiang Goldwind Technology Co Ltd is the **turbine supplier** and **O&M contractor** for the Project. Goldwind Technology has nine (09) wind turbine assembly plants in China. Within 10 years of its establishment, Goldwind was ranked 9th in the world among all the wind turbine manufacturers in 2008. The progress has been so fast that it has moved globally at 4th rank in 2010 only behind Vestas, Sinovel and General Electric. While standing in the competition with Vestas, GE, Enercon and Siemens, Goldwind is presenting continuity in growth each year in terms of market share. The selected WTG model has several installations in the world as a reference and has special cooling mechanism for this Project to support the extreme temperature conditions of Pakistan. The WTG manufacturer has been selected as the O&M

Contractor for the first five years to ensure success of the Project. Further information of WTG supplier is given in **Annex 3**.

BRIEF TARIFF OVERVIEW

The Petitioner seeks a levelized Reference Generation Tariff of **US¢ 14.72/kWh** for the tariff control period of 20 years from the commercial operations date on BOO basis.

Annual Energy Production of the Project based on 33 x 1.5 MW Goldwind turbines is **138.7 GWh approved by AEDB at 7.4 meters/sec benchmark wind speed at 85 meter hub height**.

Certified Emission Reductions (CERs) under Clean Development Mechanism (CDM) are discussed in **Section 4**. **Duties and Taxes** are discussed in **Section 5** along with the **Project cost and equity and debt** financing forming the basis of this Petition. Tariff is sought for 20 years and the table below summarizes Project costs and tariff:

Table 1.1: Project Cost Summary

No	Cost Head	Value in USD
1	Off-Shore Cost	83,800,000
2	On-Shore Cost	26,180,000
3	L/C Charges	335,200
Total EPC Cost		**110,315,200**
4	Non-EPC Cost	2,988,683
5	Project Development Cost	4,012,539
6	Land rental and survey cost of AEDB for 1st Ten Years	97,647
7	Duties and Taxes	419,000
8	Pre-COD Insurance	1,920,581
9	Financial Charges	3,099,215
10	Sinosure Fee	7,039,260
11	Interest during Construction	4,856,334
Total Project Cost		**134,748,459**
20 Years Levelized Tariff (Including WH Tax)		**US Cents 14.72 / kWh**

The Project involves a very unique approach for equity and debt management, which is explained in Sections 5.1, 5.10.2, 5.10.3 and 5.12.

The **O&M costs** for the Project post commercial operations date are discussed in **Section 6**.

Operations Cost is a vital factor for any long life project; particularly for wind projects. Today's modern wind turbines are built from over 8,000 different components. Furthermore, unexpected components failure, especially electronic controls, generators, rotor blades etc have driven up operations and maintenance costs. This is even more critical in Pakistan where the temperatures in the windy months are also very high.

Considering that the Project Company is not a native Pakistani organization and has been established through foreign investment for the Project, the O&M requires a full fledge infrastructure to be deployed. The Project Company is owned by foreign nationals and shall involve several expatriates from China thus requiring offices, accommodation, transport etc. Also, since the presence of the Project Company has been established only for this particular Project, there is no sharing of facilities; which otherwise is the case with IPPs owned by local groups who have several other business ventures. The O&M shall be managed by WTG supplier for the first 05 years during which period the Project Company shall undertake training and then take over.

There is no history of wind power projects in Pakistan. Not a single COD has been reached which means that the industry is not yet ready to induct operations of a wind farm. There are several issues related to O&M of the Project, which might not be a hurdle in countries where wind installations are a routine. These include lack of technical support, spare parts and infrastructure (cranes etc) in the local market.

The Project life cycle is of 20 years and a lot of risks related to security and technical issues in an emerging market are to be looked into. The Project Company is bringing all the expertise from China to address the technical issues during operations of the Project and has sought rationalized costs for O&M, which are based on the experience of the sponsors in wind sector in China.

Section 10 deals with the **indexations and escalations** and **Section 11** describes various considerations with respect to EPA like **bonus payments**, etc. **General assumptions** in preparing the tariff are given in **Section 12**.

The **reliefs sought** with assumptions are set forth in **Section 13**.

It is submitted with vehemence that the Authority may kindly award the Reference Generation Tariff with all the reliefs sought, expressly and in clear terms, in order to minimize extended negotiations and differences of view with the Power Purchaser, the Lenders and the AEDB during negotiations of the Energy Purchase Agreement, the Financing Documents and the Implementation Agreement.

SALIENT FEATURES

There are many distinguishing features of this Project which make it stand out in comparison with other wind power projects, some of which are listed below:

- The Project Company will begin construction six (06) months prior to Financial Close through its equity participation, which shall be used to disburse the mobilization advance to the WTG supplier knowing that turbine supply is a critical issue in total construction.
- The Project Construction Period is 18 months. However, the construction is intended to be completed within 12 months of Financial Close due to early start of construction with equity participation.
- The equity and debt utilization is planned such that the Grace Period of loan shall be only 12 months to apply IDC. Usually, the construction periods of Projects in Pakistan span over 02 years and IDC is applied for the complete construction duration.
- The Project is financed by foreign banks (LIBOR based financing), which is at a lesser interest rate and much more stable than local financing which gives required impetus to the power sector of Pakistan to again sustain itself.

LIST OF ANNEXES & REPORTS

ANNEX – 1	Board Resolution, Affidavit, Bank Draft
ANNEX – 2	Copies of Letters / Approvals
ANNEX – 3	Project Details
ANNEX – 4	EPC Arrangement and Bidding Process
ANNEX – 5	Lender's Term Sheet
ANNEX – 6	Sinosure Term Sheet
ANNEX – 7	Benchmark Energy Table
ANNEX – 8	Copy of Notification for 20 % IRR on Coal Based Projects

Further, following reports are submitted separately with the Petition:

- Project Feasibility Study
- Electrical and Grid Interconnection Studies
- Initial Environmental Examination Report

2 PROJECT TEAM

The Petitioner has put together a solid and professional team of advisors and consultants to undertake its flagship renewable energy Project in Pakistan. A detailed description of the Project Team is at Annex 3.

Table 2.1: Project Team

Organization	Role
Three Gorges First Wind Farm Pakistan (Private) Limited	Project Company
China Huashui Hydropower Development Corporation (CHHD)	Off-Shore Contractor
China International Water and Electric Corporation (CWE)	On-Shore Contractor
Xinjiang Goldwind Technology Co Ltd	Turbine Manufacturer
Xinjiang Goldwind Technology Co Ltd	O & M Contractor
Hydro China Beijing Engineering Corporation	Technical Consultant
Renewable Resources (Private) Limited	Project Consultant
AQLAAL Advocates	Legal & Regulatory Advisor
Omer Adil and Co (Chartered Accountants)	Financial Consultant
Power Planners International	Electrical Consultant
Soilmat Engineers	Geo Technical Studies
Associated Surveyor (Pvt) Ltd	Topographical Studies

3 FACTS AND GROUNDS FOR PETITION

At this juncture, we are encountering the worst electricity crises of the history of Pakistan resulting in extended load shedding to an extent which virtually suspends social life. The situation has further forced Government of Pakistan to again take decisions like early market shutdown, power cutoff to industry, and two holidays per week thus affecting all business activities. In the short term we put all our eggs in the oil based rental power Projects. It is nearly impossible at this time to bear the cost of electricity both by the consumers and the government (circular debt issue) because of the existing oil based Projects. We all know what will happen after rental Projects with a little price hike of oil in the international market. We need to have out of the box thinking to utilize our own indigenous resources like wind energy.

Pakistan's major electricity sources are thermal and hydro generation, meeting approximately 70% and 28% (respectively) of the country's annual electricity demand. The primary thermal generation fuels employed are furnace oil and gas. Oil import is a significant burden on the national exchequer and the increasing import bill continues to exert further pressure on the foreign exchange reserves.

Import of gas could be seen as a viable option to overcome the depleting domestic reserves, but gas import has significant issues, mainly the need for substantial capital investment in infrastructure, security difficulties and physical terrain concerns. Moreover, it would increase Pakistan's reliance on imported fuels with associated foreign exchange effects. This must be considered in the context of rising fuel costs for gas and oil-based fuels as a result of uncertainty over future supply.

Alternatives to further fuel imports for electricity generation are the use of domestic coal, or generation from hydro or other renewable sources, such as wind power. These options will assist in reducing Pakistan's reliance on imported oil, and consequent vulnerability to changes in global oil prices which will in turn have a positive effect on the current trade deficit and inflating import bill.

Looking at how the country's future electricity needs might be met in a way that supports the environmental objectives of the Government of Pakistan, wind generation has the potential of being a strong contributor. The development of wind generation Projects could reduce dependence on oil based thermal power generation, increase diversity in Pakistan's electricity generation mix, and reduce greenhouse gas (GHG) emissions which shall portray a better image of Pakistan among the international community. **Also the per kWh tariff for wind power Projects are now comparatively less than that of furnace oil tariff; particularly the Rental Power Projects**. Further details on these arguments are given in **Annex 3**.

Government of Pakistan is cognizant of the fact that they need to develop indigenous sources of energy to overcome the current energy crises to achieve sustainable development. Ministry of Water and Power and AEDB are putting lot of efforts in developing wind energy in the country. The Government of Pakistan also acknowledges the above stated facts and Policy for Development of Renewable Energy 2006 offers many incentives for wind power developers. The recent tariff by NEPRA on wind energy also suggests that NEPRA is cognizant of the fact that the future lies on the development of power Projects based on indigenous fuel. However, International investors are looking at it carefully because of the overall situation of the energy sector of Pakistan including circular debt issue. Security situation of the country is also of concern to the international investors. Also getting the debt from foreign Lenders for energy Projects in Pakistan is getting more and more difficult and the price is getting higher. The Peoples Republic of China supports and acknowledges the efforts of Government of Pakistan to revive the energy sector and specially the fact it is promoting indigenous energies. China in this difficult global political scenario is willing to stand shoulder to shoulder with Pakistan. In the same spirit the sponsors of TGF have signed MoUs with AEDB and also with Punjab Government for developing 2300 MW of renewable energies in Pakistan. TGF understands that if a few wind Projects are installed by credible international investors in Pakistan, this will help Government of Pakistan and AEDB to develop the sector on a fast track basis. Therefore, TGF is moving full swing to invest in its first wind Project in Pakistan in order to create a WIN ~ WIN situation.

The wind energy is one of the fastest growing energy resources in the world. Wind industry overview and details of Pakistan energy market are attached as **Annex 3** to this petition.

4 PROJECT INFORMATION

The detail of the **Project site** is given in **Annex 3**.

Briefly;

- The Project site is located near the village Jhimpir, district Thatta, Karachi; the capital city of the southern province Sindh.
- The direct distance between the Project site and Karachi is about 90km.
- The distance between Project site and the coastal line of Arabian Sea is approx80km.
- The Project covers an area of 4.69 km^2.
- The Project shall have an installed capacity of 49.5 MW with 33 WTGs of 1.5 MW each from Goldwind which shall supply the power at 132 kV network of HESCO.

Table 4.1: Baseline Project Information

Item Description	Value
Project Company	Three Gorges First Wind Farm Pakistan (Pvt) Ltd
Project Capacity	49.5 MW
Project Location	Jhimpir, District Thatta, Province of Sindh, Pakistan
Land Area	4.69 sq km
Proposed Power Purchaser	National Transmission and Dispatch Company (NTDC) / CPPA
WTG Manufacturer	Goldwind, China
WTG Model	GW 1500/77
Number of WTGs	33
Annual Benchmark Hours available	2802h
Estimated Net Annual Benchmark Energy	138.7GWh
Annual Net Plant Capacity Factor	31.99%

4.1 PROJECT STATUS AND CALENDAR

Table 4.2: Project Planned Milestones

Activity / Milestone	2010	2011				2012				2013			
	4TH QTR	1ST QTR	2ND QTR	3RD QTR	4TH QTR	1ST QTR	2ND QTR	3RD QTR	4TH QTR	1ST QTR	2ND QTR	3RD QTR	4TH QTR
Submission of Feasibility Study													
Approval of Feasibility Study													
Approval of Electrical Studies													
Tariff Determination													
Signing of EPA													
Signing of IA													
Financial Close													
Project Construction													
Commercial Operations Date													

The Project construction shall take 18 months from the date of Commencement of the Construction (COC) till the Commercial Operations Date (COD).

Table 4.3: Project Construction Scheduling

Commencement of Construction (COC)	**1st Jan, 12**
Project COD	**30th June, 13**

Activity / Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Engineering and Mobilization																		
Construction of Temporary Establishment																		
Roads Construction and Ground Leveling																		
Construction of 132kV Sub Station																		
Cables and Interconnection																		
Installation and Testing of 132kV Sub Station																		
Foundation of WTG and Transformer																		
Installation and Commissioning of 1st Batch of WTGs																		
Installation and Commissioning of 2nd Batch of WTGs																		
Installation and Commissioning of remaining of WTGs																		

4.2 BENCHMARK WIND SPEED AT HUB HEIGHT

The hub height of each WTG in the Project is 85 meters. The benchmark wind speed at 85 m as guaranteed by AEDB is 7.4 m/s.

4.3 BENCHMARK ENERGY YIELD ESTIMATES

138.7 GWh net annual benchmark energy yield at P (50) is approved by AEDB after the third party evaluation by Riso of Denmark. The approval letter from AEDB is attached at **Annex 2.** Benchmark Energy Table *(as defined in EPA)* is attached at **Annex 7.**

4.4 TECHNICAL DESIGN

All the technical details are given in the feasibility study, however, brief of technical aspects of the Project are also given at **Annex 3**.

4.5 INITIAL ENVIRONMENTAL EXAMINATION (IEE)

As part of the feasibility study, the IEE has been carried out and stands approved by Environment Protection Agency, Government of Sindh. The approval letter is attached at **Annex 2**.

4.6 CLEAN DEVELOPMENT MECHANISM (CDM) ASPECT

The Project Company has a plan to apply for the Certified Emission Reduction (CER) certificates under CDM. The section 8.3.3 of RE policy 2006 also encourages the qualifying projects to register for CER credits with the CDM Executive Board.

The expected revenue stream has not been calculated yet, however, Project Company is in process of developing Request for Proposal (RFP) for the same. Project Company believes that whatever revenue it gets would be shared with the power purchaser as per the policy and would also encourage the sponsors to do more environmental friendly projects. In this petition Project Company is asking for 18 percent ROE, which is less than what one can get by doing a coal project in Pakistan at this time. The notification No PI-6 (71) / 2010 from Ministry of Water and Power on March 8th 2011; where 20.5 percent ($ based) IRR is guaranteed for indigenous coal based project achieving financial close by June 2014 is attached as **Annex 8**. In

the last determination NEPRA allowed 17 percent ROE to a wind project. CDM executive board has to approve these environmentally friendly projects in Pakistan so that the ROE may come close to the coal based projects. Otherwise sponsors would invest in a coal project rather than a more difficult wind project. Therefore, revenue from the CERs is critical for the project over and above the determination of reference tariff from NEPRA.

5 PROJECT COST, EQUITY AND DEBT

Table 5.1: Baseline Financial Information

No	Item Description	Value
1	Exchange Rate	1 US$ = PKR 85
2	Financing Plan	Debt 80%; Equity 20%
3	Interest Rate	Libor + 4.8%
4	Sinosure Fee	6.53 % of loan facility
5	Debt Grace Period	12 Months
6	Return on Equity	18%

5.1 EQUITY AND DEBT SCHEDULE

The Project has a unique and innovative schedule of equity disbursement and debt draw down, which applies financial pressure on the Project Company during construction, but is very favorable for the electricity consumer, as it results in lower Project cost and lower tariff for the consumers. Most importantly because of using 100% equity at the start, the Project will likely achieve COD within a year of Financial Close and start delivering power to the grid at the earliest to contribute towards eradicating the load shedding.

The driving principal of the Project is that the Construction Period is of 18 months, but the Grace Period of the debt is only 12 months.

The Project Company aims to start construction six (06) months prior to the Financial Close through its equity participation. That means, at the time of Financial Close, the Project Company expects that the remaining Construction Period should be 12 months i.e. same as of the Grace Period of debt facility. This will result in Interest during Construction (IDC) to be incurred for just 12 months only.

Further, the draw down schedule of debt has also been considered to keep the IDC as realistic as possible. Out of the total debt, 70% shall be drawn at the time of Financial Close and remaining 30% shall be drawn after six (06) months. This prudent financial management has helped to further reduce the IDC.

5.2 PROJECT COST AND TARIFF

The total Project cost, expressed in United States Dollars, has been calculated after thorough analysis, evaluation and understanding of the dynamics that effect the development and operation of a wind farm. The reference exchange rate used to convert the relevant cost into Pak Rupees is USD 1 = PKR 85.

For NEPRA's benefit and approval, a summary of the Project cost is given below:

Table 5.2: Summary of Project Cost and Tariff

No	Cost Head	Value in USD
1	Off-Shore Cost	83,800,000
2	On-Shore Cost	26,180,000
3	L/C Charges	335,200
Total EPC Cost		**110,315,200**
4	Non-EPC Cost	2,988,683
5	Project Development Cost	4,012,539
6	Land rental and survey cost of AEDB for first Ten Years	97,647
7	Duties and Taxes	419,000
8	Pre-COD Insurance	1,920,581
9	Financial Charges	3,099,215
9	Sinosure Fee	7,039,260
10	Interest during Construction	4,856,334
Total Project Cost		**134,748,459**
20 Years Levelized Tariff (Including WH Tax)		**US Cents 14.72 / kWh**

5.3 THE ON-SHORE AND OFF-SHORE EPC CONTRACTS

The EPC of the Project is managed through two separate and independent Contracts signed with Chinese companies. Both the contractors have their own scope of work, obligations and responsibilities; which collectively form the EPC on a turnkey basis and ensure reliable operations of the wind farm.

As an Off-Shore Contractor, China Huashui Hydropower Development Corporation (CHHD) shall be responsible for procurement of all the permanent equipment of wind farm (including WTGs, towers, blades, substation and allied accessories) based on design of Project, and supply the same at Project site on door to door basis.

As an On-Shore Contractor, China International Water and Electric Corporation (CWE) shall be responsible for design, build, and construction of wind farm such that excluding the scope of work of CHHD, the work to be done by CWE shall be on *turnkey basis* to make the wind farm operational.

The details of EPC arrangement is explained at **Annex 4.**

Both the Contracts have been signed on 13th May, 2011 in a ceremony at Islamabad. The Contracts are based on fixed and firm prices.

The consideration payable to CHHD for supply of equipment is inclusive of all taxes and duties related to China; including any export formalities. Customs duty and inland taxes (sales tax, federal excise, income tax), in Pakistan, related to supply of equipment etc by CHHD are either exempt or non-chargeable to tax, in accordance with the relevant statutes and SROs as enforced in Pakistan as of the date of this Petition. However, in case of promulgation of any new legislation and/or amendment(s) in relevant existing statutes or the SROs, or in case the concerned taxation authorities take a different view of the available exemptions/concessions, the Petitioner prays NEPRA to allow adjustment of capital cost of the Project and the tariff, in each case, for actual payment for customs duty and inland taxes.

As such, CWE (On-Shore Contractor) has presence in Pakistan. CWE's income pursuant to the said on-shore contract is subject to charge of income tax in Pakistan. However, as of the date of presenting this Petition, such services being rendered by CWE are not subject to levy of sales tax and/or federal excise duty. In case these services are, subsequently, brought under the ambit of sales tax/reformed general sales tax/federal excise etc, the Petitioner prays NEPRA to allow adjustment of capital cost of the Project and the tariff, in each case, for actual payment of these new levies.

Sindh Infrastructure Development Surcharge has been accounted for in the Project Cost, no other provincial levy is accounted for. In case, subsequently any enhanced/new provincial levy is imposed, the Petitioner prays NEPRA to allow adjustment of capital cost of the Project and the tariff, in each case, for actual payment of enhanced/new levies.

5.4 EPC COST

The breakdown of cost of Contract(s) collectively forming the Project EPC is given below:

Table 5.3: Breakdown of EPC Cost

No	Cost Head	Value in USD
1	Cost of Off-Shore Supplies including Transportation	83,800,000
2	Cost of On-Shore Design, Build and Construction	26,180,000
3	L/C Charges for the Off-Shore Contractor	335,200
Total EPC Cost		**110,315,200**

The Project Company has signed firm, legally binding and executable Contracts with the On-Shore and Off-Shore Contractors. The Project Company is contractually committed to pay the first installment of procurement advance payment in the sum of 20% of the Off-Shore Contract price to CHHD and mobilization advance in sum of 15% of the On-Shore Contract price to CWE.

The Company will release the payments mentioned in para above by utilizing the equity in order to expedite the design, engineering, manufacturing, mobilization and such pre-construction activities in order to complete the construction of the Project in as a short time frame as possible. The Project Company intends to release the mobilization advance payments shortly after the grant of the Letter of Support (LoS) by AEDB.

5.5 NON - EPC COST

Table 5.4: Breakdown of Non-EPC Cost

No	Cost Head	Value in USD
01	Fixed Assets	1,864,020
02	Administration Cost	549,900
03	Accommodation Cost	201,000
04	Security Arrangement Cost	173,763
05	Communication Link Cost	200,000
Total Non-EPC Cost		2,988,683

5.5.1 Fixed Assets

This includes cost of various instruments, equipment and other assets (excluding such assets that are supplied under On-Shore and Off-Shore Contracts) and comprises of:

(a) Vehicles, Office Equipment, Furniture, Electrical Appliances; and

(b) Two sets of wind measurement masts (instruments, lattice towers, calibration, security, maintenance and insurance) as required under the Energy Purchase Agreement (EPA)

5.5.2 Administration Cost

This portion of the Non-EPC Cost includes costs associated with rents, utilities, vehicles fuel and maintenance, Site Clinic and other allied expenses of running the offices during the development and Construction Period.

The Project Company's head office is based in Islamabad, which shall operate during the initial launching of the Project development activities for the first 12 months. This office is required to maintain coordination with the Project Company's Lenders, shareholders and various governmental agencies and shall work during the whole process of making the feasibility study, determination of tariff, signing of EPA / IA and other Project development activities. The Project Company shall later on establish another office in Karachi with limited accommodation to co-ordinate the construction and monitoring activities at Site.

The Islamabad and Karachi offices shall overlap for a couple of months only after which, Islamabad office shall be shutdown and Project development activities shall be shifted fully to Karachi Office.

There shall be a makeshift office at the Project site as well during construction, which shall be made by On-Shore Contractor.

The administration cost also includes the cost of setting up and operating a "Site Clinic", which shall act as a dispensary to provide preliminary medical and first aid services.

5.5.3 Accommodation Cost

Being a foreign owned company coming into Pakistan, TGF requires rented accommodation in Karachi for the permanently resident officers and staff. Accommodation keeping costs shall also be borne regarding the rented accommodation in Karachi.

Since the Project site is not too far from Karachi, there is no intention to build a full-fledged residential colony.

5.5.4 Security Arrangement Cost

Pakistan is going through a tough time with respect to security situation in the country. This is one of the major impediments in attracting foreign investments. The Project Company is also concerned about the security of its personnel. Therefore, security arrangement costs become one of the important components of the Project cost. This represents the costs associated with providing security at offices, accommodation and site; and also including for expatriates engaged by TGF and CWE for the Project. It is highlighted that in view of the present security situation in Pakistan, the provision of security by the Project Company is considered critical. The Project Company has hired the services of a dedicated Security Manager to oversee and monitor the security related matters along with other security staff.

5.5.5 Communication Link Cost

In accordance with the requirements of the EPA, the Project Company is required to provide connectivity to the Power Purchaser. The total deployment cost (including equipment, materials, and installation) has been included under this head. This communication link is essential as the Project Company is bound to transmit wind speed and power output data to the Power Purchaser for record of data in line with EPA requirements.

5.6 PROJECT DEVELOPMENT COST

The Project Development Cost includes the costs incurred for the purpose of Project development and includes all costs, fees and expenses incurred or to be incurred for such purpose. These costs mainly include the following:

(a) Government Permits and Licenses Fees;
(b) Feasibility Study Costs;
(c) Cost of Travel;
(d) Consultant's Fees;
(e) Costs related to the guarantees which have been furnished or to be furnished to AEDB;
(f) Costs incurred or to be incurred for Project Company Incorporation and Capitalization;
(g) Human Resources Cost

Table 5.5: Project Development Cost

No	Cost Head	Value in USD
	Government Permits and Licenses Fee:	
	Registration Fee to AEDB	100
	Generation License Fee to NEPRA	2,528
	Tariff Application Fee to NEPRA	5,055
	Lawyer's Fee to AEDB	50,000
	Feasibility Verification Fee to AEDB	10,000
	Electrical Studies Fee to NTDC	2,353
	NOC Fee to EPA Sindh	176
	Sub Total	**70,212**
	Charges for Bank Guarantees:	
	Bank Guarantee Charges for Issuance of LOI	250
	Performance Guarantee Charges for issuance of LOS	1,250
	Seller's L/C to NTDC Charges under EPA	34,650
	Sub Total	**36,150**
	Company Incorporation and Capitalization Fee to SECP	75,358
	Project consulting and advisory fees since LOI issuance until COD	352,825
	Feasibility Study	537,346
	Construction Consultant Supervision Fee	800,000

	Travel and Related Cost:	
	Domestic Travel	12,500
	International Travel	130,000
Sub Total		**142,500**
	HR Cost:	**1,998,148**
Total Project Development Costs		**4,012,539**

5.6.1 Government Permits and Licenses Fee

This includes various fees to AEDB, NEPRA, NTDC and Environment Protection Agency (EPA) of Government of Sindh.

5.6.2 Charges for Bank Guarantees

This is composed of bank guarantee charges for obtaining LOI from AEDB, Performance guarantee charges for issuance of LOS and Seller's L/C to NTDC charges under EPA.

5.6.3 Project Company Incorporation and Capitalization Fee to SECP

The fees relating to Project Company incorporation and capitalization incurred on registration of authorized capital of the Project Company with the Securities and Exchange Commission of Pakistan (SECP) are included in this cost head.

5.6.4 Project Consulting and Advisory Fees

The technical, financial and legal consultants and advisors costs shall be incurred by the Project Company during the Project development phase.

5.6.5 Construction Consultant Supervision Fees

The Construction Supervision Engineer and Contract Engineer for EPC costs shall be incurred by the Project Company during the Pre-COD period.

5.6.6 Feasibility Study

The heads of costs include wind measuring mast, technical feasibility, electrical and grid inter-connection studies and geo-technical and topographical studies.

5.6.7 Travel and Related Cost

The Project Company shall incur travelling costs of both domestic and international routes, as the Executives and other staff working for the Project are foreigners and need to go back to their hometowns in accordance with approved framework of staff benefits (leaves, air tickets, allowances etc.)

5.6.8 HR Cost

The HR costs include salaries, wages & benefits of all staff as follows;

- Management Executives
- Technical and Operations department
- Commercial & Legal Affairs department
- MT department
- Finance department
- Training and Human Resource Department
- Supply & Logistics Departments.

These staff members shall be employed by the Project Company at the Site and in Karachi Office.

5.7 DUTIES & TAXES

(a) Customs Duty

The source rules regarding customs duty are driven under the RE Policy 2006 (the Policy), Guidelines for Determination of Tariff for Wind Power Generation 2006 (the Guidelines) and the Government of Pakistan, Federal Board of Revenue Statutory Regulatory Order (SRO) No. 575(I)/2006 dated June 05, 2006.

Following table highlights and summarizes the fiscal incentives/exemption available to renewable energy based power Projects regarding customs duty:

Table 5.6: Fiscal Incentive / Exemptions on RE based Power Projects

the Policy	the Guidelines	SRO
Para 8.6.1 *No customs duty or sales tax for machinery equipment and spares (including construction machinery, equipment and specialized vehicles imported on temporary basis) meant for initial installation or for balancing, modernization, maintenance, replacement, or expansion after commissioning of Projects for power generation utilizing renewable energy resources (specifically, small hydro, wind, and solar), subject to fulfillment of conditions under the relevant SRO*	**Annex – I (Fiscal Regime)** *Customs duty at the rate of 5% on the import of plant and equipment not manufactured locally*	**Para 11 (5% customs duty)** *Machinery, equipment and spares meant for initial installation, balancing, modernization, replacement or expansion of Projects for power generation through oil, gas, coal, wind and wave energy including under construction Projects, which entered into an implementation agreement with the Government of Pakistan* **Para 13 (0% customs duty)** *Machinery, equipment and spares meant for initial installation, balancing, modernization, replacement or expansion of Projects for power generation through nuclear and renewable energy sources like solar, wind, micro-hydel bio-energy, ocean, waste-to-energy and hydrogen cell etc*

It transpires from above that three documents (the Policy, the Guidelines and the SRO) when read in conjunction gives rise to an ambiguous situation, as the Policy provides for NIL customs duty, the Guidelines provides for a 5% customs duty, and whereas the SRO has both the NIL and 5% customs duty rate.

The Petitioner has assumed 0% customs duty regarding imported plant, equipment, machinery etc in accordance with Para 13 of the SRO read with the Policy. However, as the Guidelines and Para 11 of the SRO provide a 5% customs duty rate, in view of this apparent ambiguity the Petitioner prays NEPRA to allow adjustment of capital cost of the Project and the tariff, in each case, for actual customs duty paid, at COD.

(b) Special Excise Duty

Special Excise Duty is assumed at 0%, as the same is correlated with the rate of customs duty (assumed 0%). In case the Project has to pay 5% customs duty (in the event the customs authorities bring the import under Para 11 of the SRO) then the Special Excise Duty at 1% is leviable. Accordingly, the Petitioner prays NEPRA to allow adjustment of capital cost of the Project and the tariff, in each case, for actual customs duty paid, at COD.

(c) Sales Tax

No Sales Tax is assumed on import and local supply of the imported plant, equipment, and machinery etc, based upon the SRO and recent Notification SRO 369(I)/2011 dated May 07, 2011 issued by the Government of Pakistan, Federal Board of Revenue

(d) Income Tax

No income tax is assumed at import stage in view of the SRO 947(I)/2008 dated September 05, 2008 and SRO 263(I)/2011 dated March 19, 2011.

(e) Sindh Infrastructure Development Surcharge (SIDS)

0.50% of the imports for the Project have been assumed as SIDS. The chargeability of Sindh Infrastructure Development Surcharge (the SIDS) is based on the weight of the imported equipment / items and the distance of the Site from the port. Since the imported equipment is expected to be of haulage load and has to travel considerable distance from the port, maximum rate of SIDS has been assumed in the Project Cost.

However, in case any taxes (customs duty/sales tax/income tax etc) are levied, contrary to above, the same should be reimbursed to the Project Company on the basis of actual levy at the time of COD.

5.8 LAND RENTAL AND SURVEY COST FOR 1ST 10 YEARS

Land cost has been incorporated in this petition as the Project Company has leased 1,150 acres of land of the Project from AEDB together with stamp duty, registration fees and costs of survey and demarcation of the land for the Project which has been already paid to AEDB.

5.9 PRE-COD INSURANCE

Pre-COD Insurance cost covers the insurance cost of Project Company's assets during construction as well as the cost incurred prior to COD. These cost estimates have been developed based on offer received from one of the leading local insurance company EFU re-insured by an international leading insurance company. The insurance company has experts readily available to provide insurance premium estimates for the wind power Projects.

The Project Company, in view of the practices set by the other IPPs in Pakistan and in accordance with the requirements set out by the Lenders funding the Project, intends to procure the following insurances during the construction phase of the Project:

(a) Construction, Erection All Risk Insurance (CEAR) / Third Party liability
(b) Marine Cargo – Delay –In Startup Insurances
(c) Terrorism Insurance
(d) Workmen's' Compensation Insurance
(e) Group Personal accident
(f) Motor Comprehensive Insurance

The Insurance Cost also covers administrative surcharge, Federal Excise Duty and Federal Insurance Fee, in each case relating to Pre-COD Insurance.

The total value of Pre-COD Insurance is **US$ 1,920,581**.

5.10 DEBT SERVICING

The entire debt is coming from the Chinese banks in US Dollars. The term of the loan discussed with the banks at this time is 09 year plus 01 year Grace Period based on LIBOR plus a margin of 4.8 percent or 8.30% fixed rate which does not vary over the time period of financing. The Project Company expects 6 Month LIBOR to be more favorable for the Project during the debt servicing period and has opted for the 6 Month LIBOR + 4.8% offer. LIBOR is going to be adjusted on a bi-annual basis i.e. 6 months LIBOR.

The Project Company has accessed foreign debt for financing the Project at 6 Month LIBOR + 4.8% spread. This source of financing has in the past 5 years been observed to be a cheaper source of debt than the local financing which results in lower interest payments and tariff. This trend is shown in the Graphs and Table below;

6 - Month LIBOR – KIBOR Analysis

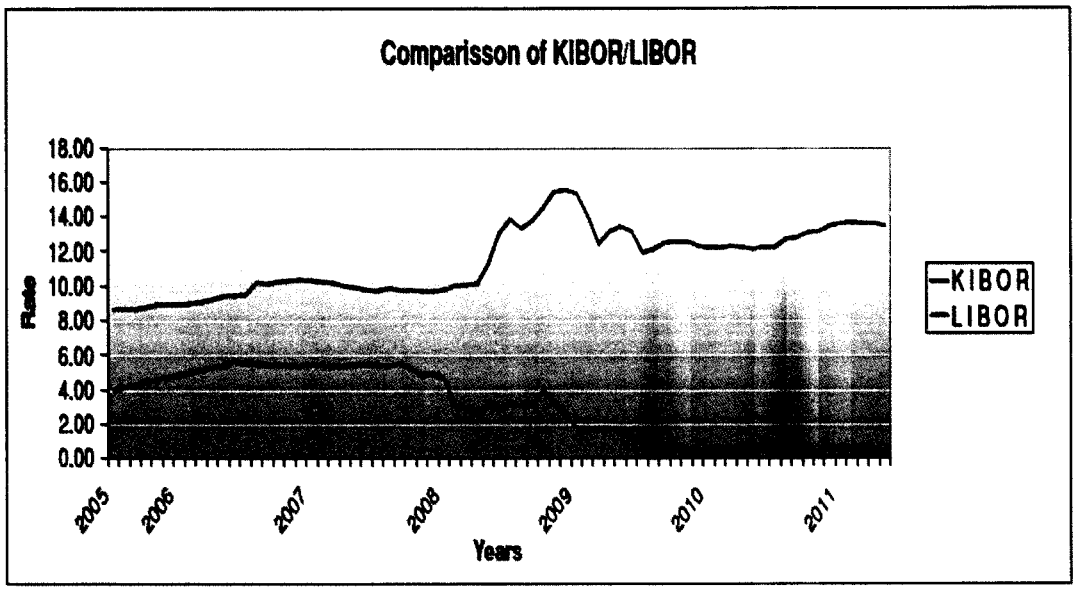

Table 5.7: Comparison of LIBOR and KIBOR

KIBOR												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	13.61	13.64	13.62	13.61	13.48							
2010	12.18	12.19	12.29	12.23	12.11	12.23	12.25	12.70	12.80	13.09	13.14	13.48
2009	15.34	14.11	12.42	13.14	13.43	13.16	11.93	12.14	12.50	12.58	12.59	12.31
2008	9.78	10.03	10.07	10.12	11.28	13.08	13.85	13.32	13.76	14.53	15.43	15.54
2007	10.30	10.24	10.18	10.00	9.92	9.78	9.72	9.88	9.76	9.75	9.72	9.72
2006	8.9	9.0	9.1	9.2	9.4	9.4	9.5	10.2	10.1	10.3	10.3	10.4
2005							8.65	8.68	8.65	8.78	8.90	8.89
LIBOR												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	0.456	0.454	0.464	0.460	0.430							
2010	0.43	0.384	0.387	0.444	0.531	0.752	0.753	0.668	0.497	0.463	0.448	0.461
2009	1.75	1.66	1.803	1.736	1.565	1.24	1.111	0.925	0.755	0.629	0.564	0.488
2008	4.596	3.041	2.931	2.614	2.965	2.911	3.109	3.084	3.118	3.981	3.121	2.591
2007	5.401	5.372	5.321	5.358	5.384	5.381	5.386	5.327	5.535	5.133	4.806	4.91
2006	4.813	4.991	5.12	5.288	5.322	5.639	5.547	5.45	5.37	5.39	5.35	5.365
2005							3.924	4.082	4.215	4.447	4.58	4.69

Table 5.8: Terms of Debt

No	Description	Value
01	Total Project Value	US $ 134,748,459
02	Total Value of Debt @80% of total Project Value	US $107,798,767
03	LIBOR 6-month	50 Basis Points
04	Spread	480 Basis Points
05	Debt Mark Up	LIBOR + 4.8%
06	Sinosure Fee	6.53% of loan facility
07	Loan Tenure	09 Years
08	Grace Period	12 months
09	Re-Payment Schedule (Principal and Mark Up)	Bi Annual

The Lender's indicative Term Sheet is attached as **Annex 5**.
The Sinosure Term Sheet is attached as **Annex 6.** Please see the alternative proposal possibility discussed in para 5.10.3

6-month LIBOR has been assumed for the reason that the revenues of a Wind IPP are dependent on monthly energy produced. Such monthly energy produced is dependent on the monthly wind speed which in turn is subject to several variations, i.e. high revenues during high wind months and low revenue during low wind months. The debt servicing capability of the Project is severally hampered due to this variation in revenue generation capabilities of the Project. The Petitioner has opted for the 6-month LIBOR, as this would allow the Petitioner to equalize the monthly cash flows of the Project, for meeting all the cost requirements of the Project.

5.10.1 Financial Charges

Financial Charges include the costs related to the debt financing of the Project. Such costs include the Lenders' up-front fee, facility management fee and commitment fee. The upfront fee and facility management fee are obtained by the Lender at once at the beginning. The commitment fee shall be applied every year on the un-drawn amount of the debt. Looking at the planned schedules, it is expected that the commitment fee shall not prolong.

The financial charges do not include the L/C charges applied on the contract with CHHD because it is embedded in **Table 5.3**.

The financial charges have been negotiated with the Lenders and are in the form of properly signed indicative Term Sheet and are in line with the prevailing market conditions and NEPRA's previously approved determinations.

Table 5.9: Financial Charges

No	Cost Head	Value in USD
01	Total Project Value	134,748,459
02	Total Debt Value	107,798,767
03	Upfront Fee @ 1.8% of Total Debt Value (One Time Applicable)	1,940,378
04	Facility Management Fee @ 1% of Total Debt Value (One Time Applicable)	1,077,988
05	Commitment Fee @ 0.5% of Un-Drawn Debt Value (Yearly Applicable)	80,849
	Total Financial Charges	3,099,215

The commitment fee is charged by the Lender on the undrawn balance of the debt facility allowed to the borrower. The commitment fee has been calculated according to the unique debt schedule of the Project Company, i.e. 70% of the debt is to be drawn down at the time of Financial Close and the rest of the debt facility (30% of total debt) shall be drawn down after six months of achieving Financial Close.

Consequently, the Project Company has calculated commitment fee on un-disbursed 30% debt at the rate of 0.5% for just 6 months, as the debt facility gets drawn down totally within 6 months of achieving Financial Close by the Project Company.

5.10.2 Grace Period

80% of the Project is financed by the Lenders. The debt is provided with a Grace Period of 01 year and a repayment period of nine (09) years. The RE Policy, 2006 allows 2 years Grace Period and 10 years repayment period, which is a total of 12 years. The Project Company has followed a shorter Grace Period which has resulted in lowering the Interest during Construction (IDC) to US$ 4.85M. The Project Company would have incurred an IDC of US$ 7.90M on 18 months Grace Period and US$ 11.09M on 24 months Grace Periods respectively, if it had opted to exercise the leverage of utilizing the maximum ceiling of Grace Period allowed under the RE Policy, 2006 of two years.

Table 5.10: Comparison of IDC against Grace Period

No	Grace Periods	Value of IDC (US$)	Total Project Cost (US$)	% Increase in Project Cost
1	12 Months	4.85 Million	134,748,459	0
2	18 Months	7.90 Million	138,041,371	2.44
3	24 Months	11.09 Million	141,499,256	5.00

The Project cost increases due to 18 month and 24 month Grace Periods and also results in higher debt related costs in the Operation Period of 20 years. By following a stringent Grace Period, the Project Company has made a conscious effort to reduce the Project costs by the margins shown in the **Table 5.10** and the resultant tariff is also curtailed so that the consumers of electricity in Pakistan get a lower tariff.

The Project Company is confident that with this unique arrangement, they will achieve the COD after one year of the Financial Close. However, the actual Grace Period shall be finalized at the time of the EPA and Financial Close.

5.10.3 Sinosure Fee

The Project debt will come from Chinese banks. It is a condition of lending from Chinese banks to companies with Chinese equity that the debt must be insured with the Chinese Government Agency called China Export & Credit Insurance Corporation (Sinosure). Without this Sinosure Fees, the lending facility is not provided by the Chinese banks. This is also a condition of the

Term Sheet by the China Development Bank attached as **Annex 5**. Thus the Sinosure Fees have been treated as an element of debt servicing fees.

The Sinosure Term Sheet as one time upfront fees is attached as **Annex 6**.

There is **another option** available to the Project Company that Sinosure Fees can be applied on the outstanding debt amount at the beginning of the relevant year and the accruing interest amount of that running year at some interest rate annually. Then it would be dealt as a separate tariff component. This option can be considered if desired by the Authority.

5.10.4 Interest during Construction (IDC)

As explained in **Section 5.10.2**, IDC shall be applied for 01 year i.e. the Grace Period indicated in the Term Sheet.

70% of the total debt shall be drawn at the time of Financial Close because construction shall already be underway by that time. Remaining 30% of the total debt shall be drawn after 06 months of the Financial Close.

The IDC, therefore, is worked as below:

Table 5.11: Interest during Construction

No	Cost Head	Value
01	Total Debt Value	US $ 107,798,767
02	LIBOR	0.50%
03	Spread	4.8%
04	Interest Rate	5.30%
05	Grace Period	12 Months
06	Value of Debt drawn for 12 Months (70%)	US $ 75,459,137
07	**Interest on Debt drawn for 12 Months**	**US $ 3,999,334**
08	Value of Debt Drawn for 06 Months (30%)	US $ 32,339,630
09	**Interest on Debt drawn for 06 Months**	**US $ 857,000**
Total Interest during Construction		**US $ 4,856,334**

Actual IDC, however, shall be subject to change depending on the fluctuations in base rate (6-month LIBOR) and changes in Project cost including changes due to taxes and duties.

IDC shall be calculated for the period starting from first drawdown of loans after Financial Close based on accrued interest for the outstanding debt on semi-annual basis. The Grace Period shall start from the date the banks release first payment of loans.

Therefore, IDC is estimated figure which is adjustable at COD based on actual timing and amount of loans drawdown during the Project Construction Period after the Financial Close.

5.11 RETURN ON EQUITY (ROE)

Risk perceptions are high in investing in Pakistan energy sector not only because of the security situation of the country BUT also considering the issue of the circular debt. This is an egg and chicken situation as foreign investment is required not only to boost the sector BUT also to bring credibility back to the energy sector of Pakistan. Another risk perception is that there is no history of wind Projects in Pakistan. Considering the above the Project Company has proposed 18% ROE (IRR based), net of 7.5% withholding tax on dividends, to comfortably come and invest in this sector.

Moreover, in the past NEPRA has allowed thermal/conventional power producers an IRR of 15%, and 17% to hydel projects -; it is noteworthy that the data for hydrology in Pakistan is much more detailed and reliable (for having been collected for several decades) than the data for wind. However, since the Project is based on energy production through wind (renewable resources), a sector in its infancy in Pakistan, the Project Company is proposing a return on invested equity of 18% (IRR), net of 7.5% withholding tax on dividends.

The Tariff Standards prescribed under Rule 17 of the Tariff Rules require that the return on investment should be "commensurate with other investments of comparable risk". It is submitted that NEPRA has allowed 17% ROE in hydel projects where the hydrology risk and unforeseen soil conditions are both well mitigated under the Power Purchase Agreement and NEPRA's tariff guidelines which permit a "3 stage" tariff process permitting a reopening of the tariff parameters. As explained below, the GOP is only covering the wind speed while the investor is taking the risk of other wind characteristics. Accordingly, the wind sector investment is of a higher risk than the hydel or thermal investment, necessitating a higher risk premium.

The discussion below highlights the salient arguments in favor of allowing 18% ROE to the Petitioner.

5.11.1 Medium Term Policy for Development of Alternative and Renewable Energy

AEDB has already taken notice of the aforementioned situation and has therefore proposed to the Government of Pakistan, under the draft of the Medium Term Policy for Development of Alternative and Renewable Energy, to increase the return to the sponsors to 18%.

Section 1.13.9.2 of the draft Medium Term Policy for Development of Alternative and Renewable Energy states:

"the economic, social and environmental benefits of ARE, it is the policy of the Government of Pakistan to provide a rate of return in excess above that of conventional power during the lifetime of this medium term policy subject to a quota which rate shall be used in tariff calculations. The ARE Rate of Return on Equity (ROE) for ARE Projects will be a minimum of 18%."

(the term 'ARE' means 'Alternative and Renewable Energy').

5.11.2 Wind Risk

The RE Policy 2006 provided by the Government of Pakistan does not offer complete immunity to the equity investor against wind risk. The coverage is limited to variations in wind speed only and it does not take into account other factors which can affect the energy output of a wind farm. These factors include, air density, wind frequency distribution, temperature, and humidity. This limitation in the wind risk coverage can have a detrimental impact on the IRR of the equity investor.

5.11.3 Security Issues

Over the last three years the security situation in Pakistan has been quite unpredictable. The security threats in the country have had an adverse impact both on the economy and on the cost of doing business in Pakistan. Most of the thermal IPPs being constructed under the Power Generation Policy 2002 have had to face the repercussions of the deteriorating security situation in one way or the other. The increased risk on the capital employed, coupled with the economic uncertainties (circular debt), justify an increase in the required rate of return to 18% IRR.

5.11.4 Monthly Energy Production Vs Annual Energy Production

The mechanism for tariff determination and revenue generation for Wind IPP's is based on the Wind Tariff Guidelines 2006 and the same is also reflected in article 9 *(Compensation, Payment and Billing)* of the EPA. This mechanism assumes monthly wind energy production of the wind farm equipment (monthly payments are made for energy produced each month up to the monthly benchmark energy while bonus energy (over and above monthly benchmark energy) is only compensated to the extent of 10%).

On the other hand, no wind turbines supplier or EPC contractor in the wind industry is willing to offer guarantee for monthly energy production from their equipment as the global industrial practice is to offer guaranteed power curve on annual basis for wind turbines. This mismatch (i.e. between the basis of tariff determination / revenue generation and the respective guarantees offered by the WTG supplier / EPC Contractor) faced by the Project can have a significant effect on the returns to the sponsors and needs to be compensated by increasing the allowed rate of return, as desired by the Project Company under this Tariff Petition.

5.11.5 Higher ROE for Coal Based Projects

Project Company appreciates the fact that government is encouraging indigenous resource based projects. Recent example is the notification No PI-6 (71) / 2010 from Ministry of Water and Power on March 8th 2011; where 20.5 percent ($ based) IRR is guaranteed for indigenous coal based project achieving financial close by June 2014. The notification is attached at **Annex 8.**

Project Company feels that similar kind of encouragement may be given to wind IPPs by giving higher ROE, so that reliance on the indigenous based resources can be increased. In the last determination NEPRA allowed 17 percent IRR based return to a wind project. Project Company believes that it is justified to request NEPRA based on the above to determine 18 percent IRR based return for this project.

5.12 RETURN ON EQUITY DURING CONSTRUCTION (ROE DC)

NEPRA allows IRR based RoE. Therefore, the Return on Equity during Construction (ROE DC) has been accrued and shall be determined as actual at the time of COD according to the actual disbursement of equity drawdown. The return due towards the Project Company during construction (the ROE DC) has not been estimated separately in this Petition and shall form part of Reference Tarriff true-up calculations at COD on the basis of actual equity drawdown.

Since the Project shall commence prior to Financial Close through equity participation, this would result in applying ROE DC for 18 months. However, the IDC shall apply only for 12 months.

The usual practice by IPPs is to identify the loan Grace Period and Project Construction Period in the tariff petition and sought approval for both IDC and ROE DC according to actual drawdown and disbursements. The common practice is that loan Grace Period and Project Construction Period are the same i.e. 18 to 24 months because the construction begins after Financial Close.

For the Project of TGF, the Construction Period is 18 months and bank is willing to give 18 months Grace Period but the Project Company has opted for 12 months Grace Period in the Term Sheet based on the above mentioned methodology with an objective to reduce tariff.

The Petitioner understands that as per the practice, ROE DC is not allowed before Financial Close. If NEPRA allows ROE DC before Financial Close, the Project COD shall come earlier and the tariff shall be lower because of lower IDC.

If on the other hand, the construction begins with the Financial Close, the period for IDC shall become 18 months. However, the period for ROE DC shall still remain 18 months i.e. the total Construction Period.

The Project Company has, therefore, opted for the case which shall ultimately become beneficial in Reference Tarriff at COD. Moreover, this would also enable the Project to become online at an earlier date. It is very important to refer that higher tariffs were approved for Rental Power Plants (RPPs) on the grounds to quickly bring power in the national grid.

If this unique methodology is not allowed, then the Project Company shall have to accept 18 months Grace Period in the Financial Close. In that case, the Project Company shall still get the 18 months ROE DC because construction shall start right after Financial Close but IDC shall increase due to increase in Grace Period.

6 OPERATIONS COST

O&M expenses are one of the major unknowns for the wind developers in Pakistan. Up till now not even single wind project COD has been achieved in Pakistan. The sponsors of this Project have a lot of experience involving with the wind project in one way or the other in China. At present, China is the fastest growing country with respect to wind and is currently at the top in the world in terms of installed capacity of wind. It is important to note that O&M costs are not as low in wind projects as perceived by many in Pakistan. Today's modern wind turbines are built from over 8,000 different components. Furthermore, unexpected components failure, especially electronic controls, generators, rotor blades etc have driven up operations and maintenance costs. This is even more critical in Pakistan where the temperatures in the windy months are also very high and machines have to work in almost full capacity in extreme weathers. Yet these maintenance costs are lesser as compared to overhauling and fuel costs of thermal generators.

Chinese experience suggests that O&M costs are ranging from US cents 2.5 to 2.8 US cents per kWh per year. O&M costs for this Project is **US cent 2.59 per year** over the 20 years life of the Project. **These O&M costs of the project are in line with sponsors experience in China.** Another important thing to note that there is no allied infrastructure available in Pakistan and it is anticipated that for the first 300 to 500 MWs, the O&M costs can be even more than the available benchmarks of China.

WTG supplier of the Project (Goldwind) is providing the O&M services for the first five years of operations under separate O&M contract out of which first two years are also covered under manufacturer's warranty.

To substantiate the above data; the latest research report on O&M costs "The Wind Energy Operations & Maintenance Report 2011" has been obtained by the Project Company, which is published by the leading researchers in wind called "Wind Energy Update". The report can be purchased from the website http://www.windenergyupdate.com/operations-maintenance-report/

As per the report, the important point is that True O&M costs of the wind industry are clouded in the world due to the fact that the majority of current wind capacity is now just coming out of warranty. No manufacturer is willing to share its actual O&M costs in the warranty periods. To give an idea to the Authority; as per the report 79 percent of the turbines in the world were under warranty until June 2009. Thus it is difficult to get the real O&M costs of wind industry. Report also suggests that real-time O&M costs are far higher than originally projected in US – which are now one of the largest wind power markets. The report also indicates un-predicted component failure of WTGs as one of the key issues which escalates the O&M costs.

According to the research in the report, O&M costs are around 3 percent per year of the total project cost against the initially estimated one percent by the many owners / operators. Finally the report concluded that the average values of all O&M costs are US $ 0.027 per kWh per year. The Project Company has estimated its O&M costs within the range of above-mentioned trends and is supported by the experience of Sponsors in China.

In the last 05 years large wind turbines are being developed with reduced cut-in speed to increase the power production and to drive down the cost of electricity. This trend in wind turbine size escalation also comes with increased uncertainty regarding O and M activities. This fact of increasing O and M costs overtime for wind turbines is also supported by finding recently released by the European Wind Energy Association (EWEA) in its report, *The Economics of Wind Energy*.

A special consideration is that the Project Company is not a native Pakistani organization and has been established through foreign investment for the Project, the O&M requires a full fledge infrastructure to be deployed. The Project Company is owned by foreign nationals and shall involve several expatriates from China thus requiring offices, accommodation, transport etc. Also, since the presence of the Project Company has been established only for this particular Project, there is no sharing of facilities; which otherwise is the case with IPPs owned by local groups who have several other business ventures in Pakistan.

The Project life cycle is of 20 years and a lot of risks related to security are also to be looked. The Project Company is bringing all the expertise from China to address the technical issues during Operations of the Project and has sought for rationalized costs for O&M, which are based on the experience of the sponsors in wind sector in China.

In view of the above, the O&M costs suggested by the Project Company in the Petition are well within the range of international benchmarks and its experience in China. This is the humble request of the petitioner that the O&M costs presented below may be allowed to run the project efficiently and effectively for sustainable development of wind industry in Pakistan.

The O&M cost includes the following:

Table 6.1: Breakdown of O&M Cost

All Values in USD				
Cost Head	**Year 01-02**	**Year 03-05**	**Year 06-09**	**Year 10-20**
FOREIGN O & M				
Cost of Outsourced O&M	800,000	1,950,000	0	0
Cost of O&M by Project Company			1,440,000	1,600,000
Technical Support and Service of Outsource	0	0	120,000	120,000
Fixed Assets imported	5,000	5,000	5,000	25,534
Payroll & Allied Expenses for Foreign Staff	384,059	402,331	447,785	447,785
Sub Total	**1,189,059**	**2,357,331**	**2,012,785**	**2,193,319**
LOCAL O & M				
Cost of O&M by Project Company	0	0	360,000	400,000
Fixed Assets local purchased	20,000	20,000	20,000	102,136
Payroll and Allied Expenses for Local Staff	576,088	603,496	671,677	671,677
Security Arrangement Cost	96,879	96,879	96,879	96,879
Vehicles Fuel and Maintenance	136,800	136,800	136,800	136,800
Administrative Cost	466,528	466,528	466,528	466,528
Land Cost payable to AEDB	0	0	0	14,023
Sub Total	**1,296,295**	**1,323,703**	**1,751,884**	**1,888,042**
Total O & M	**2,485,354**	**3,681,035**	**3,764,669**	**4,081,361**

6.1 OUTSOURCED O&M

The O&M shall be carried out by the WTG supplier for the first five (05) years after COD after which, the Project Company shall take over. **The outsourced part of O&M has been locked through an Agreement with the WTG supplier (Goldwind) for five (05) years.**

The cost of O&M during the first two (02) years is lesser as compared to the remaining three (03) years. This is because the Contracts with CHHD (Off-Shore Contractor) and CWE (On-Shore Contractor) shall respectively cover the major O&M spare parts during the two (02) year warranty period of the relevant EPC Contracts of both Off-Shore and On-Shore Contractors.

The prices agreed include the costs associated with daily operation, scheduled maintenance, routine maintenance, services required for unscheduled maintenance and any spare parts and consumables required for carrying out the scheduled and routine maintenance. During the initial two year period, costs of all unscheduled spare parts will also be borne either by the CHHD Off-Shore Contractor) or CWE (On-Shore Contractor).

6.2 TECHNICAL SUPPORT AND SERVICE OF OUTSOURCE

In first 5 years of the Operation Period, Goldwind is obligated to carry out the O & M service. However, in the years 6-20 the Project Company (TGF) has to carry out the O & M itself and it certainly requires the technical support from the WTGs manufacturer and other equipment manufacturer, as well as a Technical Consultant from outsource may also be required.

6.3 FIXED ASSETS

This includes cost of vehicles, office equipment, furniture, electrical appliances and tools required at site for inspection of WTG equipment. 80% of these procurements shall be from local market while 20% shall be purchased from foreign countries and have been appropriately classified in Local and Foreign O & M respectively.

The procurement of fixed assets has been catered for in each time band but it has registered an increase in the years 10-20, as the fixed assets purchased in earlier periods would be depreciated, worn out and obsolete. In order to better carry out the Project activities, these fixed assets shall be phased out and replaced with new assets for the remaining 11 years of the Project.

6.4 PAYROLL AND ALLIED EXPENSES

The payroll costs include salaries, wages & benefits of all staff as follows;

- Management Executives
- Technical and Operations department
- Wind Farm O & M Team
- Commercial & Legal Affairs department
- MT department
- Finance department
- Training and Human Resource Department
- Supply & Logistics Departments.

These staff members shall be employed by the Project Company at the Project site and in Karachi Office. 60% of the payroll costs shall be denominated in local currency and 40% in foreign currency and are accordingly classified as Local and Foreign O & M respectively.

6.5 COST OF O&M BY PROJECT COMPANY

The O&M shall be carried out by the WTG supplier for the first five (05) years after COD after which, the Project Company shall take over for the years 6-9 and 10-20 both.

The cost of O&M by the Project Company is only charged during Year 6-20.

The prices agreed include the costs associated with scheduled maintenance, routine maintenance, services required for unscheduled maintenance and any spare parts and consumables required for carrying out the scheduled and routine maintenance.

The cost is higher during 10-20 years as compared to 6-9 years period because the Project is expected to require replacement of various items and overhauling after 10 years of operations. Since most of the spare parts will be imported, so 80% of the cost will be in the foreign currency, and 20% considered from local resources.

6.6 SECURITY ARRANGEMENT COST

Due to the volatile law & order situation in Pakistan and in the region overall, security arrangements are a very important and vital subject. The Project has thus deputed a full time security team at its site office, Karachi office as well as for its accommodation in Karachi to

ensure that the Project Company is able to attract the best talents in the field of renewable energy to Pakistan and address their valid security concerns. The foreign staff of manufacturers and investors who visits the Project for work shall also be provided security cover during their stay in Pakistan.

6.7 VEHICLE FUEL AND MAINTENANCE

This component includes the costs associated with the running and maintenance of vehicles at the Karachi and Site offices of the Project Company. The vehicles include the vehicles required by the security personnel for securing the site; vehicles required for supervision and coordination of O&M activities, vehicles for administration needs.

The vehicles purchased during the Construction Period shall be used for first 9 years of the O&M period. At the start of the 10^{th} year, the old vehicles shall retire off and replacement vehicles shall be procured by the Project Company in each year as the depreciated and worn off vehicles are laid off and same level of fuel and maintenance costs shall be maintained for the remainder of the Project Term.

6.8 ADMINISTRATION COSTS

This portion of the O&M Cost includes costs associated with rents, utilities, traveling, entertainment, audit, legal and financial consultants, technical consultation, generation license fees, and other allied expenses of running the offices during the Operation Period of 20 years.

The administration cost also includes the cost of operating the "Site Clinic", which shall act as a dispensary to provide preliminary medical and first aid services.

6.9 LAND COST PAYABLE TO AEDB

The land lease has been paid to AEDB for first 10 years and is part of the Project Cost, as mentioned in **Section 5.2** above. This cost head includes the land cost to be paid to AEDB for the remaining 10 years.

Since the land cost shall be paid after 10 years of COD and then repaid over rest of the Project life cycle, this cost head is considered at KIBOR + 3%, as the Project Company will have to take local bank financing.

6.10 BACKUP DIESEL GENERATOR

No fuel has been asked for the backup power, which shall be a secondary option and (if at all required), it shall be managed by the Project Company.

As a primary source for backup of commercial power to operate the control building, a 100kW Solar PV system is planned.

7 INSURANCE DURING O&M

The Insurance Cost consists of the insurances required under the Implementation Agreement and those customarily required for project financing transactions, including all-risk insurance/reinsurance, business interruption insurance, and machinery break-down, natural calamities, sabotage and terrorism. As these risks are an impediment to the smooth and efficient running of the day-to-day affairs of the Project, it is critical that all the risks associated with the Project are adequately addressed and all the insurable events are catered for in a fool proof manner. Keeping in view the generally adopted global trends and the magnitude of the Project, a comprehensive operational insurance and reinsurance arrangement is a fundamental task to the bankability of the Project.

The operational phase of the Project Company has been insured by the one of the leading local Insurance Company EFU and denominated in foreign currency (United State Dollars). The local insurance company retains only 5% of the risk, while 95% is re-insured with foreign re-insurer NEPRA allows these Insurance Costs in US Dollars, as has been done in case of thermal IPP's. Moreover, Lenders financing the Project will require insurance of the Project's assets on replacement cost basis, which will be inevitably in foreign currency as the EPC Contracts are also denominated in US Dollars. It is expected that any replacement costs consequent to the insurable event will also be incurred in US Dollars.

The Project Company, in view of the practices set by the other IPP's in Pakistan and in accordance with the requirements set out by the Lenders, proposes to the procure the following insurance during the operational phase of the Project:

(a) Operating Phase including Business Interruption
(b) Third Party Liability
(c) Terrorism Insurance
(d) Group Personal Accident Insurance
(e) Motor Comprehensive Insurance

The insurance cost shall be charged by the Project Company at actual and will be recoverable as the insurance cost component. The Insurance Cost also covers administrative surcharge, Federal Excise Duty and Federal Insurance Fee, in each case relating to Operational Phase Insurance.

The total cost of insurance during O&M is **US $ 1,318,573 per year.**

Table 7.1: Breakdown of O&M Cost

All Values in USD				
Cost Head	Year 01-02	Year 03-05	Year 06-09	Year 10-20
Insurance during O&M	1,318,573	1,318,573	1,318,573	1,318,573

8 WORKING CAPITAL

The Project Company has not asked for any Working Capital facility and shall manage all cash flow issues by itself.

9 PROPOSED REFERENCE GENERATION TARIFF & DEBT SCHEDULE

9.1 TARIFF CONTROL PERIOD

As the Project is 80% debt funded with loan tenure of 9 years for repayment, this means that there will be higher debt service cost requirements in the first 9 years of the Project. In the last 11 years of the Project, the tariff will be decreased due to the lower debt service related costs.

The proposed tariff is for the life of the Project i.e. length of the EPA, signed with NTDC which is 20 years from the COD. The tariff is divided into four (04) bands i.e. year 1-2, year 3-5, year 6-9 and year 10-20 to cover the variations due to debt repayment period, warranty support during O&M, and O&M outsourced contracting.

The 20 year tariff control period is in line with the design life of the wind turbines, as they are designed to have a very low probability of failure within 20 years. Although, the wind turbines may have an even longer life span but factors such as turbine quality, local climatic conditions impact on the expected life of the assets.

9.2 PROPOSED REFERENCE GENERATION TARIFF

The Reference Generation Tariff for the Project over the 20 years concession term is given below. The Reference Generation Tariff Table has been made on the Net Annual Energy Output of 138,700 MWh and Capacity factor of 31.99%.

Table 9.1: Tariff Table

1	0.0086	0.0093	0.0095	0.035	0.0026	0.0694	0.0403	**17.4725**	14.8516
2	0.0086	0.0093	0.0095	0.035	0.0026	0.0731	0.0366	**17.4725**	14.8516
3	0.0170	0.0095	0.0095	0.035	0.0026	0.0771	0.0326	**18.3346**	15.5844
4	0.0170	0.0095	0.0095	0.035	0.0026	0.0812	0.0285	**18.3346**	15.5844
5	0.0170	0.0095	0.0095	0.035	0.0026	0.0856	0.0241	**18.3346**	15.5844
6	**0.0145**	**0.0126**	**0.0095**	**0.035**	**0.0026**	**0.0902**	**0.0195**	**18.3949**	**15.6356**
7	**0.0145**	**0.0126**	**0.0095**	**0.035**	**0.0026**	**0.0950**	**0.0147**	**18.3949**	**15.6356**
8	**0.0145**	**0.0126**	**0.0095**	**0.035**	**0.0026**	**0.1001**	**0.0096**	**18.3949**	**15.6356**
9	**0.0145**	**0.0126**	**0.0095**	**0.035**	**0.0026**	**0.1055**	**0.0042**	**18.3949**	**15.6356**
10	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
11	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
12	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
13	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
14	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
15	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
16	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
17	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
18	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
19	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051
20	0.0158	0.0136	0.0095	0.035	0.0026	-	-	**7.6530**	6.5051

9.3 DEBT SCHEDULE

Table 9.2: Debt Schedule

Semi-annually	Year	Principal Closing Balance	Debt Amount	Principal Repayment	Interest Expense	Total Installment	Principal Closing Balance	Year	Annual Cash Flow
0	-	-	107,798,767	-	-	-	107,798,767	-	-
1	-	107,798,767	-	4,751,155	2,856,667	7,607,822	103,047,612	-	-
2	1	103,047,612	-	4,877,060	2,730,762	7,607,822	98,170,552	1	15,215,644
3	-	98,170,552	-	5,006,303	2,601,520	7,607,822	93,164,249	-	-
4	2	93,164,249	-	5,138,970	2,468,853	7,607,822	88,025,280	2	15,215,644
5	-	88,025,280	-	5,275,152	2,332,670	7,607,822	82,750,127	-	-
6	3	82,750,127	-	5,414,944	2,192,878	7,607,822	77,335,184	3	15,215,644
7	-	77,335,184	-	5,558,440	2,049,382	7,607,822	71,776,744	-	-
8	4	71,776,744	-	5,705,739	1,902,084	7,607,822	66,071,005	4	15,215,644
9	-	66,071,005	-	5,856,941	1,750,882	7,607,822	60,214,065	-	-
10	5	60,214,065	-	6,012,150	1,595,673	7,607,822	54,201,915	5	15,215,644
11	-	54,201,915	-	6,171,471	1,436,351	7,607,822	48,030,444	-	-
12	6	48,030,444	-	6,335,015	1,272,807	7,607,822	41,695,428	6	15,215,644
13	-	41,695,428	-	6,502,893	1,104,929	7,607,822	35,192,535	-	-
14	7	35,192,535	-	6,675,220	932,602	7,607,822	28,517,315	7	15,215,644
15	-	28,517,315	-	6,852,113	755,709	7,607,822	21,665,201	-	-
16	8	21,665,201	-	7,033,694	574,128	7,607,822	14,631,507	8	15,215,644
17	-	14,631,507	-	7,220,087	387,735	7,607,822	7,411,420	-	-
18	9	7,411,420	-	7,411,420	196,403	7,607,822	0	9	15,215,644
TOTALS		-	-	107,798,767	29,142,033	136,940,800	-	-	-

10 INDEXATIONS, ESCALATIONS AND COST ADJUSTMENT

10.1 INDEXATION

The purpose of indexation is to remove any exposure of an investor to cost escalations, over the life of the Project, over which they have, no direct control. With that principle in mind, the following sections discuss the proposed indexation for various components of the tariff. Indexation formulae have been prepared taking into account the guidelines presented in the Ministry of Water and Power/ Alternate Energy Development Board's, "Guidelines for Determination of Tariff for Wind Power Generation 2006",NEPRA's recent determinations and the provisions of the standard drafts of the Implementation Agreement and the Energy Purchase Agreement.

10.2 FOREIGN EXCHANGE

A foreign exchange indexation should be applied to those cost elements that are dominated in foreign currency (US $). For these items, the investor will have no control over cost changes caused by exchange rate fluctuations, and these should therefore be passed through to purchaser. The proposed tariff structure for TGF implies that the following components should be indexed to variations in foreign exchange rate (Rs./ US$):

(a) Portions of the O&M Components that are dominated in foreign currency;

(b) The debt-servicing component. The Project debt is intended to be funded in foreign currency;

(c) The insurance component as discussed previously will provide cover on a replacement cost basis, which will be incurred in dollars. Premium will therefore be constructed on that basis, and insurance cost will therefore fluctuate with exchange rate movements;

(d) The ROE (IRR based) component that reflects the equity investment in foreign currency (US$)

Indexation for these components should be applied quarterly, on January1, April 1, July 1 and October 1 on the basis of the TT & OD selling rate as notified by the National Bank of Pakistan (in Rs/ US$).In the event of discontinuation of the TT&OD selling rate by the NBP or

introduction of another regime by the State Bank of Pakistan for determination of the exchange rate, NEPRA will be asked to substitute the mechanism with another mechanism which does not place the Petitioner in a worse position.

10.3 LIBOR

The wind farm investors will have no direct control over changes in interest rates. Appropriate indexation should therefore be applied so that interest charge portion of the debt-servicing component of the tariff reflects changes in the London Interbank Offered Rate (LIBOR). This portion should thus be adjusted quarterly for variations in the 6-month Dollar LIBOR as published by the British Bankers Association.

10.4 LOCAL INFLATION

As with currency exchange rates and interest, a wind investor will not be able to influence local inflation. Appropriate indexation should therefore be applied to reflect portion of the tariff that is subject to local inflation. For the proposed tariff structure, the portion of O & M component that are denominated in local currency (PKR) should be indexed to local CPI.

Indexation for these components should be applied quarterly, on the basis of CPI as notified by the Federal Bureau of Statistics (FBS).

10.5 FOREIGN INFLATION

The equity investment and O & M Foreign component are denominated in US Dollars. As with currency exchange rate and interest rates a wind farm investor will not be able to influence US inflation. Appropriate indexation should therefore be applied to reflect the portion of the tariff. It is thus proposed that theses costs should be adjusted for US inflation per United States Consumer Price Index (USCPI) as published monthly by the department of Labor, United States Government.

A Summary of Indexations requested is given below;

Table 10.1: Summary of Indexations

Cost Component	Inflation Adjustment	Foreign Exchange Rate Adjustment
Operations & Maintenance –Local	Local WPI	
Operations & Maintenance –Foreign	US CPI	$ / Rs.
Insurance during O & M – Foreign	-	$ / Rs.
Return on Equity –Foreign	US CPI	$ / Rs.
Debt Service –Foreign	LIBOR	$ / Rs.
Project Cost –One Time Adjustment	Actual at COD $ / Rs.	
Debt & Equity – ratios and values	At Financial Close	
IDC	Actual at COD	
ROE (IRR Based)	Actual Equity Injection Schedule at COD	

10.6 COST ADJUSTMENT AT COD

It is prayed that NEPRA allows the Project Company to adjust the Project cost at COD, which shall in turn affect the other relevant tariff components. The Reference Tariff Table shall be revised at COD, while taking into account the said adjustments. The adjustments are requested for the following;

(a) US$ / PKR exchange rate variations during the Construction Period;
(b) All such Project cost heads, which are subject to be adjusted, as per actual; ;
(c) Interest during Construction (IDC) for increase in Project Cost, change in interest base rate (LIBOR) and variation in actual debt drawdown;
(d) Return on Equity during Construction (RoE DC; IRR based) based on actual equity drawdown;
(e) All local duties and taxes
(f) All financial charges by the Lenders of the Project

Current Project Cost is based on assumptions detailed in Section 5 (Project Cost, Equity & Debt).

11 CONSIDERATIONS WITH RESPECT TO EPA

11.1 MONTHLY ENERGY PAYMENTS (BENCHMARK AND BONUS)

As per the policy, the wind risk is guaranteed by the Government of Pakistan and the tariff is based on the monthly benchmark energy table based on the monthly benchmark wind speeds. Therefore, monthly payments shall be made for the benchmark energy produced by the Project.

Further, the bonus payments are also applied on any energy produced over and above the benchmark energy. The standard EPA approved by the GOP provides for payment of bonus energy on monthly basis. There is no differentiation in the RE Policy between the timing for payments for monthly benchmark energy and bonus payments. NTDC has in recent negotiations shifted the bonus payments towards the end of the year on the argument that "NEPRA's determination was silent on this issue". It is most unfair for a Project to be penalized for the shortfall energy (shortfall from the monthly benchmark energy) on a monthly basis, but not allowing the quid pro quo of the 10% bonus payment also on monthly basis. The Petitioner therefore prays that NEPRA state explicitly in the tariff determination that bonus energy payments should also be made on monthly basis. If this is not agreed, then any shortfall energy payments should also be deferred for payment at the end of a year. It is proposed to allow payment of bonus energy on a monthly basis in the same manner as the payment of benchmark energy is made by the Power Purchaser under the EPA. For each month, the benchmark energy and the bonus energy (if produced) shall be determined and paid by the purchaser.

The Project feasibility study has been based on the same concept and approved by AEDB. The approval letter of AEDB is placed at **Annex 2**.

The benchmark energy tables of monthly mean wind speed are attached at **Annex 7**.

11.2 POWER PURCHASE PRIOR TO COD

At present, it has been considered and planned that the whole facility shall come online at once at the time of COD. However, setting up wind power Projects involve massive infrastructure. The energy equipment is commissioned in pieces. The finalization of Project security documents can also push the Project to an alternate route. Particularly, it is emphasized that the Project Company shall commence with construction from equity contribution even before the Financial Close.

In the context of above, it is proposed to allow sale of any power to the purchaser which is dispatched on the grid before achieving the COD under the provisions of EPA.

This shall also include the power dispatched on the grid during testing and commissioning of the plant.

11.3 INCORPORATION OF INDEXATIONS, ESCALATIONS AND COST ADJUSTMENT IN REFERENCE TARIFF

It is understood by the Project Company that the Reference Tariff is approved along with certain indexations, escalations and cost adjustments as explained and desired in the **Section 10** of this petition.

Therefore, for the approval purposes, NEPRA shall determine the Reference Tariff and shall side by side approve / allow the indexations, escalations and cost adjustments. At any given time, the payable tariff shall be after incorporation of indexations, escalations and cost adjustments in the Reference Tariff as applicable at that time.

12 GENERAL ASSUMPTIONS

The following have been assumed while calculating the Reference Generation Tariff and changes in any of these assumptions will result in changes in the Reference Generation Tariff.

I. Debt: Equity ratio is assumed to be 80:20.

II. 100% of Debt has been assumed to be financed through Chinese banks and financial institutions.

III. Interest rate for debt is assumed in foreign currency at 5.3% (6 Month LIBOR plus 4.8% Spread), to be indexed semi-annually

IV. A constant ROE of 18% (IRR based) is assumed (net of 7.5% withholding tax on dividends) over 20 years. The ROE DC shall be accrued at the time of COD according to the actual schedule of equity disbursement.

V. Exchange Rate (PKR/USD) is taken @ PKR 85 per USD.

VI. Any taxes (Federal, Provincial, Local or district), stamp duties and levies etc which are not factored in the tariff calculation shall be treated as pass through items, in term of EPA.

VII. No customs duties and income tax have been considered for imports. Any changes in the customs duties or any other duty or tax on import of equipment and material will be treated as "pass through" to the Power Purchaser. Similarly, customs duties on spare parts after COD will be "passed through" to the Power Purchaser.

VIII. Deduction of withholding tax is assumed only in the On-Shore Contract with CWE. No withholding tax has been considered in the Off- Shore Contract with CHHD. Any additional tax, if levied, will be "pass through" to the Power Purchaser

IX. 7.5% withholding tax on dividend is assumed. Any changes in the aforesaid withholding tax regime will be "pass through" to the Power Purchaser. General Sales Tax and all other taxes will also be treated as a "pass through"

X. Usually, the Zakat deduction on dividends (currently @ 2.5%), as required to be deducted under Zakat Ordinance, is considered as "pass through". However, being a foreign investor, the deduction of Zakat will be exempted in this Project.

XI. Sindh Infrastructure Development Surcharge @ 0.50% of the imports for the Project has been assumed.

XII. The Return on Equity for the construction and commissioning period shall be adjusted on IRR basis at the time of COD according to the actual Equity disbursement during such period

XIII. The Power Purchaser / NTDC shall be exclusively responsible for the financing of construction, operation and maintenance of the Interconnection and Transmission Lines as per the prevailing policy at the time of tariff determination.

XIV. Main Energy meter and electronic recorder for continuous recording of readings will be provided by NTDC at its own cost.

XV. Financing Terms are as yet based on the initial discussion with the financial institutions and hence are subject to final negotiations once tariff has been determined by NEPRA and the EPA / IA are signed. This will include mainly the debt-equity ratio, Grace Period and loan repayment term, benchmark index (LIBOR) and the spread margin of the financial institution.

XVI. Pre-COD Insurance costs are considered based on the proposal received from top local insurance company. Premium rate for the insurance arrangements will be finalized at the time of financial closure.

XVII. No hedging cost is assumed for exchange rate fluctuations during construction and all cost overruns resulting from variations in the exchange rate during construction shall be included in the Project Cost.

XVIII. Project contingency and maintenance reserves are not included in Reference Generation Tariff calculations. If required by Lenders, these will be adjusted accordingly in the Reference Generation Tariff.

XIX. Any other assumptions that are not expressly stated herein but are based on the EPA draft negotiated by the Project Company with the Power Purchaser. Consequently any change in any such assumptions may lead to change in the Reference Generation Tariff.

XX. The payments to Workers Welfare Fund and Workers Profit Participation Fund have not been accounted for in the Project budget and have been assumed to be reimbursed at actual by the Power Purchaser.

XXI. Any incentives given to any other Wind IPP shall also be given to the Project Company.

13 DETERMINATION SOUGHT

The Petitioner therefore prays NEPRA to award the tariff to the Petitioner with the following reliefs/determinations:

i) The Project Costs and related arrangements stated in this Petition be allowed to the Petitioner:

ii) The Reference Generation Tariff set forth in Section 9 of the Petition together with the individual tariff components and the Debt Schedule be allowed to the Petitioner;

iii) The energy production estimate approved by AEDB, the Benchmark Energy Table based thereon set forth in this Petition be approved for incorporation in the Energy Purchase Agreement;

iv) The indexations for inflation, foreign exchange fluctuation and interest rate be allowed to be applied to the Reference Generation Tariff components throughout the tariff control period, and such indexation be allowed on quarter-year basis;

v) The Reference Generation Tariff be adjusted for true-up at the Commercial Operations Date based on the actual Project Costs and the underlying assumptions, in particular the General Assumptions in Section 12 and the indexations and adjustments in Section 11, as set forth in this Petition;

vi) Without prejudice to the generality of item (v), the tariff award may specifically refer to and allow the pass-through of all taxes, duties, levies and other public sector payments not included in the Reference Generation Tariff but which are incurred or required to be incurred by the Petitioner during the tariff control period;

vii) The Return on Equity (including during construction) be allowed on Internal Rate of Return basis (net of withholding tax) throughout the tariff control period;

viii) The power purchaser be directed to purchase and pay for all bonus energy (as defined in the RE Policy 2006) on a monthly basis; and

ix) The energy generated during construction and prior to COD be allowed to be sold to the purchaser at the rate applicable to bonus energy.

For and on behalf of the Petitioner

Mr. Wang Shenliang
Chief Executive Officer

Date: 8th June 2011