



**WESTERN  
ENERGY**

## **WESTERN ENERGY (PRIVATE) LIMITED**

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THE REGISTRAR,  
NATIONAL ELECTRICAL POWER REGULATORY AUTHORITY  
NEPRA Tower, Attaturk Avenue (East)  
G-5/1,  
Islamabad

DATE: - 27<sup>th</sup> NOVEMBER 2017

REF: - WEL/NEPRA/002/18

**SUBJECT:      APPLICATION FOR COST PLUS TARIFF BEFORE NEPRA**

Dear Sir,

I, MUSTAFA LAKDAWALA, Chief Operating Officer of the Company, being the duly Authorized Representative of WESTERN ENERGY (PRIVATE) LIMITED (**the Company**) by virtue of the resolution of the Board of Directors dated 07<sup>th</sup> AUGUST 2017, hereby submit the application for Cost Plus Tariff Determination, in terms of the Policy for Development of Renewable Energy for Power Generation 2006 and under the Regulation for Generation, Transmission and Distribution of Electric Power Act (XL of) 1997 (**the NEPRA Act**), submitted before the National Electric Power Regulatory Authority (**the Authority**) being responsible, inter alia, for determining tariffs and other terms and conditions for the supply of electricity through generation, transmission and distribution. The Authority is also responsible for determining the process and procedures for reviewing tariffs and recommending tariff adjustments. Further, pursuant to the enabling provisions of the NEPRA Act, the procedure for tariff determination has been prescribed in the NEPRA (Tariff Standards and Procedure) Rules, 1998 (**the NEPRA Rules**) and request for approval of the Authority.

I certify that the documents-in-support attached with this application are prepared and submitted in conformity with the prevailing provisions of the NEPRA Act and the NEPRA Rules, and I undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and belief.

A Pay Order number BC MBK 00024365, issued by Bank Alfalah Limited, in the sum of PKR 609,856/- being the non-refundable application processing fee calculated in accordance with National Electric Power Regulatory Authority (Fees Pertaining to Tariff Standards and Procedure) Regulations, 2002, is also enclosed herewith.

I hereby further request the Authority to accede to my request for approval of our application for Cost Plus Tariff Determination.

Respectfully submitted for and on behalf of:

**WESTERN ENERGY (PRIVATE) LIMITED**

.....  
**MR. MUSTAFA LAKDAWALA**  
(AUTHORIZED REPRESENTATIVE)

**BEFORE**  
**THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**

**TARIFF PETITION**

PURSUANT TO NEPRA (TARIFF STANDARDS AND PROCEDURE) RULES, 1998  
READ WITH THE PROVISIONS OF  
THE REGULATION FOR GENERATION, TRANSMISSION AND DISTRIBUTION OF  
ELECTRIC POWER ACT (XL OF) 1997 & THE RULES AND REGULATIONS MADE  
THEREUNDER

ON BEHALF OF

**WESTERN ENERGY (PRIVATE) LIMITED**

FOR NEPRA'S APPROVAL OF REFERENCE GENERATION TARIFF  
FOR WESTERN ENERGY (PRIVATE) LIMITED

FOR A WIND POWER PROJECT OF 50 MW  
AT: JHIMPIR, PROVINCE OF SINDH, PAKISTAN

**DATED:** November 27, 2017

**WESTERN ENERGY (PRIVATE) LIMITED**

F-25, BLOCK-5, RAJAHAN STREET, KEHKASHAN, CLIFTON, KARACHI, PAKISTAN

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# **1 DETAILS OF THE PETITIONER**

## **NAME AND ADDRESS**

### **Western Energy (Private) Limited**

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Tel: +922135876994, +92 21 35876997

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## **AUTHORISED REPRESENTATIVE**

### **Mr. Mustafa Lakdawala**

Authorized Representative,

Western Energy (Private) Limited

## 2 REGULATORY FRAMEWORK LEADING TO TARIFF PETITION

### 2.1 NATIONAL ELECTRIC POWER REGULATORY AUTHORITY - COMPETENT AUTHORITY FOR TARIFF DETERMINATION

#### 2.1.1 NEPRA Act, NEPRA Rules:

In terms of the Policy for Development of Renewable Energy for Power Generation 2006 (the **Policy**), the Alternative Energy Development Board (the **AEDB**) has confirmed its intent for Western Energy (Private) Limited (**Project Company**) to establish an approximately 50 MW wind power generation project (the **Project**) in the Jhimpir region in the province of Sindh pursuant to a letter of intent dated March 6, 2013 (the **LOI**). The LOI is currently valid up to 24<sup>th</sup> December 2017.

Under the Regulation for Generation, Transmission and Distribution of Electric Power Act (XL of) 1997 (the **NEPRA Act**), the National Electric Power Regulatory Authority (**NEPRA**) is responsible, *inter alia*, for determining tariffs and other terms and conditions for the supply of electricity through generation, transmission and distribution. NEPRA is also responsible for determining the process and procedures for reviewing tariffs and recommending tariff adjustments. Further, pursuant to the enabling provisions of the NEPRA Act, the procedure for tariff determination has been prescribed in the NEPRA (Tariff Standards and Procedure) Rules, 1998 (the **NEPRA Rules**).

### 2.2 PROCESS LEADING TO TARIFF PETITION

#### 2.2.1 Submission of the Feasibility Study and approval of the same:

In compliance with the requirements laid out in the Policy and the LOI, the Project Company completed the detailed feasibility in respect of the Project (the **Project Feasibility Study**) and submitted the same to the Panel of Experts through AEDB (the **Experts**) for their review and approval.

Following completion of the detailed review of the Project Feasibility Study by the Experts, the Experts in the minutes of the meeting held on 30<sup>th</sup> October 2017 communicated vide AEDB letter No. B/3/1/WEPL/13 dated 15<sup>th</sup> November 2017, have granted their approval.

#### 2.2.2 Request for Determination of Tariff:

Since the Project Company:

- (a) has been granted the LOI by the AEDB vide letter no. B/3/16/2007-138 on 06<sup>th</sup> March 2013 (attached as **Annex-A**).

- (b) has land allocated for the Project by the Government of Sindh, the lease document is being executed by the GOS and will be provided shortly. (see the land allocation documents papers issued to the Project Company by the GOS attached as **Annex-B**),
- (c) has received approval in respect of the Grid Interconnection Study for the Project by the National Transmission and Despatch Company (**NTDC**) vide letter no. 8353/GM/GSC dated 11<sup>th</sup> November 2016 (attached as **Annex-C**),
- (d) has received approval in respect of the Project Feasibility Study by the Experts vide minutes of the meeting held on 30<sup>th</sup> October 2017 communicated by AEDB letter No. B/3/1/WEPL/13 dated 15<sup>th</sup> November 2017 (attached as **Annex-D**),
- (e) has obtained the applicable environmental approvals in respect of the Project from the Sindh Environment Protection Agency vide letter no. EPA/2017/01/09/IEE/108 dated 25<sup>th</sup> January 2017 (attached as **Annex-E**),
- (f) has been added to the esteemed list of China Pakistan Economic Corridor (CPEC) projects vide the Agreement signed between National Energy Administration of China and the Ministry of Water and Power of Pakistan dated 13<sup>th</sup> May 2017 (attached as **Annex-F**)
- (g) has executed binding contracts in respect of engineering procurement and construction (**EPC**) works for the Project with renowned contractors from China eligible to arrange Chinese project financing under CPEC arrangements (attached as **Annex-G**),
- (h) has signed term sheet for debt financing backed with SINOSURE cover for the CPEC Projects (details attached as **Annex-H**),
- (i) has signed Operation and Maintenance Contract with Sino-Qiyao International (Pvt.) Limited (attached as **Annex – I**)
- (j) has been granted Generation License no. WPGL/37/2017 dated 05th January 2017 by NEPRA. (attached as **Annex J**)

accordingly, it is submitted that the requirements of the regulatory process for applying to NEPRA for a cost-plus tariff determination for the Project have been completed.

### 2.2.3 Submission

Pursuant to the relevant provisions of the NEPRA Rules, read with the provisions of the NEPRA Act and the rules and regulations made there under, in accordance with the Policy; **AND** in view of compliance by the Project Company of the foregoing

(including the LOI), **Western Energy (Private) Limited** submits bere with before NEPRA, the competent regulatory authority lawfully authorized to determine tariff for wind power generation companies, for its approval, a tariff petition (the **Tariff Petition**) for approval of:

- (i) the reference generation tariff (the **Reference Generation Tariff**);
- (ii) the Indexations and Adjustments;
- (iii) Adjustments at commercial operations date; and
- (iv) other matters set out in this Tariff Petition,

Given the advanced stage of the Project, NEPRA is kindly requested to process the Tariff Petition at the earliest, thereby enabling the Project Company to achieve financial close as per the requirements of the LOI and start generation on or before December 2019 and as per the interconnection arrangement confirmed in the Grid Interconnection Study approval letter and the Power Evacuation Certificate received from NTDC.



### **3 EXECUTIVE SUMMARY**

#### **3.1 PROJECT BRIEF**

The Applicant, Western Energy (Private) Limited (The Project Company) is a private limited company incorporated under the laws of Pakistan and has been specifically established to undertake power generation business and activities in Pakistan.

The Project Company following the grant of a generation license and upon receiving approval of the Project Company's reference generation tariff by NEPRA, proposes to design, engineer, construct, insure, commission, operate and maintain the Project constituting of a 50 MW wind power generation facility (the Facility) to be located at Jhampir, District Thatta, Province of Sindh, Pakistan (the Site).

After receiving the letter of intent no. B/3/16/2007-138 dated 06th March 2013 (LOI), in respect of our proposed 50 MW wind power project (Project) from the AEDB, our Project was allocated 852 acres of land by the Government of Sindh through the Sindh Board of Investment and Land Utilization Department. The soil investigation, topography survey and technical feasibility were carried out. Wind mast installed and site-specific wind data for over 18 months was collected and the approval for our wind resource analysis was received from AEDB vide letter no B/3/1/WEPL/13 dated 23rd June 2015. However due to intervention by the Pakistan Air Force informing of their plan to construct Bholari Air Base near our originally allotted land and imposition of height restriction on the construction around the air base impacted the erection of our WTGs at the required height therefore the project site had to be relocation with the help of AEDB and Energy Department of Government of Sindh, a new plot of land measuring 428 acres was allocated and fresh studies were carried out on this new plant site.

Despite of the foregoing impediments the Company completed all its requirements and had applied for the Power Acquisition Request (PAR) from CPPA well in time and before the expiry of the 2015 Upfront Tariff, the PAR was not issued to our project by the CPPA and the Upfront Tariff expired on 13th June 2016.

On our plea for unfair treatment mitigated by CPPA, the Ministry of Water and Power (MoW&P) gave us its assurances our project together with nine other projects which were not given the PAR by the CPPA will receive the next upfront tariff as soon as it is announced.

Based on this understanding, we engaged with NTDC, AEDB and consultants carrying out our interconnection study with the aim to prepare a timeline for construction of the evacuation arrangement for our project by December 2019.

During this period, NEPRA initiated suo moto proceedings for determination of a new upfront tariff for wind power projects and advertisements in this regard were published in local newspapers on 14th June 2016, which proposed a levelized tariff of US Cents 8.19/ KWh and invited comments from stakeholders. A number of interventions and comments were filed in respect of the advertised tariff, including an intervention by us, and a public hearing was held by NEPRA on 19th July 2016.

Apart from discussions on the tariff assumptions and mechanism, it was evident from the proceedings at the public hearing that all the stakeholders including AEDB, lending institutions and GOS, except for CPPA(G), were of the opinion that competitive bidding regime for wind power projects should be introduced after the

existing unsolicited projects have been awarded upfront tariff.

In view of the foregoing we continued with our development activities on our unsolicited site in anticipation that an upfront tariff will soon be announced by NEPRA and the following milestones were completed on our relocated site:

- a. After an extensive EPC selection process, most appropriate EPC contractors and technically superior wind turbine technology for our Project was selected which is most suited to our unsolicited site and is supported by the Chinese authorities to qualify as EPC Contractor eligible to carry out the EPC Contract for a CPEC project. The Offshore Engineering and Services Contract was signed between Shanghai Marine Diesel Engine Research Institute (SMDERI) and the Company on 15<sup>th</sup> December 2014 and the Onshore Supply and Services Contract was signed between M/s Sino-Qiyao International (Pvt.) Limited and the Company on 30<sup>th</sup> January 2015.
- b. Feasibility study in respect of our relocated project site was completed and submitted to AEDB vide letter no. WEL/AEDB/015/16 dated 24<sup>th</sup> March 2016.
- c. Grid Interconnection Study dated May 2016 for our Project was conducted and completed by the National Transmission and Despatch Company (NTDC) and its approval was conveyed vide NTDC letter and the certificate approving the Grid Study with confirmation for evacuation of power issued by GSC, NTDC vide letter no 8353/GM/GSC dated 11<sup>th</sup> November 2016.
- d. The Power Evacuation Certificate has also been issued by NTDC vide letter no 8353/GM/GSC dated 11<sup>th</sup> November 2016.
- e. The Generation License no. WPGL/37/2017 has been issued by NEPRA vide letter no. NEPRA/R/DL/LAG-354/236-42 dated 05<sup>th</sup> January 2017 to our Project.
- f. The term sheet dated 09<sup>th</sup> January 2017 to fund 75% of our project cost has been signed with Industrial and Commercial Banking Corporation of China, with a confirmation from SINOSURE to provide our project with its insurance cover offered to CPEC projects.
- g. IEE study in respect of our Project was completed and approved by the Sindh Environment Protection Agency vide letter no EPA/2017/01/09/IEE/108 dated 25<sup>th</sup> January 2017.
- h. Wind mast was relocated to our new Project site in January 2017 and site specific wind data has been collected ever since its relocation.

NEPRA issued a benchmark tariff for reverse bidding on 27<sup>th</sup> January 2017 prior to the announcement of the upfront tariff for the unsolicited projects waiting for the upfront tariff. Ever since the announcement of the benchmark tariff for reverse bidding, we have been in waiting for the announcement of the RFP document by the competent authority. In view of the uncertainty in the timeline for announcement of the RFP for reverse bidding of wind projects and considering that our project being a CPEC project is required to be pursued on fast track basis we are filing this petition.

## **3.2 EPC APPROACH & O&M ARRANGEMENT:**

All leading brands including Haizhuang, Nordex, General Electric, Siemens, Gamesa and Vestas, were considered and detailed assessment was carried out of power curve, size, spacing & annual energy output, etc. Based on these analysis and assessment the EPC arrangements were made by signing of two contracts with a global leader from China in shipbuilding and heavy engineering works. Company selected SMDERI as the EPC and O&M Contractors based on the best commercial terms, technical soundness and relevant experience packaged with lowest financing terms.

The Company has executed its Offshore Supply and Services Contract with SMDERI on 15<sup>th</sup> December 2014 and its Onshore Supply and Services Contract dated 30<sup>th</sup> January 2015 and a 10 year O&M Contract dated 30<sup>th</sup> January 2015 were signed with Sino-Qiyao International (Pvt.) Limited, a fully owned subsidiary of SMDERI incorporated under the laws of Pakistan.

### **3.2.1 SMDERI Introduction**

Shanghai Marine Diesel Engine Research Institute (SMDERI), founded in 1963, is under the direct jurisdiction of China Shipbuilding Industry Corporation (CSIC), which is on the list of global fortune 500 companies. SMDERI is not only a state-owned research institute on marine diesel engines in China, but also an enterprise engaged in R&D, manufacturing, service and project contracts. Its main strategic business includes energy service, manufacturing of diesel engine, sterling engine, power system integration, ship automation system, energy saving and environmental protection equipment. The main products developed and produced by SMDERI take the leading position in China, with a market covering more than 30 countries and regions. The total assets of SMDERI are about USD 1 billion with the revenue of more than USD 460 million in 2013. The enterprise has total staff strength of more than 2,300 people.

SMDERI has also engaged Shanghai Electric Power Design Institute Co., Ltd. for the project engineering. Shanghai Electric Power Design Institute Co., Ltd., is a subsidiary of the Power Construction Corporation of China, a leading company in China's power design industry. It has grade A qualification in both national power engineering design and consultation for power generation, transformation and transmission.

The company has unique core technology for the consultation and design of super large urban network planning and the UHV. Its new energy engineering section has created a number of "first" records: the world's first large-scale wind-photovoltaic energy storage power generation system, Asia's largest solar photovoltaic power plant integrated with a single building, the first urban underground substation, the first 220KV substation integrated with high-rise residential buildings, the first long-distance 500kV underground cable line going deep into the downtown of a megalopolis, the high-voltage cable laying for the longest sea-crossing bridge in

China, and the construction of the first flexible DC transmission line. As one of Shanghai's high-tech enterprises and one of the key high-tech enterprises in China's Torch Plan, our company undertakes China's "863" science and technology project and the National Key Technology R&D Program; it is the chief editor of more than 20 national and industrial standards, it also holds more than 50 patents.

#### Operations

The company operations in Pakistan has recently been commissioned with Joint venture partners and technology alliances are coming in place from acquisition of technology and specialist expertise.

### 3.3 PROJECT FUNDING:

The capital structure of the Project is envisaged at 75:25 (Debt : Equity). The Project Company intends to obtain 100% of the debt from Industrial and Commercial Banking Corporation of China (ICBC) and has already finalized detailed term sheets for purposes of financing of the Project. The signed term sheet for the financing of the Project is attached as *Annexure - H*.

The equity required for the Project is to be funded as follows:

Being a joint venture between the Tapal Group of Pakistan and China Shipbuilding Industrial Corporation of China, our sponsors are committed to fund this project by investing 25% of the project cost in the following shareholding ratio:

	<b>Sponsor Group</b>	<b>%</b>
1.	The Tapal Group	60%
2.	The China Shipbuilding Industry Corporation (the CSIC) through its affiliate Shanghai Pilot Free Trade Zone Well Energy Technology Co., Ltd (Shanghai Well)	40%

### 3.4 SALIENT FEATURES OF THE PROJECT

Subject to the assumptions contained in this Tariff Petition, please find below a summary of the Project for NEPRA's perusal:

<b>PROJECT COMPANY</b>	Westem Energy (Private) Limited
<b>SPONSORS</b>	Tapal Group & China Shipbuilding Industry Corporation (CSIC)
<b>PROJECT CAPACITY</b>	50 MW
<b>PROJECT LOCATION</b>	Jhimpir, Province of Sindh, Pakistan
<b>LAND AREA</b>	428 Acres
<b>CONCESSION PERIOD</b>	25 years from commercial operations date

<b>PURCHASER</b>	Central Power Purchasing Agency (Guarantee) Limited				
<b>ENERGY PRODUCTION</b>	162,060 MWh				
<b>EPC CONTRACTORS</b>	Shanghai Marine Diesel Engine Research Institute (SMDERI) and its affiliate M/s Sino-Qiyao International (Pvt.) Limited				
<b>PROJECT CAPITAL COST</b>	<i>Amount (US\$ '000)</i>				
	EPC Price				76,000
	Non-EPC Cost & Project Development Cost				4,613
	Taxes and Duties				2,033
	Insurance During Construction				585
	Financial Charges				2,779
	Interest During Construction				2,445
	<b>Total Project Cost</b>				<b>88,455</b>
<b>FUNDING PLAN</b>	Debt 75% : Equity 25%				
<b>EQUITY</b>	US\$ 22,113 million				
<b>LONG TERM DEBT</b>	US\$ 66,342 million				
<b>LENDERS</b>	Industrial and Commercial Banking Corporation of China				
<b>TERMS OF LONG-TERM DEBT</b>	<b>Currency</b>	United States Dollars			
	<b>Terms</b>	Up to 15 years			
	<b>Grace Period</b>	Upto 24 months for construction			
	<b>Repayment Period</b>	13 years			
	<b>Debt Repayment</b>	in 52 equal quarterly instalments			
	<b>Interest Rate</b>	Base Rate: 3 Months LIBOR Spread: 300 basis points			
	<b>Arranger's Fee</b>	1.2% of loan amount payable in 52 quarterly equal installments with principal and interest			
<b>O&amp;M CONTRACTOR</b>	Sino-Qiyao International (Pvt.) Limited, affiliate of CSIC Group				
<b>PROJECT OPERATION COST</b>	<i>Amount (US\$ '000)</i>				
	<i>Years</i>	<i>01 &amp; 02</i>	<i>03 - 05</i>	<i>06-09</i>	<i>10-25</i>
	O&M -Foreign	722.88	1,393.49	1,351.03	1,248.23
	-Local	1,466.52	1,466.52	1,466.52	1,466.52
	Insurance Cost	390.00	390.00	390.00	390.00
	<b>Total Operating Cost</b>	<b>2,579.40</b>	<b>3,250.01</b>	<b>3,207.55</b>	<b>3,104.75</b>
<b>LEVELIZED TARIFF</b>	US Cents/kWh :				7.7053
	PK Rupees/kWh:				8.0906
<b>CONCESSION DOCUMENTS</b>	<ul style="list-style-type: none"> <li>• Energy Purchase Agreement</li> <li>• Implementation Agreement</li> <li>• Government of Pakistan Guarantee</li> <li>• Site Lease Deed</li> <li>• Lender's Direct Agreements</li> </ul>				

<b>APPLICABLE POLICY</b>	Policy for Development of Renewable Energy for Power Generation, 2006	
<b>LEGAL ADVISORS</b>	HaidermotaBNR & Co.	
<b>TECHNICAL CONSULTANTS</b>	a. Pakistan Alternative Engineering Services (Private) Limited b. Power Planners International	
<b>MILESTONES ACHIEVED BY THE PROJECT</b>	• LOI issued by the AEDB on	06 <sup>th</sup> March 2013
	• Land allocated by GOS Documentation for execution of lease agreement is in process	29 <sup>th</sup> January 2016
	• Approval of the Grid Interconnection Study	11 <sup>th</sup> November 2016
	• Generation License granted by NEPRA	05 <sup>th</sup> January 2017
	• Debt Term Sheet signed with ICBC for 75% of the Project Cost	09 <sup>th</sup> January 2017
	• Added to the list of China Pakistan Economic Corridor (CPEC)	13 <sup>th</sup> May 2017
	• Letter of support reissued by SINOSURE for the sovereign risk cover	20 <sup>th</sup> November 2017

### 3.5 KEY FEATURES OF THE PROJECT

#### 3.5.1 The Project Site

The project is located in Jhampir District, Thatta, Sindh and is in close vicinity of the super highway and PAF Base Bholari. The geographical coordinates of our project are as follows:

	<b>Latitude</b>	<b>Longitude</b>
1	25°11'12.32" N	68°02'44.02" E
2	25°11'7.61" N	68°02'40.98" E
3	25°10'0.35" N	68°04'29.78" E
4	25°09'59.66" N	68°04'30.91" E
5	25°09'42.21" N	68°05'8.50" E
6	25°09'38.41" N	68°05'5.14" E
7	25°09'0.13" N	68°05'4.99" E
8	25°08'55.40" N	68°05'1.84" E
9	25°09'33.30" N	68°04'11.44" E
10	25°09'33.99" N	68°04'10.28" E

As the land allocated by the GOS is in close vicinity of the PAF Bolari Base, our micro sighting of the wind turbines has been effected due to a perimeter recently declared by PAF Bolari Base as restricted area for installation of wind turbines therefore our turbines were relocated and the distance between the turbines was compromised. The PAF Bolari Base has also set a height restriction on structures therefore large size turbines and towers higher than 80 to 85 meters from ground level are not possible on our land site. These impediments have resulted in our output being compromised to some extent as higher towers cannot be considered by us which could result in a higher yield. The micro sighting of our wind farm is pictorially presented in the following diagram highlighting the portion restricted for any structure by PAF:



### **3.5.2 A CPEC Project**

Our project has Chinese sponsor, Chinese EPC Contractor and Chinese O&M Contractors and has financing arrangements with ICBC Bank of China based on a guarantee given by the sponsors and EPC Contractors. The project also enjoys the most favorable terms of lending offered to any power project in Pakistan. A SINOSURE cover has also been extended to our project. These features have enabled the inclusion of our project to the esteemed list of CPEC project vide the agreement dated 13<sup>th</sup> May 2017 signed between National Energy Administration of China (NEA) and the Ministry of Water & Power of Pakistan.

### **3.5.3 Fast Track Project**

Being a CPEC project we are compelled to achieve our commercial operations as early as possible in order to achieve the results set by China for its one belt one road vision. The target set by NTDC and CPPA is leading to a COD date of December 2019 however the Company is committed to commission earlier and is in discussions with CPPA to complete the interconnection arrangements at the earliest so that the COD is achieved by June 2019.

### **3.5.4 OEM's commitment for superior product in shortest time with a longer life.**

The product selected for our project is a superior brand of CSIC (Chongqing)

### 3.5.4 OEM's commitment for superior product in shortest time with a longer life.

The product selected for our project is a superior brand of CSIC (Chongqing) Haizhuang Windpower Equipment Co., Ltd. (HZ) which are successfully in operation for over 13 years in China and has introduced its model H 111 turbines in project located in Nevada, Iowa, USA. HZ being a group company of CSIC is committed to supply high quality wind turbines in the shortest of time and with long term backup and support of the OEM. It is for this reason that the Company is pleased to offer a 25 years' term which is longest for any wind projects located in Pakistan.

### 3.5.5 Favored Financing Terms

As the sponsors are the guarantors of finances and the project is a CPEC project, the financing arranged from ICBC is at the most favored financing terms with margin as low as 3% on 3 months LIBOR with an extended repayment term of 13 years.

### 3.5.6 Selection of Technology / WTGs

The wind mast was erected in February 2014 at our original site. The data set used to undertake a wind regime assessment include data form February 2014 to November 2015 collected from mast installed at our original site and from January 2017 to October 2017 collected from the mast at our relocated site together with data collected from other masts considered similar by the consultants.

Based on the analysis and assessment of this wind data used to undertake into the wind analysis and assessment report, it was concluded that H111-2.0MW would prove the most suitable equipment for the project.

#### 1. Design

HZ's H111-2.0MW IEC Class IIIA doubly-fed WTG is featured by three blades, upwind, horizontal shaft, electric pitch, variable speed constant frequency, active wind and transmission chain supported with two points. The H111-2.0MW wind turbine with a rotor diameter of 111m and a rated power 2000kw, the wind turbine is offered in the variants 50 Hz and 60Hz.

The wind turbine is a further development of the sophisticated turbine family H87-2.0MW, H93-2.0MW and H102-2.0MW

#### 2. Climatic design data

The tower, nacelle, and rotor blades are certified according to national and international standards for wind turbines.

#### 3. Ambient temperatures Standard:

Survival: -30 – +50□  
Normal Operating Range: -10 – +45□



#### 4. Pitch system

The pitch system changes the scale of wind power acquired by WTGS by changing the pitch angle of the blade. The electrical pitch is available for the pitch system of 2.0MW WTGS. Each blade is provided with independent pitch mechanism, and the pitch angle of each blade is measured by the two separate encoders. When the wind speed is higher than the rated wind speed, it is necessary to adjust the blade pitch angle and change the blade angle of attack for the flow, to change the aerodynamic torque acquired by WTGS and ensure that the power output remains stable. When the wind speed is lower than the rated wind speed, the blade pitch angle can be rotated to the right angle, so that the wind turbine can acquire the maximum aerodynamic torque to acquire the wind power as much as possible. When it is required to disconnect WTGS from the grid, the blade is rapidly rotated by the pitch system to reduce the wind power absorption and rotor speed, so that the operation of WTGS can be more stable and secure.

2.0 MW pitch system consists of 3 blade axis control cabinets (including 3 standby powers) and 1 central control cabinet. The blade is connected on the hub via pitch bearing with internal gear. Each blade is driven independently by the pitch system via the pitch reduction box meshed with pitch bearing internal gear.

During normal operation, the rotor speed of the generator is controlled within the rated scope by the pitch angle for power control. In any shutdown cases, the blades shall be turned to feathering position.

For normal shutdown and general fault shutdown, the pitch system power is supplied by the grid, so that the blades are rotated to the first limit switch position; if the first switch fails and the blades are rotated to the second limit switch position. Once the limit switch is triggered, the brake of pitch motor is enabled and the blades stop rotating. For grid fault and other emergency shutdown, the standby powers are used for the pitch system and it can ensure that the blades can be rotated to the feathering position under the worst conditions to ensure the safety of the unit.

#### 5. Gearbox

The gearbox is provided with first stage planetary gear and second stage spur gear and the gear mesh in the gearbox is characterized by its high efficiency and low noise. The elastic support and gearbox torque arm are adjusted by the elastic elements and directly connected with the rack. The movable bearing is applied for the elastic support on the gearbox, which effectively insulates the sound and vibration transmission from the gearbox to the rack. The elastic elements of elastic support are made of high strength rubber materials to extend the service life.

The lubricating system consists of oil pump filtering device, pressure sensor, oil/water heat exchanger (low temperature unit only), etc.

The oil pump supplies oil to the system and the lubricating oil flows to the thermostatic valve, which control the flow direction of lubricating oil according to oil

temperature, after the filtration of secondary oil filter. When the oil temperature is lower than 45°C, the lubricating oil flow in the gearbox directly; when the oil temperature is high than 45°C, the thermostatic valve starts to work and the lubricating oil can only flow in the gearbox when cooled down. The inlets of filter and gearbox are installed with pressure sensor to detect the pressure of lubricating oil.

The filter is a secondary filter. When cold start is initiated (temperature of lubricating oil is too low) or the differential pressure at filter element of the filter is more than 4bar, the one-way valve on the filter element opens and the lubricating oil only needs to go through 50µm coarse filtration; when the temperature rises gradually or the differential pressure at filter element is lower than 4bar, the one-way valve on the filter element closes and the lubricating oil goes through 10µm filtration. The filter is installed with differential pressure signal sender to send signal and suggest replacing the filter when the filter element is clogged and the pressure difference reaches 3bar.

The labyrinth seal, special oil return and other methods are adopted for the gearbox and forced lubrication method is applied for all lubricating points of the gearbox, which guarantees the lubrication and cooling of key parts and ensures the long-term operation safety of gearbox.

The cooling circulation circuit, directly composed of gearbox and air cooler, enable or disable the cooler when the oil temperature reaches certain value.

## 6. Generator

Generating system is the key to achieving high-efficiency and high-quality power output. Currently adopting doubly-fed asynchronous generator-converter system is mainstream mode of MW WTGS around the world. The reason is that doubly-fed asynchronous generator is small and light and has high reliability and compact structure, with small converter power (only about 1/3 of rated power of WTGS), and low noise spreading, especially low wind velocity and power supply characteristics of power grid are improved noticeably.

Variable-speed generator provides considerable power fluctuation filter under partial load condition and almost complete filter under working condition with rated, which can obviously lessen the noise produced during the operation of WTGS and greatly lower dynamic load on the structure. And gust energy is buffered through the acceleration of wind rotor and then can steadily enter power grid, and the voltage and frequency transmitted to power grid maintain constant.

2.0 MW generating system is composed of doubly-fed induction generator and the converter adopting IGBT technique. Under sub-synchronous operation mode, generator stator delivers all power to power grid and provides slip power to the generator from the converter through slip ring of the generator; under hypersynchronous operation mode, the generator directly delivers about 83% power to power grid through the stator, and remaining power (about 17%) is delivered to power grid by generator rotor through the converter.

Compared with other systems, this system features low loss, so it can ensure highly overall efficiency. Besides, because of using little spare parts and being designed

compactly, this system also possesses excellent applicability.

Adopt completely enclosed packaging for the generator, whose protection class is IP 54, and electric generating set has air-water cooling system. The converter is installed inside the nacelle, with fine, stable and reliable electromagnetic compatibility. It adopts the latest IGBT technique and DSP control technique, featuring bidirectional power flow, low distortion and low harmonic content, etc. Moreover, the converter is also equipped with parallel and serial interfaces used for in-plant and field debugging.

#### 7. Yawing

The yawing system is controlled and driven by the gear motors of the four electric brake systems. The precise wind direction measurement methods and control software ensure the precise alignment of impeller to the wind direction, and reduces the energy loss caused by the deviated airflow and other load losses. The wind direction sensor and the corresponding software control the turn-on time and rotation direction of motor.

The yaw detector in the yawing system, which is provided with 1080° yawing limit function, can monitor the over-twisted cable caused by changes in wind directions and initiate the controller to untwist the cable in the opposite direction. Even if the cable position is changed for several times at a direction by the nacelle during the changing process of wind conditions, it can also ensure automatic cable untwisting.

#### 8. Lighting protection

Currently, megawatt WTGS is commonly applied, and hub height and length of blade increase gradually. Most WTGSs are installed in open fields, highly vulnerable to lightning strikes. Huge amount of energy released by lightning may cause WTGS blade damage, generator insulation breakdown, electrical component burnout, etc. Therefore, lightning safety of WTGS has received increasing attention, and effective measures have been taken to ensure the safety of units.

Lightning protection of H111-2.0 MW WTGS is designed in accordance with the highest level, LPL Level I and adopts integrated lightning protection system design philosophy. Lightning protection and surge protection of 2.0MW WTGS are designed on the basis of IEC and the relevant national standards.

According to the requirements of Article 8.3 of IEC61400, the internal and external part of WTGS are divided into several lightning protection zones with effective lightning protection and surge protection designed at junctions of different lightning protection zones.

## 4 PROJECT COST, OPERATING COST AND TARIFF

### 4.1 PROJECT COST SUMMARY

The total Project Cost, expressed in United States Dollars, has been calculated after thorough analysis, evaluation and understanding of the dynamics that affect the development and operation of a wind power projects. The reference exchange rates used to convert the relevant costs into United States Dollars are USD 1 = PKR 105.

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

INVESTMENT / COST	US\$ '000
EPC COST	76,000
TAXES & CUSTOM DUTY	2,033
NON-EPC & PROJECT DEVELOPMENT COST	4,613
PRE-COD INSURANCE COST	585
FINANCIAL CHARGES	2,779
INTEREST DURING CONSTRUCTION	2,445
<b>TOTAL PROJECT COST</b>	<b>88,455</b>

### 4.2 DETAILS OF PROJECT COST

#### 4.2.1 EPC Cost:

The breakup of costs contained in the EPC Agreement are as follows:

COST HEAD	US\$ '000
OFFSHORE AGREEMENT	64,600
ONSHORE AGREEMENT	11,400
<b>TOTAL EPC COST</b>	<b>76,000</b>

The EPC Cost includes the cost of 25 wind turbine generators, generator step up transformers, MV Substation, HV Substation, protection system, SCADA system, communication system, metering system and anemometry system, electrical equipment, together with ancillary equipment and other goods, systems and machinery and includes the cost of, *inter alia*, the erection, testing, completion and commissioning of the equipment and construction of the facility that is capable of fulfilling the intended purpose.

The EPC Cost also includes costs for: staff accommodation (construction of the camp buildings), supply of drinking water and electricity (to camp buildings), catering services for the staff, certain project vehicles, standby generator (including fuel), site security during construction period and construction of internal access roads.

It is pertinent to mention here that EPC Contractors normally require confirmed LCs for projects undertaken in Pakistan, which cost around 2% of the offshore component. However, under EPC structure adopted by the Project Company, confirmed LC is not

required as a result of which substantial savings have been achieved.

Though Project Company will pay, as mobilization advance, 14 % (aggregate) of the total amounts payable to the EPC Contractor pursuant to the EPC Agreements upon achievement of, *inter alia*, the following milestones:

- (a) issuance of 'Preliminary Notice to Commence'; and
- (b) tariff determination by NEPRA.

the EPC Contractor had already started design and drawing work since the signing of the EPC Contract in December 2014 and has also ordered vendorization of the components incurring costs associated to these activities however the Project Company has put these activities on hold due to delay in award of tariff to the Company for reasons cited above.

The above costs are subject to escalations in accordance with the EPC Agreement if the above milestones are not timely achieved.

#### **4.2.2 Taxes & Custom Duty**

The extract of the relevant legislatures reproduced below are basis for our assumption on costs associated to taxes and custom duties considered in this petition.

##### **Custom Duty:**

The amount of customs duty to be paid by renewable energy projects is to be calculated based on Section 18 (1A) of the Customs Act 1969 read with Serial 11 to the Part I of Fifth Schedule of the Customs Act 1969 (the Schedule), which allows Customs Duty at a rate of Zero% for the following items:

*"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."*

Accordingly, the Project Company has assumed **Zero%** customs duty on imported plant, equipment, machinery etc. in accordance with the above.

However, in case of applicability of any custom duty, the Project Company prays NEPRA to allow adjustment of capital cost of the Project and tariff at COD, for actual customs duty paid.

##### **Additional Custom Duty:**

Additional Custom Duty is assumed at **Zero %**, as the same is correlated with the items exempted in the fifth schedule of the Custom Act. In case the Project has to pay customs duty then the Special Excise Duty at 1% is levied. Accordingly, the Project Company requests NEPRA to kindly allow adjustment in capital cost of the Project and the tariff at COD, for actual special excise duty paid.

### **Sales Tax on imports:**

No Sales Tax is assumed on import and local supply of the imported plant, equipment, and machinery etc., as per Table 3 of Sixth Schedule (the Schedule) to the Sales Tax Act, 1990 read with Section 13 (1) of the Sales Tax Act, 1990 wherein exemption from applicability of sales tax is provided. Serial # 7 of the Schedule cites following items which are exempt from sales tax;

*"1. 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."*

However, in case of change in laws by virtue of which if federal sales tax applicable on procurement of plant, machinery and equipment becomes applicable the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

### **Sindh Sales Tax on Services**

Section 8 of the Sindh Sales Tax on Services Act, 2011 charges tax on contracts for construction services at the rate of 8% of the value of service therefore the Project Company has included this cost applicable on Onshore EPC Contract in its Project Cost calculations however in case the rate of the said Sales Tax on services is changed, then the related impact shall be requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

### **Advance Income Tax on import:**

Advance Income Tax at **Zero** Percent (0%) has been assumed at the time of import of machinery, equipment, goods, spares and materials for the Project in line with exemption provided under Section 153 of the Income tax Ordinance 2001, read with clause 77 to the Part IV of 2nd Schedule to the Income Tax Ordinance, as reproduced hereunder

*"(77) Provisions of sections 148 and 153 shall not be applicable on import and subsequent supply of items with dedicated use of renewable sources of energy like solar and wind etc., even if locally manufactured, which include induction lamps, SMD, LEDs with or without ballast with fittings and fixtures, wind turbines including alternator and mast, solar torches, lanterns and related instruments, PV modules (with or without) the related components including invertors, charge controllers and batteries."*

However, in case of change in laws before import of related plant, equipment and machinery by virtue of which such advance income tax rate is increased from currently applicable zero percent then the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

## **Tax on Contract for Construction Services signed with a Local Company:**

Section 153 of the Income Tax Ordinance 2001 states that:

*(1) Every prescribed person making a payment in full or part including a payment by way of advance to a resident person or permanent establishment in Pakistan of a non-resident person.....*

*(a) .....*

*(b) .....*

*(c) on the execution of a contract, ....., shall, at the time of making the payment, deduct tax from the gross amount payable (including sales tax, if any) at the rate specified in Division III of Part III of the First Schedule”*

Division III of Part III of the First Schedule prescribes the applicable tax rate on such contracts as 7%

The Project Company is obligated to deduct this tax at the rate of 7% of the value of contracted supply or service which being the final tax liability of the Contractor is termed as its cost. It customary for all contractors to quote the price for contracted supplies and services, net of any tax obligations. The tax obligation being an uncertain rate for long term contracts is paid by the Project Company. Our Onshore Contract for Construction and Services also has this provision and as such this cost is added to the Project Cost calculations

However, in case of change in law by virtue of which such tax rate is changed from its prevailing rate of 7% percent then the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

### **Sindh Infrastructure Development Cess (SIDC):**

The SIDC is a charge on imported goods which are subject to the Custom Duty, as the plant, equipment, machinery etc. imported for the wind energy project is exempt from Custom Duty, therefore **Zero %** SIDC is applicable on such plant machinery.

However, in case of change laws or interpretation of this law by virtue of which such SIDC is imposed from currently applicable zero percent then the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

### **Federal Excise Duty (FED):**

FED on the payments to be made to (1) local financial institutions; and (2) insurer's, has not been assumed. In case FED is levied on the financial advisors and lead arrangers' fee, debt arrangement fee, commitment fee, L/C commission and charges, loan administration charges, and insurance premium the same should be allowed as pass-through under the tariff.

***The taxes and duties are requested to be adjusted at actual at the COD stage tariff adjustment / Tariff true-up.***

### 4.2.3 Non-EPC and Project Development Cost:

The Non-EPC Cost includes the cost of items that are not part of the EPC Contractor's scope of work pursuant to the EPC Agreement while Project Development Costs include the costs incurred for the purpose of project development work fees and expenses incurred or to be incurred for such purpose. These costs include, *inter alia*, costs of feasibility studies, grid interconnection studies, Environmental studies, topographical survey of land, geotechnical investigation of land; fees of consultants; costs related to the bank guarantee to be furnished to AEDB, costs related to the Purchaser letter of credit to be furnished to the Power Purchaser pursuant to the provisions of the EPA, various regulatory fees to be paid to AEDB, NEPRA and other governmental agencies, costs incurred during the Project Company's formation and capital enhancement; and costs relating to various permits for the Project, land cost, post financial close technical supervision and site security etc.

It may be appreciated that the all studies required under the LOI had to be done twice due to relocation of our project site to address the concerns of the PAF Bholari Base thereby increasing our development time and cost for no fault of ours.

A breakdown of some of such costs is provided below:

	<b>COST</b>	<b>US\$ '000</b>
A	Consultancy Costs & Technical Studies – Pre-Financial Close	899
B	Owner's Engineer Supervision – Post Financial Close	500
C	Independent Engineer - Pursuant to the EPA	48
D	Permits, Permissions and Related Costs	280
E	Site works, transport and Infrastructure cost	831
F	Administration and Other Development Expenses	1,649
G	Travelling Costs	181
H	Security Expense as per NERPA guideline	225
	<b>TOTAL NON-EPC &amp; PROJECT DEVELOPMENT COST</b>	<b>4,613</b>

#### A. Consultancy Costs & Technical Studies- Pre Financial Close:

The Project Company has engaged highly reputed and leading consultants as Project advisors that have unmatched expertise in planning, engineering, financial, legal and technical matters. The Project Company has endeavored to put together the best team of consultants for the Project so as to ensure that wind power sector in the country is developed and the Project is bankable from all aspects. Based on the requirements of technical consultants, the Project Company has already completed electrical, geotechnical, topographical, soil and other related studies for the purpose of completing Project's feasibility study.

#### B. Owner's Engineer & Supervision Costs – Post Financial Close:

The Project Company will engage an experienced engineering supervision team to ensure the contractor's compliance with the relevant contracts, as well as reporting on



progress and budget. The construction supervision team will comprise site engineers supported by technical experts. The Owner's Engineer will also conduct review of proposed designs, construction monitoring and witnessing of key tests to ensure project's success.

C. Independent Engineer:

The Project Company is required to engage an Independent Engineer pursuant to the EPA. Under the terms of the EPA the Independent Engineer will be a firm of engineering consultants that would be appointed and hired by the Project Company, with the approval of the Central Power Purchasing Agency (Guarantee) Limited (CPPA), to monitor the construction of the Project (including its commissioning) and to deliver the related certificates and carry out all of the responsibilities specified in the EPA, including certifying the results of the commissioning tests, readiness of interconnection facilities and synchronization.

D. Permits, Permissions and Related Costs:

During development and construction of the Project, the Project Company will incur costs related to various fees and charges payable in respect of permits and permissions required from various authorities and regulatory bodies including but not limited to cost of bank guarantees to be provided by the Project Company in respect of the LOI and the Letter of Support (LOS), the letter of credit to be issued in favor of the power purchaser, the fee in respect of the LOS, AEDB facilitation and legal fee, NTDC vetting charges for Grid Interconnection Study, NEPRA fee and charges, registration and other charges to SECP, etc. to be incurred during development and construction of the Project.

E. Site works, transportation and Infrastructure:

This head includes upfront payment of the site lease for 10 years payable in advance as per GOS rules, transportation of staff during construction and costs related to site leveling & preparation, site access, infrastructure, electricity connection costs, etc.

The site works like site surveys, soil investigations, topography, surveys for micro-sighting, ground leveling and clearing etc. have been carried out twice due to relocation of our project site.

F. Administration and Other Development Expenses:

The Project Company's head office is based in Karachi. In addition, there will be a site office located at the site of the Project with limited accommodation to coordinate the construction and monitoring activities at site. This portion of the Non-EPC Cost includes costs associated with accounting and admin staff, rent, utilities, equipment inspection, communication charges, printing and stationery, supplies, communication charges, vehicle fuel and maintenance and other allied expenses during the construction period.

It is also pertinent to note that the development work on the project has been prolonged since 2013 due to impediments discussed previously in this document,

therefore the administrative and other development costs has increased on account of these delays.

#### G. Travelling Cost:

This head covers costs related to travelling, accommodation, daily allowances and other allied expenses of the foreign and local staff, incurred for development, arrangement of financing & EPC and for progress / monitoring meetings, etc. since 2013 and will continue during development and construction period of the Project.

#### H. Security Expense

The Project Company is responsible for the security of its local and foreign personnel and the EPC contractors' staff together with the wind farm equipment, however being a CPEC project we are obligated to follow the determination of security cost announced by NEPRA vide NEPRA/TRF- SCCPECPP-2017/13566-13568 dated August 3, 2017 therefore the security cost is taken as USD 150,000 per annum which is the cost to be taken up by the Project Company.

Any other cost that relates to development and construction of the Project, if incurred, will be provided at True-up stage.

#### **4.2.4 Pre-COD Insurance Cost:**

Pre-COD Insurance Cost covers the insurance cost of the Project Company's assets during construction and the same are incurred prior to the commercial operations date (COD) of the Project. These cost estimates have been developed based on the Project Company's determination to obtain Pre-COD insurance at relatively lower rates (per annum 0.5% of EPC cost including taxes and duties) at the strength of the Sponsor's contacts with the European and Chinese insurers based on their other business relations.

However, in the event the Project Company cannot arrange the insurance at 0.5% p.a. due to any reasons beyond its control, NEPRA is requested to allow the actual Pre-COD Insurance Cost at actual up to 1.35% of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs.

WEPL, 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 All Risk Insurances (CAR);
- (b) CAR Delay in Start-up Insurance;
- (c) Terrorism Insurance;
- (d) Marine and Inland Transit Insurance;
- (e) Marine - Delay-In Startup Insurances; and
- (f) Comprehensive General Liability.

The premiums payable under the above stated Pre-COD insurances do not include the administrative surcharge, the Federal Insurance Fee and the Federal Excise Duty, and

WEPL prays that the same kindly be allowed by NEPRA as part of the One-Time Adjustments allowed at the time of COD.

*The Project Company requests NEPRA to allow pre-COD insurance cost at 0.75% of EPC cost including taxes and duties. However, in case of any deviation, NEPRA is kindly requested to allow the actual Pre-COD Insurance Cost capped at 1.35% of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs.*

**4.2.5 Financial Charges for arranging 100% foreign financing**

Financial Charges include the costs related to the arrangement of 100% foreign currency debt financing of the Project. Such costs include, *inter alia*, the advisory and arrangement fee to secure SINOSURE cover, the lenders' up-front fee and commitment fee; mandate and processing fee, fees payable, and stamp duty applicable on the financing documents; agency fee; security trustee fee; lenders' Project monitoring fee and the fees for the lenders' legal and other advisors customary for a foreign lender to engage in order to carry out the due diligence, drafting of financing documents and monitoring of the project during the construction period.

These financial charges are in line with the prevailing market conditions and practices applicable for project financing transactions and as allowed by NEPRA in its other tariff determinations. The term sheets for arrangement of debt financing agreed with the lenders are attached with this Tariff Petition as *Annexure - H*.

*The Project Company requests NEPRA that as the Project Company has not considered any duties and taxes on account of Financial Fees and Charges, any duties and taxes if applicable on account of these costs may kindly be allowed as adjustment for actual cost at the time of COD.*

**4.2.6 Interest During Construction**

The Interest During Construction (the IDC) has been calculated on the basis of the term sheets executed between the Project Company and the lenders, which stipulates a base rate equal to 3 months LIBOR plus a margin of 300 basis points (USD financing).

The Company will endeavor to keep the IDC to its bear minimum therefore actual IDC, shall be subject to change depending on the fluctuations in base rate (i.e. 3-month LIBOR), funding requirement (draw-downs) of the Project during the construction period, changes in Project Cost including changes due to Taxes and Duties, and variations in PKR / USD exchange rate.

<b>BASIS FOR IDC CALCULATIONS</b>	
BASE RATE - LIBOR	0.6%
SPREAD	3.0%
<b>TOTAL INTEREST RATE</b>	<b>3.6%</b>
ARRANGERS FEE	<b>1.2% PAYABLE WITH LOAN INSTALLMENTS OVER THE LOAN TERM</b>

*IDC, at this stage, is an estimated figure, which is adjustable at COD, based on actual LIBOR, timing and amount of loans drawdown during the Project construction period after financial close, therefore, it is prayed that NEPRA kindly allow adjustment for the same at the time of tariff true-up at COD.*

#### **4.2.7 Permanent Working Capital**

##### *Inflow of Funds During Operating Period:*

Under the terms of the EPA to be executed between the Project Company and the CPPA, the Project Company shall invoice CPPA for the settlement of the Monthly Energy Payment on or after the first day of the month following the month to which the Monthly Energy Payment relates. The CPPA has to make the payment of the same by the thirtieth (30<sup>th</sup>) day following the day of submission of the invoice i.e. the 31st day.

##### *Outflow of Funds & Requirement for Working Capital:*

- A. The Project Company is required to collect sales tax from the CPPA on behalf of the Government of Pakistan and deposit the same by the 25th day of the month to which it relates. However, as explained above, the CPPA is only obligated to make payment to the Project Company against the invoice raised within 30 days from the date of invoice – thus creating an inherent mismatch in the availability of cash flows to the Project Company for settlement of its liabilities.
- B. The terms of debt financing stipulate repayment of debt on quarterly basis commencing from COD. By the time the first repayment is to be made to the lenders, assuming the CPPA pays without even one day of delay, the Project Company would have received two months of revenue only in accordance with the 30-day payment terms under the EPA. Thus a permanent shortfall of 1/3rd of the debt installment would be created which the Project Company intends to fund through upfront permanent working capital; this requirement is standard in all financing transactions of this type.
- C. Besides above there is also an expected mismatch of cash flows for meeting O&M expenses as against receipt of dispatch based revenues.

ICBC has allowed inclusion of a permanent working capital as part of the project cost and therefore working capital lines may not be required separately.

### 4.3 PROJECT COST & TARIFF COMPARISON WITH NEPRA'S UPFRONT TARIFFS

The Petitioner respectfully submits hereunder a comparison of proposed levelized tariff and Project costs with NEPRA's previous upfront tariffs:

<b>Project Cost &amp; Tariff Comparison</b>	<b>Cost Plus Tariff of WEL</b>	<b>As Per 24<sup>th</sup> June 2015 Upfront Tariff</b>	<b>As Per 24<sup>th</sup> April 2013 Upfront Tariff</b>
	<b>USD '000</b>	<b>USD '000</b>	<b>USD '000</b>
EPC Cost	76,000	95,895	115,301
Taxes on EPC	2,033	-	-
Non-EPC & PDC	4,615	6,167	-
Pre-COD Insurance Cost	585	1,438	1,636
<b>Base Project Cost / Sub-</b>	<b>83,233</b>	<b>103,500</b>	<b>116,937</b>
<b>Financial Charges</b>	<b>2,779</b>	<b>-</b>	<b>-</b>
Interest During Construction	2,445	4,000	6000
<b>Total Project Cost -</b>	<b>88,455</b>	<b>107,500</b>	<b>122,937</b>
<b>Levelized Tariff - US¢/kWh</b>	<b>7.7053</b>	<b>10.4481</b>	<b>13.5244</b>

The above comparison indicates that the Project cost and the Project Company's proposed levelized tariff is substantially lower than the previously announced Upfront Tariffs and the project costs allowed in these upfront tariffs.

### 4.4 PROJECT FUNDING STRUCTURE (DEBT & EQUITY)

#### 4.4.1 The Funding Plan

The Project Cost will be funded on the basis of a Debt: Equity ratio of 75:25, thereby resulting in the following capital structure for the Project:

		<b>USD IN '000</b>
<b>DEBT -FOREIGN</b>	<b>75%</b>	<b>66,342</b>
<b>EQUITY</b>	<b>25%</b>	<b>22,113</b>
<b>TOTAL PROJECT COST</b>	<b>100%</b>	<b>88,455</b>

#### 4.4.2 Brief on Debt and Equity Financing

The envisaged debt-equity structure of the Project is 75:25 implying a total debt requirement of USD 66,342 thousand (based on a project cost of USD 88,455 thousand).

The 100% debt financing will be funded by the Industrial Development Banking Corporation

Debt amount will be denominated in USD (repayment in USD, interest payments to

be indexed to LIBOR).

Based on the current Project cost estimates, the equity required to be injected by the Sponsor amounts to USD 22,113 thousand. Both shareholding groups being Sponsors, will subscribe for 100% of the equity requirement.

#### 4.4.3 Return On Equity

The Tariff Standards prescribed under Rule 17.3(ii) of the Tariff Rules require that the return on investment should be "commensurate with other investments of comparable risk". In this regard it is submitted that NEPRA has in its Determination for:

1. Zorlu Enerji Pakistan Ltd. vide Case No. NEPRA/TRF-88/ZEPL-2007 states that "Accordingly ZEPL is allowed 17% return on equity based on 30% equity investment in the project for 20 years' project life on BOO basis"
2. Arabian Sea Wind Energy (Pvt.) Ltd. vide Case No. NEPRA/TRF-141/ASWEL-2009 states that "the Authority has decided to allow wind power projects a 17% return on equity (IRR based). Accordingly, the return on equity component of tariff in the instant case has been calculated on the basis of 17% return on equity"
3. FFC Energy Limited vide Case No. NEPRA/TRF-156/FFCEL-2010 states that "The Authority has already allowed 17% return (IRR based) to promote wind power sector and other power generation technologies based on indigenous resources such as hydel and coal based IPPs, which is 2% more than allowed in the case of thermal power projects. In view of the aforementioned, the Authority therefore allows 17% return on equity (IRR based) to FECEL."
4. Three Gorges First Wind Farm Pakistan (Pvt.) Ltd. vide Case No. NEPRA/TRF-174/TGF-2011 states that "In view of these facts the Authority has decided to allow 17% (IRR based) return on equity to the petitioner as has already been allowed to other wind power projects."

Similarly, the following projects are also allowed 17% (IRR based) return on equity

5. Younus Energy Ltd. vide Case No. NEPRA/TRF-186/YEL-2011
6. Sapphire Wind Power Company Ltd. vide Case No. NEPRA/TRF-187/SWPCL-2011
7. Foundation Wind Energy -I Limited vide Case No, NEPRA/TRF-188/FWEL-1-2011
8. Foundation Wind Energy – II Ltd. Case No. NEPRA/TRF-189/FWEL-II-2011
9. Tenaga Generasi Ltd. vide Case No. NEPRA/TRF-190/TGL-2011
10. Gul Ahmed Wind Power Ltd. vide Case No. NEPRA/TRF-192/GAWPL-2011
11. Metro Power Company Ltd. vide Case No. NEPRA/TRF-193/MPCL-2011
12. Master Wind Energy Ltd. vide Case No. NEPRA/TRF-196/MWEL-2011
13. Zypher Power (Pvt.) Ltd. vide Case No. NEPRA/TRF-197/ZPL-2011
14. Sachal Energy Development (Pvt.) Ltd. vide Case # NEPRA/TRF-207/SEDPL-2012

Accordingly, the ROE of 17% (IRR basis) has been assumed in calculation of our tariff.

#### 4.4.4 Debt Servicing

The capital structure of the Project is envisaged at 75:25 (Debt: Equity).

##### 4.4.4.1 Terms of Debt Financing:

The following terms for financing the debt portion of the Project Cost have been agreed and locked, between the Project Company and the lenders, through execution of the financing term sheets attached at *Annexure - H*:

Cost Head	Terms
Total Project Value - USD in million	88.455
Total Debt -75% of total project value - USD in million	66.342
Base Rate – LIBOR	0.6%
Spread	3%
Arrangers fee to be collected over loan term - USD in million	0.796
Debt Markup – excluding IDC – USD in million	17.023
Repayment Period	13 years
Grace Period	2 years
Re-Payment – Quarterly repayment in 52 installments – USD	1.618

#### 4.5 OPERATING COSTS

##### 4.5.1 Breakup of Operating Cost

The operations cost of the Project Company comprises of the operations and maintenance cost and the cost of the operational insurances to be taken out by the Project Company. Break-up of the same is provided hereunder and are compared with the cost of two other projects of similar nature:

	THREE GORGES				ZEPHYR				WESTERN ENERGY (PVT.) LTD.			
	01-02	03-05	06-09	10-20	01-02	03-05	06-10	11-20	01-02	03-05	06-09	10-25
<b>Foreign O&amp;M</b>												
Foreign O&M/Outsourced O&M -fee	800.0	1,950.0	1,560.0	1,720.0	1,050.0	2,375.0	2,625.0	2,625.0	672.3	1,296.0	1,256.5	1,160.9
7% Withholding Tax on O&M Contract	-	-	-	-	-	-	-	-	50.6	97.5	94.6	87.4
Sindh Sales Tax @ 13%	-	-	-	-	136.5	308.8	341.3	341.3	-	-	-	-
Fixed Assets Imported	5.0	5.0	5.0	25.5	-	-	-	-	-	-	-	-
Payroll & Allied Expenses for Foreign Staff	384.1	402.3	447.8	447.8	-	-	-	-	-	-	-	-
<b>Sub Total</b>	<b>1,189.1</b>	<b>2,357.3</b>	<b>2,012.8</b>	<b>2,193.3</b>	<b>1,186.5</b>	<b>2,683.8</b>	<b>2,966.3</b>	<b>2,966.3</b>	<b>722.9</b>	<b>1,393.5</b>	<b>1,351.0</b>	<b>1,248.2</b>
<b>Local O&amp;M</b>												
Cost of O&M by Project Company	-	-	360.0	400.0	-	-	-	-	-	-	-	-
Fixed Assets Local Purchased	20.0	20.0	20.0	102.1	20.0	20.0	20.0	20.0	-	-	-	-
Payroll & Allied Expenses for Local Staff	576.1	603.5	671.7	671.7	455.0	455.0	455.0	455.0	784.5	784.5	784.5	784.5
Security Arrangement Cost	96.9	96.9	96.9	96.9	-	-	-	-	150.0	150.0	150.0	150.0
Vehicle Fuel & Maintenance	136.8	136.8	136.8	136.8	35.0	35.0	35.0	35.0	155.5	155.5	155.5	155.5
Administrative Cost	466.5	466.5	466.5	466.5	37.0	37.0	37.0	37.0	142.1	142.1	142.1	142.1
Land Cost Payable to AEDB	-	-	-	14.0	-	-	-	-	-	-	-	-
Travel Expenditures	-	-	-	-	95.0	95.0	95.0	95.0	107.4	107.4	107.4	107.4
Miscellaneous	-	-	-	-	64.2	64.2	64.2	64.2	127.0	127.0	127.0	127.0
<b>Sub Total</b>	<b>1,296.3</b>	<b>1,323.7</b>	<b>1,751.9</b>	<b>1,888.0</b>	<b>706.2</b>	<b>706.2</b>	<b>706.2</b>	<b>706.2</b>	<b>1,466.5</b>	<b>1,466.5</b>	<b>1,466.5</b>	<b>1,466.5</b>
<b>Insurance</b>												
	-	-	-	-	-	-	-	-	390.0	390.0	390.0	390.0
<b>TOTAL O&amp;M</b>	<b>2,485.4</b>	<b>3,681.0</b>	<b>3,764.7</b>	<b>4,081.4</b>	<b>1,892.7</b>	<b>3,390.0</b>	<b>3,672.5</b>	<b>3,672.5</b>	<b>2,579.4</b>	<b>3,250.0</b>	<b>3,207.5</b>	<b>3,104.7</b>

#### **4.5.2 Understanding & Benchmarks for O&M Contract**

The Project Company has signed the O&M Agreement with Sino-Qiyao International (Pvt.) Limited, a fully owned subsidiary of SMDERI incorporated under the laws of Pakistan (**O&M Contractor**), wherein the initial term of O&M arrangement for the Project will be ten (10) years. Under the arrangement the O&M Contractor shall be responsible for provision or procurement and performance of all the works, services, supplies and other activities including management services necessary to operate and maintain the Project to ensure energy production is maximized and that the Project is operated and maintained in accordance with the applicable performance standards, agreed environmental-social & monitoring plans and prudent operating practices.

The initial term of 10 years for O&M services through a fixed contract is ensured to cover the major part of the debt repayment period of the Project and provide additional comfort to the Lenders.

In this regard, kindly note that the Project Company has proposed significantly low O&M cost compared to previous upfront tariffs and suo-moto proceedings, because of the use of superior technology and by involving one of its experienced group companies to avoid high profit expectations and premiums charged by third party O&M contractors.

In view of the foregoing, the O&M costs suggested in the Tariff Petition are clearly well within international and local benchmarks. It is the humble request of the Project Company that the O&M costs presented below may kindly be allowed by NEPRA in order to ensure smooth, efficient, and effective operation of the Project.

#### **4.5.3 Insurance During Operation Period**

The Insurance Cost consists of the insurances required under the Implementation Agreement and the Energy Purchase Agreement coupled with 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 risks associated with the Project are adequately addressed and all insurable events are catered for in a foolproof manner. Keeping in view the generally adopted global trends and the magnitude of the Project, a comprehensive operational insurance and reinsurance arrangement is also fundamental to ensure bankability of the Project.

During the operations phase, the Project Company intends to acquire insurance from one of the leading insurance companies in the country. As it is standard practice for local insurers to only retain 5% of the risk and acquire reinsurance for the remaining 95% through foreign re-insurer, it is prayed to NEPRA that the insurance costs for the operations phase be allowed in US Dollars (as has been done in case of all other power projects). The requirement to have the operational phase insurance cost denominated in US Dollars is further supported by the fact that the lenders financing the Project will inevitably require the Project to be insured on replacement cost basis; since a major part of the total Project Cost is already denominated in US Dollars, the



replacement cost basis insurance would also need to be taken out in US Dollars. It is pertinent to highlight, that any replacement costs incurred as a consequence of the occurrence of an 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 by the lenders, proposes to procure the following insurance during the operational phase of the Project:

- Property Damage and Comprehensive Machinery Insurance (including Business Interruption insurance);
- Third Party Liability;
- Terrorism insurance;
- Group Personal Accident Insurance; and
- Motor Comprehensive Insurance

*The insurance cost has been estimated at 0.5% of the EPC Cost including taxes and duties based on the strength of the sponsors relations with the insurers from European and Chinese market, however any increase therefrom up to 1.35% of the EPC Cost may kindly be allowed upon submission of evidences. The insurance cost shall be charged by the Project Company at actual (subject to proposed cap) and will be recoverable as the insurance cost component of the Reference Generation Tariff.*

*The insurance cost (for the operations phase) set out in the Tariff Petition does not, however, covers the administrative surcharge, Federal Excise Duty and Federal Insurance Fee, that might be applicable on the insurance cost, the same should be treated as a pass-through item under the tariff determination.*

## 4.6 REFERENCE GENERATION TARIFF & DEBT SCHEDULE

### 4.6.1 Tariff Control Period

As the Project is 75% debt funded with loan tenure of 13 years for repayment, this means that there will be higher debt service cost requirements in the first 13 years of the Project. In the last 12 years of the Project, are debt free therefore the tariff will decrease significantly.

The proposed tariff is for the life of the Project i.e. term of the EPA, signed with the Purchaser, which is 25 years from COD. The tariff is divided into five (05) bands i.e. year 1 & 2 years i.e. warranty period of plant, 3 to 5 years based on change in O&M Cost and 6 to 9 based on change in O&M Cost 10 – 13 end of debt repayment period 14 to 25 remaining project term.

### 4.6.2 Summary of Reference Generation Tariff

A summarized Reference Generation Tariff table setting out the five bands is provided below:

PKR /kWh

YEARS		1&2	3 to 5	6 to 9	10 to 13	14 to 25
O&M	LOCAL	0.9502	0.9502	0.9502	0.9502	0.9502
	FOREIGN	0.4684	0.9029	0.8753	0.8087	0.8087
INSURANCE		0.2528	0.2528	0.2528	0.2528	0.2528
ROE		2.8257	2.8257	2.8257	2.8257	2.8257
DEBT SERVICING		4.1946	4.1946	4.1946	4.1946	
<b>TOTAL</b>		<b>8.6917</b>	<b>9.1261</b>	<b>9.0986</b>	<b>9.0320</b>	<b>4.8374</b>

### 4.6.3 Reference Generation Tariff Table

Reference Tariff Table									
Year	O&M Foreign	O&M Local	Insurance	ROE	Loan Repayment			Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Principal	Interest	Arranger's Fee		
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	USC./kWh
1	0.4684	0.9502	0.2528	2.8257	2.6429	1.5120	0.0397	8.6917	8.2778
2	0.4684	0.9502	0.2528	2.8257	2.7393	1.4156	0.0397	8.6917	8.2778
3	0.9029	0.9502	0.2528	2.8257	2.8392	1.3156	0.0397	9.1261	8.6915
4	0.9029	0.9502	0.2528	2.8257	2.9428	1.2120	0.0397	9.1261	8.6915
5	0.9029	0.9502	0.2528	2.8257	3.0502	1.1046	0.0397	9.1261	8.6915
6	0.8753	0.9502	0.2528	2.8257	3.1615	0.9933	0.0397	9.0985	8.6652
7	0.8753	0.9502	0.2528	2.8257	3.2769	0.8780	0.0397	9.0986	8.6653
8	0.8753	0.9502	0.2528	2.8257	3.3965	0.7584	0.0397	9.0986	8.6653
9	0.8753	0.9502	0.2528	2.8257	3.5204	0.6345	0.0397	9.0986	8.6653
10	0.8087	0.9502	0.2528	2.8257	3.6488	0.5060	0.0397	9.0319	8.6018
11	0.8087	0.9502	0.2528	2.8257	3.7820	0.3729	0.0397	9.0320	8.6019
12	0.8087	0.9502	0.2528	2.8257	3.9200	0.2349	0.0397	9.0320	8.6019
13	0.8087	0.9502	0.2528	2.8257	4.0630	0.0918	0.0397	9.0319	8.6018
14	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
15	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
16	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
17	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
18	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
19	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
20	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
21	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
22	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
23	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
24	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
25	0.8087	0.9502	0.2528	2.8257	-	-	-	4.8374	4.6070
Exchange Rate 1 US\$ = 105 PKR					Levelized tariff				
					Rs./kWh			8.0906	
					US Cents/kWh			7.7053	

#### 4.6.4 Debt Repayment Schedule

Installment No.	Period	Repayment of Foreign Loan (USD'000)						Annual Total Debt Servicing	Calculation of Tariff Component
		Principal	Repayment	Interest	Balance	Arranger's Fee	Total Debt Service	Rs'000	Rs./kWh
1	1	66,342	1,006	597	65,336	15	1,618	679,764	4.1946
2		65,336	1,015	588	64,321	15	1,618		
3		64,321	1,024	579	63,296	15	1,618		
4		63,296	1,034	570	62,263	15	1,618		
		66,342	4,079	2,334	62,263	61	6,474		
5	2	62,263	1,043	560	61,220	15	1,618	679,764	4.1946
6		61,220	1,052	551	60,168	15	1,618		
7		60,168	1,062	542	59,106	15	1,618		
8		59,106	1,071	532	58,035	15	1,618		
		62,263	4,228	2,185	58,035	61	6,474		
9	3	58,035	1,081	522	56,954	15	1,618	679,764	4.1946
10		56,954	1,091	513	55,864	15	1,618		
11		55,864	1,100	503	54,763	15	1,618		
12		54,763	1,110	493	53,653	15	1,618		
		58,035	4,382	2,031	53,653	61	6,474		
13	4	53,653	1,120	483	52,533	15	1,618	679,764	4.1946
14		52,533	1,130	473	51,402	15	1,618		
15		51,402	1,141	463	50,262	15	1,618		
16		50,262	1,151	452	49,111	15	1,618		
		53,653	4,542	1,871	49,111	61	6,474		
17	5	49,111	1,161	442	47,950	15	1,618	679,764	4.1946
18		47,950	1,172	432	46,778	15	1,618		
19		46,778	1,182	421	45,596	15	1,618		
20		45,596	1,193	410	44,403	15	1,618		
		49,111	4,708	1,705	44,403	61	6,474		
21	6	44,403	1,204	400	43,199	15	1,618	679,764	4.1946
22		43,199	1,214	389	41,985	15	1,618		
23		41,985	1,225	378	40,760	15	1,618		
24		40,760	1,236	367	39,523	15	1,618		
		44,403	4,880	1,533	39,523	61	6,474		
25	7	39,523	1,247	356	38,276	15	1,618	679,764	4.1946
26		38,276	1,259	344	37,017	15	1,618		
27		37,017	1,270	333	35,747	15	1,618		
28		35,747	1,281	322	34,466	15	1,618		
		39,523	5,058	1,355	34,466	61	6,474		
29	8	34,466	1,293	310	33,173	15	1,618	679,764	4.1946
30		33,173	1,305	299	31,868	15	1,618		
31		31,868	1,316	287	30,552	15	1,618		
32		30,552	1,328	275	29,224	15	1,618		
		34,466	5,242	1,171	29,224	61	6,474		
33	9	29,224	1,340	263	27,883	15	1,618	679,764	4.1946
34		27,883	1,352	251	26,531	15	1,618		
35		26,531	1,364	239	25,167	15	1,618		
36		25,167	1,377	227	23,790	15	1,618		
		29,224	5,433	979	23,790	61	6,474		
37	10	23,790	1,389	214	22,401	15	1,618	679,764	4.1946
38		22,401	1,402	202	20,999	15	1,618		
39		20,999	1,414	189	19,585	15	1,618		
40		19,585	1,427	176	18,158	15	1,618		
		23,790	5,632	781	18,158	61	6,474		
41	11	18,158	1,440	163	16,719	15	1,618	679,764	4.1946
42		16,719	1,453	150	15,266	15	1,618		
43		15,266	1,466	137	13,800	15	1,618		
44		13,800	1,479	124	12,321	15	1,618		
		18,158	5,837	575	12,321	61	6,474		
45	12	12,321	1,492	111	10,829	15	1,618	679,764	4.1946
46		10,829	1,506	97	9,323	15	1,618		
47		9,323	1,519	84	7,804	15	1,618		
48		7,804	1,533	70	6,271	15	1,618		
		12,321	6,050	362	6,271	61	6,474		
49	13	6,271	1,547	56	4,724	15	1,618	679,764	4.1946
50		4,724	1,561	43	3,164	15	1,618		
51		3,164	1,575	28	1,589	15	1,618		
52		1,589	1,589	14	0	15	1,618		
		6,271	6,271	142	0	61	6,474		

## 4.7 INDEXATIONS, ESCALATIONS AND COST ADJUSTMENT

### 4.7.1 Indexations

NEPRA is requested to allow indexation for the various Reference Generation Tariff components in the following manner:

Tariff Components	Indexation
Fixed O&M	
Local	WPI
Foreign	PKR/US\$ & US CPI
Insurance	PKR/US\$
Debt Service	PKR/US\$ & LIBOR
Return on equity	PKR/US\$

### 4.7.2 One Time Adjustments

The following onetime adjustments are requested to the reference tariff:

- i) Charges for the letter of credit to be opened in favor of the EPC contractor, may be adjusted at COD on actual basis.
- ii) Duties and/or taxes, not being of refundable nature, imposed on the company upto the commencement of its commercial operations for the import of its plant, machinery and equipment will be subject to adjustment at actual on COD.
- iii) The interest during construction may be adjusted at COD on the basis of actual debt draw downs and actual PKR/US\$ exchange rate variation for foreign loan denominated in US\$ and interest calculated on the actual 3 months LIBOR per annum.
- iv) The return on equity during construction may be adjusted at COD on the basis of actual equity injections during the project construction period.
- v) The return on equity (including return on equity during construction) will be adjusted at COD on the basis of PKR/US\$ exchange rate variation.
- vi) All project costs i.e. costs incurred prior to commercial operations date are allowed in US\$. At COD, all project costs paid in PKR shall be converted using the reference PKR/dollar rate to ensure that the cost incurred do not exceed the cost allowed by NEPRA.
- vii) The reference tariff table may please be revised at COD while taking into account the above adjustments.

#### **4.7.3 Pass-Through Items**

The following onetime adjustments are requested to the reference tariff:

No provision for income tax, WPPF and WWF have been accounted for in the tariff. If any tax or charges is imposed on the petitioner, the exact amount paid by the petitioner shall be reimbursed by the power purchaser to the petitioner on production of original receipts.

#### **4.7.4 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. The reference tariff has been calculated on the basis of net annual benchmark energy generation of 162.060 GWh at annual net plant capacity factor of 37% on installed capacity of 50 MW.
- ii. The reference PKR/dollar rate has been assumed at 105.00.
- iii. The three months LIBOR is assumed to be 0.6% p.a.
- iv. The USCPI for indexation of reference tariff is taken as (September 2017) 113.2 based on the Base Year of 2010.
- v. The WPI for Local Indexation Factor (October 2017) 219.41
- vi. The reference tariff is applicable for a period of twenty-five (25) years commencing from the commercial operations date.

#### **4.7.5 Submission**

In summation, the Project Company herewith most respectfully submits before NEPRA, for its approval on the matters set out in this Tariff Petition and further prays to NEPRA to kindly approve the Reference Tariff Table together with its assumptions and conditions.

Furthermore, given the advance stage of the Project, NEPRA is kindly requested to process the Tariff Petition at the earliest thereby enabling the Project Company to proceed further with the development process.