NORINCO Intl T ha a

12th March 2019

Registrar
National Electric Power Regulatory Authority (NEPRA)
NEPRA Tower,
Islamabad

Subject: APPLICATION FOR COST PLUS TARIFF BEFORE NEPRA.

Dear Sir,

I, Mr. Zhang Yong , Company Secretary, of the Company, being the duly authorized representative of Norinco International Thatta Power (PRIVATE) LIMITED (the Company) by virtue of the resolution of the Board of Directors dated 23-01-2019, 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 procedure for reviewing tariffs and recommending tariff adjustment. Further pursuance to the enabling provisions of the NEPRA Act, the proceeding 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 provision 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 Cheque numb& 60064351 issued by **ICBC** in the sum of **PKR** 989760/- being the non-refundable application processing fee calculated in accordance with National Electric Power Regulatory Authority (Fee Pertaining to Tariff Standards and Procedure) Regulation, 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

.2)

Mr. Zhang Yong \I
Company Secretary
Norinco International Thatta Power (Pvt.) LIMITED
+ 92 311 5144575

NORINCO INTL THATTA
POWER PVT LTD

COMPANY SECRETARY

NORINCO Intl Thatta Power

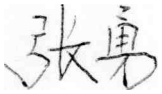
EXTRACTS OF THE MEETING OF THE BOARD OF DIRECTORS OF
NORINCO INTERNATIONAL THATTA POWER (PRIVATE) LIMITED (THE "COMPANY")
HELD ON JANURARY 23rd, 2019 AT THE REGISTERED OFFICE OF THE COMPANY

Ref: NOR-THA-BPARD-09

It is RESOLVED THAT Mr. Mr. Zhang Yong, is Hereby appointed as Authorized person to apply to National Electric Power Regulatory Authority (NEPRA) for the Application of Cost Plus Tariff of Norinco International Thatta Power (Private) Limited and to undertake the following steps on behalf of the Company:

(a) To file/sign all the required documents,
(b) To comply with any of the NEPRA objections / instructions in this regard, and
(c) To make necessary changes/modifications to the documents submitted for Cost plus Tariff to ensure compliance with NEPRA requirements as per related Rule/regulations.

Certified that the abovementioned is a true and valid extract from the meeting of the Board of Directors of NORINCO INTERNATIONAL THATTA POWER (PRIVATE) LIMITED ld on 23rd, January 2019.



Company Secretary

NORINCO INTL THATTA
POWER PVT LTD

COMPANY SECRETARY

NORINCO International Thatta Power (PVT.) Limited IL t gi374X-Eg
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Details of the Petitioner

NAME AND ADDRESS:

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101, 1st Floor, Horizon Vista, Block 1,
Block 1, Clifton, Karachi — Pakistan.
+ 92 35371833-34
+ 92 311 5144575

Authorized representatives of M/S NORINCO INTERNATIONAL THATTA POWER (PVT.) LIMITED

Mr. Zhang Yong
Company Secretary
Norinco International Thatta Power (Pvt.) LIMITED
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NATIONALELECTRICPOWERREGULATORYAUTHORITY- THE COMPETENT AUTHORITY FORDETERMINATIONOF TARIFF

NEPRAAct,NEPRARuIes:

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 NORINCO INTERNATIONAL THATTA POWER(PVT.)LIMITED(Project **Company)** to establish an approximately 100MW wind power generation project (the **Project)** in the Jhimpir region in the province of Sindh pursuant to a letter of intent dated April 20, 2015 (the **L01)** extended till 13th, November 2019.

UndertheRegulationforGeneration,TransmissionandDistributionofElectricPowerAct(XLof)1997(theNEPRA Act),theNationalElectricPowerRegulatoryAuthority(NEPRA)isresponsible,interalia,fordeterminingtariffsan dothertermsandconditionsforthesupplyofelectricitythroughgeneration,transmissionanddistribution.

III NEPRAisalsoresponsiblefordeterminingtheprocessandproceduresforreviewingtariffsandrecommendingta riffadjustments.Further,pursuanttotheenablingprovisionsoftheNEPRAAct,theprocedurefortariffdetermina tionhasbeenprescribedintheNEPRA(TariffStandardsandProcedure)Rules,1998(theNEPRARules).

PROCESS LEADING TO TARIFF PETITION

Submission of the Feasibility Study and approval of the same:

Incompliancewiththerequirementslaidoutinthe 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 Energy Department, Government of Sindh (the **Experts)** for their review and approval.

Following completion of the detailed review of the Project Feasibility Study by the Experts, we are still waiting for their approval Energy Department, Government of Sindh attached as **Annex-D.**

Request for Determination of Tariff:

III Since the Project Company:

NITPPL has been granted the LOIbythe Energy Department, Government of Sindh (attached as **Annex-A),**

NITPPL has Allotted 2500 Acers land for the Project by the Land utilization department , Government of Sindh, NITPPL paid the land lease money vide Bank challan and waiting for lease agreement by the DC Thatta(attached as **Annex-B),**

NITPPL has received approval in respect of the Grid Interconnection Study for the Project bythe National Transmission and Despatch Company (NTDC)(attached as **Annex-C),**

NITPPL has obtained the applicableenvironmentalapprovalsin respect of the Project from the Sindh Environment Protection Agency(attached as **Annex-E),**

NITPPL has executed binding contracts in respect of engineering procurement and construction **(EPC)** works for the Project with renowned EPC contractors (attached as **Annex-G),**

NITPPL has mobilized the EPC contractors at the Project site (details attached as **Annex-G),**

NITPPL has finalized arrangements for debt and equity financing required for the Project (details attached as **Annex-H),**

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.

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 L01), **NORINCO INTERNATIONAL THATTA POWER(PVT.)LIMITED submits herewith** before NEPRA, the competent regulatory authority lawfully authorized to determine tariff or wind power generation companies, for its approval, a tariff petition(the **Tariff Petition)for** approval of:

the reference generation tariff(the **Reference Generation Tariff);** the Indexations and Adjustments; Adjustments at commercial operations date ;and 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 and start generation by Dec 2020 as per the requirements of the LOI.

Executive Summary

PROJECT BRIEF

The Applicant, Norinco International Thatta Power (Pvt.) 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 100 MW wind power generation facility (the Facility) to be located at Jhimpir, District Thatta, Province of Sindh, Pakistan (the Site).

After receiving the letter of intent of 50MW No. DAE/wind/77-A/2015 dated 20 th April2015 (L01) & letter of intent of 50MW no. DAE/wind/77-B/2015 dated 20 th April2015 (L01), below stated circumstances company plan to merge the project into 100MW and now letter No.DAE/wind/77-A/2015 dated 20 th April2015 read as 100MW and extended till 13 th, November 2019.

in respect of our proposed 100MW wind power project (Project) from the, Govt. of Sindh our Project was allocated 2500 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. 2xWind mast installed and site-specific wind data for over 18 months was collected and the approved.

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.

Based on this understanding. we engaged with NTDC and consultants carrying out our interconnection study were carried out for two wind power projects of NITPPL i.e. Norinco-I 50 MW and Norinco-II 50 MW separately and got approved Initially the project was for 100 MW, but Secretary Water & Power split them into 2x50 MW (Norinco-I and II) and initially gave go ahead for 1 st 50 MW. The study for Norinco-I WPP was carried out by NTDC and they proposed it to be connected with Jhimpir 220/132 kV substation. The study for Norinco-II WPP was carried out by M/s PPI and its proposed interconnection scheme was with the Jhimpir — T.M Khan 132 kV Transmission Line. NITPPL intends to go back to the original plan of lx100 MW as the land allotted is for full 100 MW. Therefore, the two 50 MW wind power projects would merge into one 100 MW project with one substation.

The problem with the merger is that in the existing approved studies both plants are connected in different loops and either of the loops does not have enough transmission capacity to accommodate the additional 50 MW. The only solution available is the swapping of one 50 MW Norinco power project with any other 50 MW wind power project in the same loop.

Grid interconnection study for 50 MW Sino Well (Pvt.) Limited Wind Power Project was also carried out by M/s PPI and got approved from NTDC as a part of the integrated study for evacuation of power from wind power plants in Jhimpir area. Sino Well WPP was proposed to be interconnected next to Norinco-II WPP with the Jhimpir — T.M Khan 132 kV Transmission Line. Technically it seems feasible to swap Norinco-I WPP with Sino Well WPP and interconnect Sino Well WPP with the recently constructed Jhimpir 220/132 kV grid station.

In this regard, a joint meeting was held at Energy Department, Sindh between NITPPL, Sino Well, Planning NTDC and PPI and it was decided that the Grid Interconnection studies of both NITPPL and Sino Well shall have to be revised.

We hereby submit the revised draft reports of both the projects i.e. 100 MW NITPPL and 50 MW Sino Well (Pvt.) Limited Wind Power Projects with reference to Energy Department, Sindh letter and Both Study Got approved and company will take almost 1 year to achieve the milestone again.

The Generation License no. WPGL 36/2016dated 10-11-2016 by NEPRA vide letter no. NEPRA /R/DL/LAG-348/15324-30 & Generation License no. WPGL 51/2017 dated 24-11-2017 has been issued by NEPRA vide letter no.NEPRA /R/DL/LAG/19228-35to our Project.

Whereas NITPPL applied for cancelation of Generation License no. WPGL 51/2017 dated 24-11-2017 has been issued by NEPRA vide letter no.NEPRA /R/DL/LAG/19228-35 andapplied for modification of Generation License no. WPGL 36/2016 dated 10-11-2016 by NEPRA vide letter no. NEPRA /R/DL/LAG-348/15324-30 from 50MW into 100MW(Attached as **Annex-F).**

The term sheet dated 11 th June 2106 to fund 70% of our project cost has been signed with China EXIM Bank,
IEE study in respect of our Project was completed and approved by the Sindh Environment Protection Agency vide letter no EPA/2016/02/03/IEE/11 dated 4 th March 2016.(Attached as **Annex-E)**

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 27th 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 reversesbidding, 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 is required to be pursued on fast track basis we are filing this petition.

EPC APPROACH & O&M ARRANGEMENT:

All leading brands including Haizhuang, Nordex, General Electric, Siemens, Gamesaand 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 madeby signing of **offshore supply of equipment contract** works **withGlory Town Holdings Limited** was established in

- August 30, 2012 in Hong Kong. It serves as the platform of NORINCO International for Project management, implementation and worldwide fund allocation. Through years of development, Glory Town Holdings Limited has been successfully developed itself into a high level system integrator and solution provider especially for renewable sectors and the company is devoted to GREEN development.
Glory Town Holdings Limited has been the EPC contract for the 86MW Hydropower project in Laos starting from 2013 and has successfully completed the construction on schedule. The company is also following several wind and solar power projects in Africa, Southeast Asia and West Asia. The concentration on renewable together with its profession and experts will make the company on a sustained and fast trackand signing **Onshore project construction contract** with **Norinco International Cooperation limited.**

The two contractor have good experience in power sector. Company selected Norinco International as the onshore project construction contract 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 Glory Town holding dated nov 2016 and its Onshore Supply and Services Contract with Norinco International cooperation datedNov 2016. Considering the current market , we make the addendums with both contractors to decrease the EPC price .

PROJECT FUNDING:

The capital structure of the Project is envisaged at 70:30 (Debt: Equity). The Project Company intends to obtain 100% of the debt fromthe Export-Import Bank of China (EXIM BANK)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 (Attached as **Annex-H). However** considering NEPRA's tariff determination 80%:20% (Debt: Equity) was allowed , we use 80%:20% (Debt: Equity) to make financial model.

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

	Sponsor Group	°A
	The Exim China Bank	80%
	Norinco International Thatta Power Pvt. Ltd)	20%

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:

PROJECTCOMPANY	Norinco International Thatta Power (Pvt.) LIMITED		
SPONSORS	Norinco International Cooperation		
PROJECTCAPACITY	100MW		
PROJECTLOCATION	Jhimpir, Province of Sindh,Pakistan		
LANDAREA	2500 Acres		
CONCESSIONPERIOD	25yearsfromcommercialoperationsdate		
PURCHASER	Central Power Purchasing Agency (Guarantee) Limited		
ENERGYPRODUCTION	330670MWH Per Annum		
EPCCONTRACTOR	Offshore Contractor :GLORY TOWN HOLDINGS LTD Onshore Contractor: NORINCO INTERNATIONAL COOPERATION LIMITED		
PROJECTCAPITALCOST	***Amount (US$ '000)***		
	EPC Price		130,356
	Non-EPC Cost & Project Development Cost		10000
	Insurance During Construction		978
	Financial Charges		3085
	Interest During Construction		5573
	Sinosure Insurance		11243
	Total Project Cost		161,235
FUNDING PLAN	Debt 80%:Equity 20%		
EQUITY	US$32,247million		
LONG TERM DEBT	US$ 128,988million		
LENDERS	EXIM BANK		
TERMS OF LONG-TERM DEBT	Currency	United States Dollars	
	Terms	Up to 15 years	
	Grace Period	2 Years	
	Repayment Period	13 years	
	Debt Repayment	52in equal quarterly installments	
	Interest Rate	Base Rate: 3 Months LIBOR 0.6% Spread: 4.5% basis points	

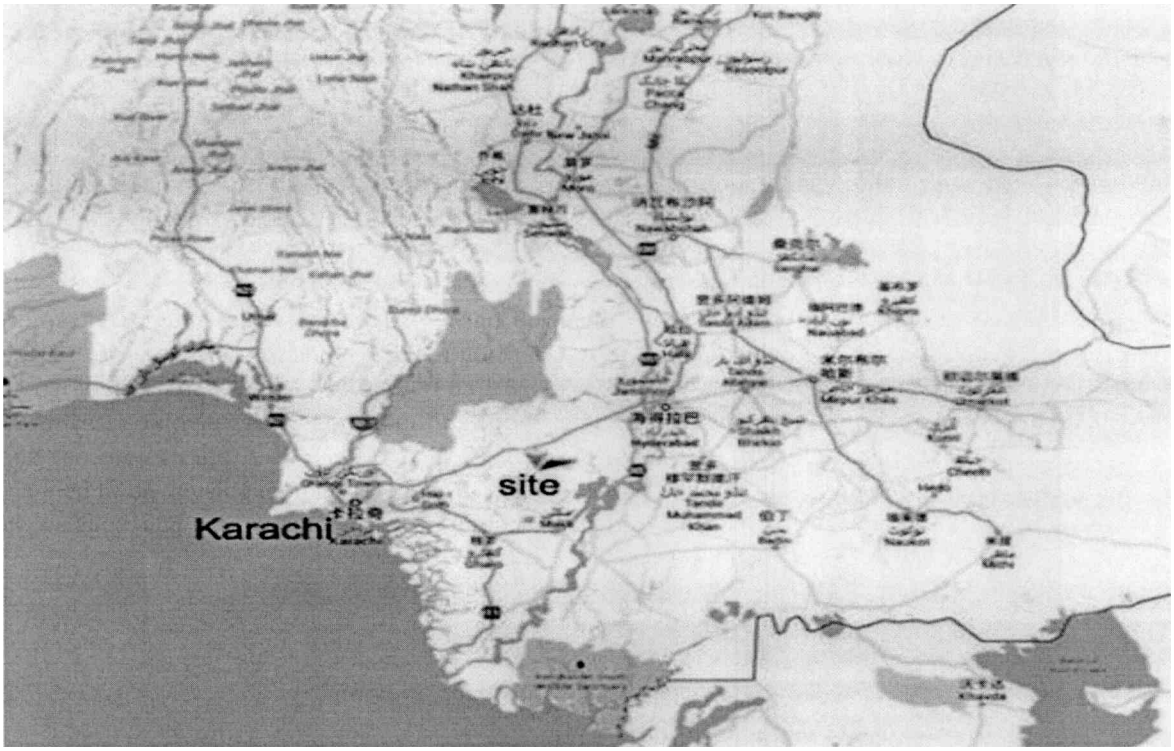
O&M CONTRACTOR	**[NORINCO INTERNATIONAL COOPERATION LTD]**		
PROJECT OPERATION COST	*Amount (US$ '000)*		
	Years	*1 year*	*25year*
	O&M **Cost**	**3800**	**95000**
	Insurance Cost	**580 (0.5% of EPC)**	**14500**
LEVELIZED TARIFF	6.1631US **cent** /kwh		
CONCESSION DOCUMENTS	Energy Purchase Agreement Implementation Agreement Government of Pakistan Guarantee Site Sub-Lease Deed		
APPLICABLE POLICY	Policy for Development of Renewable Energy for Power Generation, 2006		
TECHNICAL ADVISORS	Power China Northwest Engineering Corporation Limited Power Planners International		
FINANCIAL ADVISORS	By Norinco International		
LEGAL ADVISORS	MohsinTayebaly& Co.		
MILESTONES ACHIEVED BY THE PROJECT	**First** Award of Letter of Intent (L01)	April 20th, 2015	
	Land Allocation Letter	January 15th, 2016	
	Initial Environment Study Approval	March 4th, 2016	
	Grid Interconnection Study Approval (Phase I 50MW)	6th,May,2016	
	Grid Interconnection Study Approval (Phase II 50MW)	3rd,April 2017	
	Generation License(Phase I 50MW)	November 10th, 2016	
	Generation License(Phase II **50MW)**	November 27th, 2017	
	Feasibility Study Approval for 2x50MW	September 26th, 2017	
	Payment for 10 Years Land Lease Challan (100MW)	December 3rd, 2017	
	Approval (100 MW) Grid Interconnection Study	February 11st ,2019	
CURRENT STATUS OF THE PROJECT	We have achieved all milestones to applied cost plus tariff.		

KEY FEATURES OF THE PROJECT

The Project Site

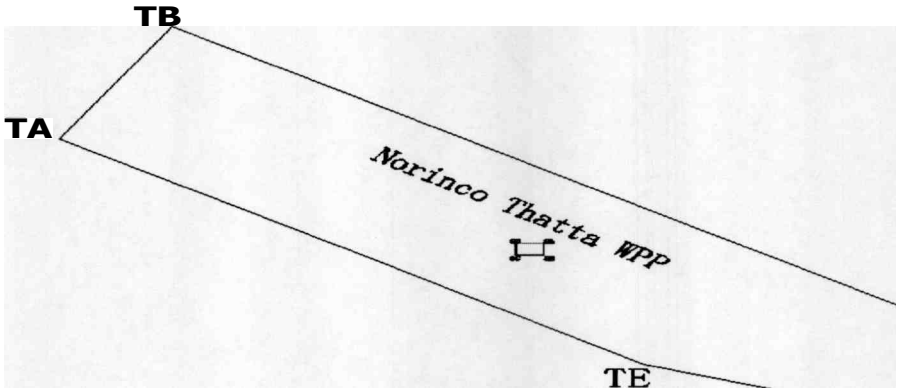
The project is located in Jhimpir District, Thatta, Sindh and is in close vicinity of the super highway and PAF Base Bholari. The geographical coordinates of our project are as follows:

The Project is sponsored and developed by Norinco International Thatta Power (Private) Limited. Norinco International Thatta100 MW Wind Power Project site is located about located in Jhimpir in Sindh Province, Pakistan, about 110 km northeast of Karachi and about 80 km northeast of port Qasim (geographical coordinates: 68°0'4" — 68°3'55" E, 25°5'23" — 25°8'4" N). The project area is of a northwest-southeast strip zone, about 6.7 km long and 1.6 km wide with total area of about 2500 acres and the project site is at EL.40 m EL.60 m. The project with total installed capacity of 100 MW is planned to be developed in two stages. 40 sets of 2.5 MW wind turbines and one step-up substation will be installed, and permanent construction road will be provided.



Boundary Coordinates

Name	Easting	Northing	Latitude	Longitude
TA	399295.80	2778828.54	25°07'19.2"	68°00'03.9"
TB	400076.64	2780201.28	25°08'04.0"	68°00'31.4"
TC	405742.67	2776363.49	25°06'00.5"	68°03'54.7"
TD	404924.03	2775534.51	25°05'33.4"	68°03'25.7"
TE	403349.76	2776083.25	25°05'50.9"	68°02'29.3"



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As the land allocated by the Govt. of Sindh 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 150meters 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. We already get the NOC from Civil aviation and we sign MOU with PAF. (Attached as Annex-I)

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

The basis of the GOLDWIND 2.5 MW wind turbine (GW 2.5 MW) is its Permanent Magnet (PM) generator, which is gearless and Directly Driven (DD) by a 3-blade rotor. The combination of the PM synchronous generator with its full power converter maximizes energy output, making the wind turbine highly efficient and reliable. These technologies specify the turbine type.

Wind turbines frequently operate at partial load, a range wherein PM generators reach their highest efficiency. The closed loop active air cooling system with its two air-to-air heat exchangers further optimizes the generator's performance. Direct Drive (DD) is the ultimate concept for reducing turbine components as well as increasing its reliability. Utilizing one double-row tapered roller bearing as the rotor and generator bearing makes the design structure compact and light weight. The full load IGBT converter allows an adapting rotor speed to achieve optimum aerodynamic efficiency at varied wind speeds. This converter system combined with the PM generator guarantees superior grid connection capabilities. Tooth-belt driven pitch systems combined with ultra-capacitors ensure precision, safety and low maintenance.

Selection of Technology / WTGs

Product Versions
This Technical Description document is valid for the GW 121/2.5 MW model:

Table 1: GW 121/2.5 MW Version;

Version	Rated Power	Nominal Rotor Diameter	Wind Class	Certificate
GW121/2500	2.5MW	121m	IEC IIIB	DA (DNV)*

Rotor

Blades:

The Goldwind 2.5 MW wind turbine rotor is equipped with 3 reinforced fiber glass blades (GRP) that are produced by qualified international blade manufacturers. The high aerodynamic efficiency of the rotor is based on the efficient design of the airfoils used in each blade. Different blade lengths are used depending on the wind class of the site that the turbine will be placed. This optimizes energy output and loads. The following table shows the respective blades used for each Goldwind 2.5 MW turbine model and the resulting swept area.

Table 2: GW 2.5MW Blade Characteristics

Blade Type	Nominal Rotor Diameter	Actual Rotor Diameter	Swept Area
Sinoma 59.5	121m	121.5m	11595 m^2

2 Hub:

The hub supports the three rotor blades via the blade bearings and connects them to the generator. The connections between the blades and hub, as well as the generator-hub connection are flange bolt connections. The hub is optimized for size and weight and is made of carted iron (EN-G15-400- 18U-LT / GGG 40.3). Additionally the pitch system, including the pitch motor, gear box, control box, and the nose cone support structure are integrated into the hub.

3 Pitch Systems:

The pitch system is responsible for adjusting the pitch of the three blades. As the blades are pitched, the angle of attack of each blade is changed, either increasing or decreasing the lift force over the blades. All three blades are controlled collectively, with each blade acting independently.

4 PMDD Generators:

The Permanent Magnet (PM) design maximizes efficiency with no energy loss resulting from magnetic field excitation and no slip rings.

The direct drive (DD) aspect of the turbine means there is no gearbox. As a result there are no couplings, gearbox oil, oil pumps, cooling, filtering, and gearbox monitoring systems, minimizing components and costs.

The variable speed nature of the generator-converter system means that the aerodynamic efficiency of the turbine rotor can be maximized by adapting the rotor speed to the wind speed. The combination of this type of synchronous generator and full load converter, allows the system theoretically to be able to adapt to the full range of wind speeds from zero to rated output.

Technical data

Outside diameter	4.935 m
Air gap between rotor and stator	7.5 mm
Winding type	two layer fractional-slot winding
Slots and Coils	288
Number of phases	3 phases
Rated voltage	690 V

5 Nacelles:

The nacelle is an enclosure that sits atop the tower. It is made of three parts; a base frame, a walk able platform, and a fiberglass cover.

The base frame is connected to the axle (generator stator) by a vertical flange and to the yaw system by a horizontal flange. It is responsible for transferring all loads from rotor to the tower and is manufactured using casted iron (EN-GJS-400-18U-LT / GGG 40.3).

6 Towers:

The tower is manufactured using high strength steel in three to five sections, depending on the overall tower height. Each section contains an inner flange on each end for connecting the segments. The bottom tower section is bolted to the foundation and the subsequent sections are bolted on top.

Towers are equipped with a ladder and safety rail. Upon request an assisted climbing system or an elevator can be included for maintenance access to the nacelle. Emergency lighting and platforms are installed throughout the tower in regular intervals.

7 Foundations:

The foundation is made of reinforced concrete with an embedded "foundation steel section". A flange on the top of the foundation steel section connects the first tower section to the foundation.

8 Electrical Systems:

Converter:

The GW 2.5 MW variable speed system is based on the combination of the PMDD synchronous generator and the full power IGBT (Insulated Gate Bipolar Transistor) frequency converter. It allows the Generator to operate at the optimized rotor speed from cut in to cut out. Variable frequency AC power from the generator (linear to the generator rotational speed) enters the converter, and is converted to match the grid frequency, whether it is 50Hz or 60Hz. The converter thus decouples the generator frequency from the grid frequency. The converter system has its own controller unit (CPU), separate from the turbine controller.

Turbine Controller:

The turbine controller manages all functions and sub controllers of the turbine; it optimizes the loads and energy output, depending on utility and customer demand.

It receives signals from the converter and pitch sub controllers, as well as data from all sensors within the turbine, like the anemometer, wind vane, generator speed sensor, temperature sensors, yaw position sensor, vibration sensors, etc ...

9 SCADA (Supervisory Control and Data Acquisition):

The turbine can be controlled and monitored externally through the wind farm control system at the wind farm. The turbine can be monitored by the Goldwind SCADA system via any computer with internet access. Both current and historical turbine operating data can be viewed from a SCADA terminal. Various levels of security exist within the systems, allowing the customer to choose specific access levels.

Experience of the Project Team

The Company will enter into an implementation agreement and an energy purchase agreement with competent Pakistan government authorities for the Project and will construct, develop, finance, own, and operate the 100 WM Wind Power Project in Jhampir, Thatta, Sindh. Both two shareholders and management staff & members have rich experience in electrical industry not only in Pakistan, but also in other countries.

General Experience of Norinco International's Power & Energy section :

Type of works	Contract name	Starting /Ending duration	Contract amount	Total capacity	Contract Identification	Fund resource
Hydro - Power plant	Tis Abay II Hydropower Project Lot 2 Contract	*June 1997/ March 2001*	*USD 18,000,000*	*72MW= 2X36MW*	*Name of Employer:* Ethiopian Electric Power Corporation P.O. Box 1233 Mexico Square, Address: Addis Ababa, Ethiopia *Contract name:* Tis Abay II Hydropower Project Lot 2 Contract *Brief Description of the Works :* A Hydropower Station mechanical and electrical equipment contract (2X36MW), including equipment design, supply, transportation, installation and commissioning	Employer's finance
Hydro - Power plant	Finchaa Power Plant Unit 4 Extension Project	*August 1999/ March 2002*	*USD 6,250,000*		*Name of Employer:* Ethiopian Electric Power Corporation P.O. Box 1233 Mexico Square, Address: Addis Ababa, Ethiopia *Contract name:* Finchaa Power Plant Unit 4 Extension Project *Brief Description of the Works :* This is a Hydropower Station extension contract on the turn key basis, including equipment design, supply, transportation, civil work, installation and commissioning	Employer's finance

Type of works	Contract name	Starting /Ending duration	Contract amount	Total capacity	Contract Identification	Fund resource
Hydro - Power plant	Tekeze Hydropower Project Lot4 & Lot5 Contract	*January 2003/ November 2009*	*USD 33,577,650.00*	*300MW= 4X75mw*	*Name of Employer:* Ethiopian Electric Power Corporation P.O. Box 1233 Mexico Square, Address: Addis Ababa, Ethiopia *Contract name:* Tekeze Hydropower Project Lot4 & Lot5 Contract *Brief Description of the Works :* 300MW Hydropower Station including 4 units mechanical and electrical equipment contract, including equipment design, supply, transportation, installation and commissioning.	Employer' finance
Hydro - Power plant	*Xeset 2 Hydropower Development Project*	*August 2005/ August 2009*	*USD135,502,471*	*76MW= 2X38mw*	Name of Employer: *Electricite du Laos* Address: *Nongbone Road, P.O.Box 309, Vientiane, Lao People's Democratic Republic* Contract name: *Xeset 2 Hydropower Development Project* *Brief Description of the Works :* 76MW Hydropower Station including 2 units mechanical and electrical equipment contract, including equipment design, construction, supply, transportation, installation and commissioning.	EXIM Bank of China

Type of works	Contract name	Starting /Ending duration	Contract amount	Total capacity	Contract Identification	Fund resource
Hydro Power plant	Tefen Hydropower Project	*September2008/ May, 2010*	*Euro 4,081,000*	*33MW= 3X11mw*	Name of Employer: Aksu Group Address: Mebusevleri, Iller Sok.No: 5 Tandogan/ANKARA/TURKEY Contract name: Tefen Hydropower Project *Brief Description of the Works :* 33MW Hydropower Station including 3 units mechanical and electrical equipment contract, including equipment design, supply, transportation and commissioning.	Employer's finance
Hydro - Power plant	BAC HA HYDROPOWER PROJECT	*May 2009/ September 2012*	*Euro 7,148,682*	*90MW= 2X45MW*	Name of Employer: *BAC HA HYDROPOWER JOINT STOCK COMPANY (BHHC)* Address: *Coc Ly Commune, Bac Ha District, Lao Cai Province, Vietnam* Contract name: BAC HA HYDROPOWER PROJECT *Brief Description of the Works :* 90MW Hydropower Station including 2 units mechanical and electrical equipment contract, including equipment design, supply, transportation and commissioning.	Employer's finance

Project Cost and Tariff

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 139

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

INVESTMENT:/ COST	US$000
EPC COST	130,356
NON-EPC & PROJECT DEVELOPMENT COST	**10,000**
PRE-COD INSURANCE COST	978
FINANCIAL CHARGES	3,085
SINOSURE FEE	11,243
INTEREST DURING CONSTRUCTION	5573
TOTAL PROJECT COST	161,235

DETAILS OF PROJECT COST

EPC Cost:

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

COST HEAD	US$ (MILLION)
OFFSHORE AGREEMENT (GLORY TOWN HOLDING 85%)	110,800
ONN SHORE AGREEMENT (NoRiNcoINT Co) 15%	19,556
TOTALEPCCOST	130,356

The EPC Cost includes the cost of wind turbine generators, 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 thatis 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 Payment medium 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.

We will pay, as mobilization advance, [15%] (aggregate) of the total amounts payable to the EPC Contractor pursuant to the EPC Agreements upon achievement of, *inter alia,* the following milestones:

Issuance of 'Preliminary Notice to Commence'; and tariff determination by NEPRA.

To meet the aggressive timelines for the Project, the Project Company intends to initiate full scope work on the Project and completely mobilize the EPC Contractor upon the issuance of acceptable tariff by NEPRA through upfront equity injection. These activities normally commence upon achievement of

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

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 and all costs, fees and expenses incurred or to be incurred for such purpose. These costs include, *inter alio,* costs of feasibility studies, topographical survey of land, geotechnical investigation of land, electric grid interconnection studies; 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 NEPRA and other governmental agencies, costs incurred during the Project Company's information 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 merge/swapping of our Project 2x50MW go into 1x100MW project increasing our development time and cost.

A breakdown of some of such costs is provided below: 10000

Cost	**Amount (US$)000**
Consultancy Costs & Technical Studies—Pre-Financial Close	1,421
Owner's Engineer Supervision—Post Financial Close	993
Independent Engineer-Pursuant to the EPA	96
Permits, Permissions and Related Costs	550
Site, Security and Infrastructure	1,412
Administration Cost	2,288
Travelling Costs	362
Land Cost	2,878
Total non-EPC & Project Development Cost	**10,000**

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 Pro ject's feasibility study.

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 a site engineer 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.

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.

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.

Site, Security and Infrastructure:

This head includes upfront payment of the site lease for30 years and costs related to site leveling & preparation, site access, infrastructure, electricity connection and security costs, etc. The Project Company is also responsible for the security of its local and foreign personnel and the EPC contractor's staff.

Administration Costs:

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, vehicles fuel and maintenance and other allied expenses during the construction period.

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. during development and construction period of the Project.

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

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 0.5% of EPC cost) per annum at the strength of its.

However,inthe event the Project Companycannot arrange the insurance at 0.5%,dueto any reasons beyond itscontrol, NEPRA is requested toallowtheactualPre-COD InsuranceCost at actual upto 1.35% of the EPC cost inlinewith earlier tariff determinations by NEPRA for other IPPs.

NITPPL, in view of the practices set by 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:

Construction All Risk Insurances (CAR); CAR Delay in Start-up Insurance;
Terrorism Insurance; Marine and Inland Transit Insurance; Marine - Delay-In Startup Insurances; and 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 NITPPL 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 v insurance cost at 0.75% of EPC. However, in caseof 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.

Financial Charges

Financial Charges include the costs related to the debt financing of the Project. Such costs include, *inter alia,* 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' various advisors.

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 debtfinancing agreed withthe lenders are attached with this Tariff Petition.
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.

Sino sure Fee

Sino sure Fee Under the foreign financing originating from Chinese banks, upfront Sino sure fee @7% on the total debt servicing has been included in the project cost. Project cost will be adjusted at the time of COD on the basis of actual Sino sure fee subject to maximum of 7%. In case the sponsor managed better alternative Sino sure fee arrangement, the same will be considered at the time of COD.

Interest During Construction

The Interest During Construction (the **IDC)** has been calculated on the basis of the term sheets executed between the Project Comnanv and the lenders. which stinulates base rate enual to 3 months LIROR plus

a margin of 4.5% basis points (USD financing).

Actual IDC, however, 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.

BASIS FOR IDC CALCULATIONS	
BASE RATE (LIBOR)	0.6%
SPREAD	4.5%
TOTAL INTEREST RATE	**5.1%**

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.

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^{th}) day following the day of submission of the invoice i.e. the 31st day.

Outflow of Funds & Requirement for Working Capital:

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.

- 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.

Besides above there is also an expected mismatch of cash flows for meeting O&M expenses.
EXIM BANK has agreed to provide a working capital line to the Project Company without any cost. Accordingly, the Petitioner will not claim any cost of such working capital, which will ensure a cost-effective tariff.

Taxes & Custom Duty

Custom Duty:

The amount of customs duty to be paid on 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 regarding imported plant, equipment, machinery etc. in accordance with the above.

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

Special Excise Duty:

Special Excise Duty is assumed at Zero%, as the same is correlated with the rate of customs duty (discussed above — Zero Rated). 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:

No Sales Tax is assumed on import and local supply of the imported plant, equipment, and machinery etc., as per 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."

Furthermore, for the purpose of this Tariff Petition, the Project Company has not taken into account the impact (if any) of the Sindh Sales Tax on Services Act, 2011. The true implications and procedures with regard to applicability of the 'Sindh Sales Tax of Services Act, 2011' are not clear at this time, however, in case the said Sales Tax on services become applicable on the EPC Onshore Agreement, then the related impact will be adjusted against output sales tax on electricity sales receipts (post COD) and there will be no impact on the Project Cost because of provincial sales tax on services.

However, in case of change in laws by virtue of which if either (a) federal sales tax applicable on procurement of plant, machinery and equipment becomes applicable, or (b) provincial sales tax on services does not remain adjustable against sales tax charged on sale of electricity, the same is requested to be adjusted in Project Cost and Tariff allowed at COD / Tariff true-up stage.

Advance Income Tax:

Advance Income Tax @ 0.00% (Zero Percent) 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 53 of the Income tax Ordinance 2001, read with clause 77 to the Part II 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.

Sindh Infrastructure Development Surcharge (SIDS):

As of now Sindh Infrastructure Development Surcharge (SIDS) is 1.15% Sindh Act X VIII, 2017

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 and 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.

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PROJECT COST COMPARISON WITH NEPRA'S PREVIOUS UPFRONT TARIFFS

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

Project Cost & Tariff comparison	USD: 000,		
	Cost Plus Tariff of Norinco 100MW	As per 24 June 2015 Upfront Tariff /2 50	As per 24th April 2013 Tariff /2 50
EPC Cost	130,356	95.895	115,301
Non-EPC & PDC	10,000	6,167	
Pre-COD Insurance Cost	978	1,438	1,636
Base Project Cost/Sub-total	**141,334**	**103,500**	116,937
Financial Charges	3,085		
Sinosure fee	11,243		
Interest During Construction	4,129	4,000	6000
Total Project Cost-USD/MW	161,235	107,500	122,937
SavingslOOMW-USD			
LevelizedTariff -USC/kWh	6.1631	10.4481	13.5244

The above comparison indicates that the Project cost and the Project Company' proposed Levelized tariff is substantially lower than the previously allowed project costs and level zed tariffs.

PROJECT FUNDING STRUCTURE (DEBT & EQUITY)

THE FUNDING ARRANGEMENT

The Project Cost will be funded on the basis of a Debt: Equity ratio of 70:30, thereby resulting in the following capital structure for the Project:

		USDiN '000
DEBT-FOREIGN	80%	128,988
EQUITY	20%	32,247
TOTAL PROJECT COST	100%	161,235

BRIEF ABOUT DEBT AND EQUITY FINANCING

The envisaged debt-equity structure of the Project is80:20 implying a total debt requirement of USD 128,988(based on a project cost of USD 161,235).

The debt financing will be funded In the following manner:
80:20 Based on Nepra tariff determination.

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 32,247 million. All shareholding groups being sponsors will subscribe for100% of the equity requirement.

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 allowed 14% return to 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, whereas resource risk in solar power projects rests with the project companies/ sponsors.

Project Company hereby requests

ROE of 14% (IRR based) return on invested equity - the rate of 14% is in line with NEPRA's Benchmark Tariff for Wind determination dated 27th January 2017.
ROEDC at a rate of 14%over the remaining life of the Project.

It is pertinent to highlight that the withholding tax component has not been identified as a separate line item in the tariff as the same is assumed to be pass-through item under the tariff.

DEBT SERVICING

The capital structure of the Project is envisaged at80:20 (Debt: Equity).

Terms o f 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 USDM	161,235
TotalValueofDebt@80%of total project Value USDM	128,988
Base Rate	0.6%
Spread	4.5%
Debt Markup	5.1%
Repayment Period	13
Grace Period	2 Years
Re-Payment Schedule	13 year

Project Company hereby requests

- ROE of 14% (IRR based) return on invested equity - the rate of 15% is in line with NEPRA's Benchmark Tariff for Wind determination dated 27th January 2017.
- ROEDC at a rate of 14% over the remaining life of the Project.

It is pertinent to highlight that the withholding tax component has not been identified as a separate line item in the tariff as the same is assumed to be pass-through item under the tariff.

Carbon Credits

Wind Power is a clean form of energy and will reduce CO2 emission. LEL intends to register for CO2 emission reduction program. In case any income is generated from CDM, the same shall be shared in accordance GOPs prevailing policy.

Operational Costs
Understanding & Benchmarks

Operation Cost

The operational cost of the Project comprises of the operations and maintenance cost, and the cost of the operational period insurances to be taken out by the Project Company. Break-up of the same is provided here under here:

	USD IN 000, (PER ANNUM)
Total O&M Cost	3800
Operation Insurance	652
Total O&M Cost	4452

O&M Costs

This component caters for the cost of services rendered by the O&M operator that are dependent on the operation of the Project thereby determinable on a kWh basis. This component also includes costs expected to be incurred by the Project locally; these include costs associated with foreign staff, local staff, administrative expenses, corporate fees, audit fees, advisory fees etc. This component also includes cost associated with replacement of parts necessitated due to regular operation I normal wear and tear. The O&M cost will be incurred in local as well as foreign currency - percentage of local: foreign components are specified below along with indexations applicable on the same:

Sub-component	Percentage	indexation
Local	39%	Pakistan CPI(General
Foreign	61%	US CPI (All Urban Consumers) PKR/USD Indexation

The Project Company is in the process of finalizing the O&M arrangement with Norinco International Cooperation Limited (O&M Contractor), wherein the initial term of O&M arrangement for the Project will be 25 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 match 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.

REFERENCE GENERATION TARIFF & DEBT SCHEDULE

TARIFF CONTROL PERIOD

As the Project is 80% 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, the tariff will be decreased significantly due to no debt service related costs.

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 two (02) bands i.e. year 1— 13 and year 14 — 25 to cover the variations due to the debt repayment period.

Summary of Reference Generation Tariff

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

PKR /kWh

YEARS		1-13	14-25
FIXED O&M	LOCAL	0.622089	0.622089
	FOREIGN	0.973011	0.973011
ROE		2.2076	2.2076
DEBT SERVICING		5.7223	0
INSURANCE		0.2736	0.2736
TOTAL PKR		9.7986	4.0763
USD CENTS		7.0595	2.9368

Reference Generation Tariff

Year	O&M(Local) PKR/kWh	O&M(Foreig PKR/kWh	Insuranc PKR/kWh	ROE PKR/kWh	Loan PKR/kWh	nterestPaym PKR/kWh	Total Tariff PKR/kWh	Total USD/kWh
1	0.622089	0.973011	0.2736	2.2076	3.0182	2.7041	9.7986	7.0595
2	0.622089	0.973011	0.2736	2.2076	3.1751	2.5472	9.7986	7.0595
3	0.622089	0.973011	0.2736	2.2076	3.3402	2.3821	9.7986	7.0595
4	0.622089	0.973011	0.2736	2.2076	3.5138	2.2085	9.7986	7.0595
5	0.622089	0.973011	0.2736	2.2076	3.6965	2.0258	9.7986	7.0595
6	0.622089	0.973011	0.2736	2.2076	3.8886	1.8337	9.7986	7.0595
7	0.622089	0.973011	0.2736	2.2076	4.0908	1.6315	9.7986	7.0595
8	0.622089	0.973011	0.2736	2.2076	4.3034	1.4189	9.7986	7.0595
9	0.622089	0.973011	0.2736	2.2076	4.5271	1.1952	9.7986	7.0595
10	0.622089	0.973011	0.2736	2.2076	4.7624	0.9598	9.7986	7.0595
11	0.622089	0.973011	0.2736	2.2076	5.0100	0.7123	9.7986	7.0595
12	0.622089	0.973011	0.2736	2.2076	5.2705	0.4518	9.7986	7.0595
13	0.622089	0.973011	0.2736	2.2076	5.5444	0.1778	9.7986	7.0595
14	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
15	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
16	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
17	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
18	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
19	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
20	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
21	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
22	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
23	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
24	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
25	0.622089	0.973011	0.2736	2.2076			4.0763	2.9368
Exchange Rate1 USD = 139					**LEVELIZEDTARIFF**			
					Rs./kwh			8. 5543
					US Cents/kwh			6. 1631

Debt Repayment Schedule

Quarters	Repayment of foreign loan(USD'000)					Calculation of Tariff
	Principal	Repayment	Interest	Balance	Annual Debt Servicing	RS./KWH
1	128988	1764	1645	127224		
2	127224	1786	1622	125438		
3	125438	1809	1599	.12.1§i9		
4	11V0_9	1837	1576	'7=97		
	128988	**7191**	**6442**	121797	**13,633**	5.7223
5	121797	1855	1553	119942		
fion.	19.942	1879	1529	318063		
7	118063	1903	1505	116160		
8	116160	1927	1481	114233		
		7564	**6069**		13,633	5.7223
9	114233	1952	1456	112281		
10	112281	1977	432	110304		
11	110304	2002	1406	108302		
12	108302	2027	1381	06275		
	114233	**7958**	**5675**	**06275**	13,633	5.7223
13	106275	2053	1355	104222		
14	104222	2079	1329	102143		
15	102143	2106	1302.	04037		
16	100037	2133	1275	97904		
	106275	**8371**	**5262**	97904	13,633	5.7223
17	97904	2160	1748	95744		
18	95744	1488	1221	93556		
19	93556	2?15	1193	91341		
20	91341	2244	1165	89097		
	97904	**8807**	**4826**	89097	13,633	5.7223
21	89097	2272	136	86825		
22	86825	2301	1107	84524		
23	84524	2331	1078	82193		
24	82193	2360	1048	79833		
	89097	**9264**	**4369**	79833	13,633	5.7223
25	79833	2390	1018	77443		
26	77443	2421	987	75022		
27	75022	2452	957	72570		
78	72570	248	5	70807		
	79833	**974•**	**3887**	70807	13,633	5.7223
29	70807	2515	894	67572		
30	67572	254.7	2	65025		
31	65025	2579	829	62446		
32	67446	2612	796	59834		
	70807	**10253**	**3380**	59834	13,633	5.7223
33	59834	2645	763	57189		
	89	2679	779	54510		
[redacted]	11611	2713	695	51797		
36	51797	2748	660	49049		
	59834	**10785**	**2847**	49049	13,633	5.7223
37	49049	2783	625	46266		
38	46266	2818	590	43448		
39	43448	2854	554	40594		

40	40594	2891	518	37703		
	49049	**11346**	**2287**	37703	13,633	5.7223
41	37703	2928	481	34775		
42	34775	2965	443	31810		
43	31810	3003	406	28807		
44	2111147	3124.1		6		
	37703	**11936**	**1697**	25766	13,633	5.7223
45	25766	3080	329	22686		
46	22686	3119	289	19567		
47	19567	3159	249	16408		
48	16408	3199	209	13209		
	25766	**12557**	**1076**	13209	13,633	5.7223
49	13209	3240	168	9969		
50	9969	3281	12	6688		
51	6688	3323	8	3365		
52	3365	3365	43	0		

- INDEXATIONS, ESCALATIONS AND COST ADJUSTMENT

INDEXATIONS

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

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

CONSIDERATIONS WITH RESPECT TO EPA

- **ENERGY PRODUCTION**

[330670MW Per Annum]

One Time Adjustments:

The following onetime adjustments are requested to the reference tariff:

1. Charges for the letter of credit to be opened in favor of the EPC contractor may be adjusted at COD on actual basis.
2. Duties and or taxes not being of refundable nature, imposed on the company up to the commencement of its commercial operations for the import of its plant, machinery and equipment will be subject to adjustment at actual on COD.
3. 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.
4. The return on equity during construction may be adjusted at COD on the basis of actual equity injections during the project construction period.
5. The return on equity (including return on equity during construction) will be adjusted at COD on the basis of PKR /US$ exchange rate variation.
6. All project costs i.e. costs incurred prior to commercial operations date are allowed in US$.At COD

.AII 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.**

7. The reference tariff table may please be revised at COD while taking into account the above adjustments
8. Any negative financial implications resulting from changes in tax rates, duties etc. and currently applicable sales tax structure may kindly be adjusted in the Project Cost.
9. Pre-COD Insurance Cost be adjusted at actual subject to a cap of 1.0 % of the EPC cost in line with earlier tariff determinations by NEPRA for other IPPs.
10. Return on Equity be adjusted at COD in order to ensure an IRR based return of 14% on equity (while treating the project as a Build-Own-Operate type project).
11. ROEDC is to be allowed at the time of COD, as true up adjustment, based on actual equity injections to the LEL by the Project Sponsors.

Pass-Through Items:

Authority is requested to allow following cost components as pass through to LEL on the basis of actual costs incurred by Project Company or obligated to be paid in relation to the Project pursuant to Laws of Pakistan.

1. No provision of income tax has been provided for in the tariff. If the Project Company is obligated to pay any type of tax, the same should be allowed to the Project Company as pass through;
2. No withholding tax on dividend has been included in the tariff. Authority isrequested to allow payment of withholding tax on dividend as pass through at the time of actual payment of dividend;
3. 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 as pass through at actual by the power purchaser;
4. Zakat deduction on dividends as required under Zakat Ordinance is considered as a pass through;
5. No tax on income of LEL (including proceeds against sale of electricity to CPPA) has been assumed. Corporate tax, turn over tax, general sales tax I provincial sale tax and all other taxes, excise duty, levies, fees etc. by any federal I provincial entity including local bodies as and when imposed, shall be treated as a pass through item;
6. 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 allowed as pass through;
7. Any costs incurred by Project Company, which are required to be incurred by Power Purchaser pursuant to provisions of EPA shall also be treated as pass through; and
8. Taxes and charges that constitute as part of the Project Cost for construction period and operation period shall be treated as pass through.

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Section 11

GENERAL ASSUMPTIONS:

The proposed Reference Tariff is based on the following assumptions. A change in any of these assumptions will necessitate a corresponding adjustment in the Reference Tariff:

1. The reference tariff has been calculated on the basis of net annual benchmark energy generation of 330.668G what annual net plant capacity factor of 37.7% on installed capacity of 100 MW.
2. The reference PKR/dollar rate has been assumed at 139.00.
3. The three months LIBOR is assumed to be 0.6% p.a.
4. The USC PI for indexation of reference tariff is taken as (September 2017) 13.2 based on the Base Year of 2010.
5. The WPI for Local Indexation Factor (Jan 2019) 247.21
6. The reference tariff is applicable for a period of Twenty-five (25) years commencing from the commercial operations date.
7. Debt for the Project will be sourced from international financial institutions. Exact composition of local debt and foreign debt will be finalized prior to financial close; adjustment against the same will be requested at the time of COD;
8. An exchange rate of PKR 139 /USD has been assumed. Indexation against PKR /USD variations will be permitted for debt servicing payments and all other project costs denominated in foreign currency. Tariff components shall be respectively indexed for exchange rate variations as discussed in Section 10
9. The timing of drawdown of debt and equity may vary from those specified in this Petition; as such, the Project Cost will be adjusted on the basis of actual IDC at COD. Similarly, ROEDC component will also be updated in the Reference Tariff;
10. Adjustments in Project Cost due to variation in PKR I USD variations and KIBOR fluctuations will also be catered for at the time of COD;
11. Taxes and Custom duties shall be claimed on actual at the time of COD tariff adjustment;
12. Withholding tax at 8.0% on supplies and Onshore Contract. No withholding tax is anticipated on the Offshore Contract. In case there is any change in taxes etc., or additional taxes, fees, excise duty, levies, etc. are imposed, the EPC cost and ultimately the Project cost and the Reference Tariff will need to be adjusted accordingly;
13. The power purchaser will compensate for energy delivered o the power purchaser prior to COD. For this purpose Energy Purchase Price shall be paid for all energy delivered prior to COD. Payments will be invoiced to the power purchaser as per mechanism specified in the EPA;
14. The power purchaser shall be solely responsible for the financing, engineering, procurement, construction, testing and commissioning of the interconnection and transmission facilities up till the Project gantry point. Said facilities will be made available to the Project at least on or before the deadline set out in the EPA. Furthermore, the power purchaser will be solely responsible for operation and maintenance of the said interconnection and transmission facilities;
15. Project contingency and maintenance reserves are not included in Reference Tariff calculations. If required by lenders, these will be adjusted accordingly in the Reference Tariff;
16. In case of any unintentional error or omissions, typographic errors, and any genuine assumption being overlooked, the same will be corrected/incorporated and advised to NEPRA as soon as the Project Company becomes aware of it;
17. Any Incentive given to any other wind IPP shall also be given to the project company
18. Main Energy meter and electronic recording for continuo recording of reading will be provided by power purchaser and it own cost.
19. Any additional indexation or concession allowed by the GOP, NEPRA or any other Govt. entity to any IPP will be allowed to LEL without any discrimination.
20. The Power Purchaser / CPPA-G shall be exclusively responsible for the financing of contraction operation and maintenance of the interconnection and transmission line as per the prevailing policy at the time of tariff determination
21. Project contingency and maintenance reserves or not included in reference generation tariff

calculations, if required by lender these will be adjusted accordingly in the reference generation tariff.

22. No withholding tax on divided is assumed. Any tax levied will be treated as pass through to the power purchaser. General Sales Tax and all other taxes will also be treated pass through.
23. Any taxes federal, provisional, 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.

Tariff Summary:

In summation, the Project Company herewith most respectfully submits before NEPRA for its approval the matters set out in this Tariff Petition and further prays for NEPRA to kindly approve the following:

1. The Project Costs and related arrangements stated in this Petition are allowed to the Petitioner.
2. Energy production estimate of 330.67GWh per annum for calculation of the Tariff and energy payments for the years 1-25 after COD.
3. The Project is allowed to claim compensation for energy supplied prior to COD at the tariff allowed by NEPRA for the first year minus debt servicing components.
4. Funding of the Project on an 80:20 - Debt: Equity basis.
5. Sharing of any CER related revenues subsequently realized. as per the Government of Pakistan policy.
6. A Return on Equity of 14% (net of withholding tax) on IRR basis along with Return on Equity during Construction, reasons for which have been provided in detail in Section 6.4 (Return on Equity) above.
7. Indexations and adjustments for the individual tariff' components as detailed in Section 10 (Indexations, Adjustment and Cost Escalations) above.
8. Adjustments at COD, as provided under Section 10 (Adjustments at COD) above
9. The General Assumptions, as provided in Section 11 (General Assumptions).

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.