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Yousaf Khosa
Bilal Shaikat
Nadir Altaf
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RIAALAW Kabul
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9 January 2015

Syed Safeer Hussain
Registrar
National Electric Power Regulatory Authority (NEPRA)
NEPRA House, G-5
Islamabad

Dear Sir,

Subject: COVER LETTER – Application for Modification in Generation License No. WPGL/23/2013 of Tapal Wind Energy (Private) Limited

We write for and on behalf of our clients, the Tapal Wind Energy (Private) Limited (the “**Company**”) and hereby submit the necessary documents for filling the Modification Petition pertaining to the Generation License WPGL/23/2013, pursuant to Section 10 (2) of the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999.

Please find enclosed hereto the necessary documents for filling the Modification Petition:

- i) Cover Letter on part of the Company;
- ii) Certificate of Incorporation;
- iii) Extract of Board Resolution;
- iv) Power of Attorney in favor of Mr. Mustafa Tapal;
- v) VAKALATNAMA;
- vi) Payment of Fee for Modification Petition: Pay Order of PKR274,000;
- vii) Modification Petition;
- viii) Annex A-D pertaining to the amendments in the license requested.

It is humbly requested that NEPRA would permit the following modification to be made.

Sincerely,



RIAALAW

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Clifton, Karachi
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5nd January, 2015

Registrar
National Electric Power Regulatory Authority,
NEPRA Tower Attaturk Avenue (East),
Sector G-5/1,
Islamabad.

SUBJECT: AMENDMENT IN GENERATION LICENSE

Dear Sir,

Tapal Wind Energy Private Limited has been committed to providing 30MW of electricity through the use of Wind Energy. We have recently requested a change in wind turbines which further requires an amendment in our generation license. Please find the relevant documentation requirement for the proposed modification addressed below:

(1) *Type of Technology*

Permanent Magnet, Full Converter, Type 4, Gearless, Direct Drive. No change from previous technology.

(2) *Interconnection Arrangements, (if there are any changes to it)*

No change

(3) *Technical Limits*

No change

(4) *Technical/functional Specifications*

Turbine type changing from GW 2.5MW 109m rotor to GW 1.5MW 82m rotor.
Technology remains the same. See point no. 1 above

(5) *Any changes to the layout of the Generation facility/Wind farm*

The micro siting has been changed & the changes have been highlighted in Annexure A& B. The Plant will consist of 20 x 1.5MW 82m rotor turbines. Previously it consisted of 12 x 2.5MW 109m rotor turbines. Other than micro siting, layout remains the same

(6) *Any changes to the Micro sitting of the Generation facility/Wind Farm*

The changes in micro sitting are referred to in Annexure B



(7) Any changes to the Electrical System of the Generation facility/Wind Farm

No changes have been made in the electrical system of generation facility.

(8) Any changes to the Transmission facility for dispersal of Power, (Albeit it is anticipated that changes will not be observed in this part, but if there are any, please provide information to that regard)

No changes to the transmission facility have been made as the nameplate capacity of the Plant remains at 30MW and the technology is the same.

(9) Any changes in the Schematic Diagram for Interconnection/Transmission Facilities for Dispersal of power.

No changes

(10) A separate schedule will be required for endorsement of this part. Please fill out the proceeding boxes with relevant information:

For details of the schedule kindly refer to Annexure C

(11) Any changes to the Power Curve in Tabular form

Changes to the power curve are highlighted in Annexure D.

(12) Any Changes to the following Schedule

For details of the schedule and the changes made, kindly refer to Annexure E.

We look forward to full and timely cooperation from NEPRA in this regard. Please let us know if you require any further information from our end.

Regards,



Mustafa Tapal
Director



CORPORATE RESOLUTION

This is to certify that at Board of Director Meeting of **TAPAL WIND ENERGY (PRIVATE) LIMITED** (the "**Company**"), a Company duly incorporated under the Companies Ordinance, 1984, convened on Thursday the January 01st, 2015 at Company's registered office situated at Ameejee Chambers, Campbell Street, Karachi the following Resolution was passed and duly adopted as resolution in conformity with the provisions of the Companies Ordinance, 1984 and the Memorandum and Articles of Association of the Company in full force and effect.

RESOLVED that the Company hereby approves to file an application for amendment of Generation License (the "**Application**") with the National Electric Power Regulatory Authority ("**NEPRA**") for amendment of generation license for the company's 30 MW wind energy power project at Jhampir, Sindh.

FURTHER RESOLVED that the company hereby authorizes Mr. Mustafa Tapal having CNIC No: 42301-0822147-5, being the Director of the company to sign singly the Application and any documentation ancillary thereto. Furthermore the Company hereby authorizes him to do all acts and things necessary for the processing, completion and finalization of the application as he may deem fit on behalf of the Company.

I, **Adnaan Tapal**, Chief Executive Officer of Tapal Wind Energy (Private) Limited do hereby certify that the foregoing is a full, true and correct copy of the resolution passed in the Board of Director Meeting which was duly called and held in all respect as required by law and by the Article of Association of the Company at the office thereof on 01st day of January, 2015.

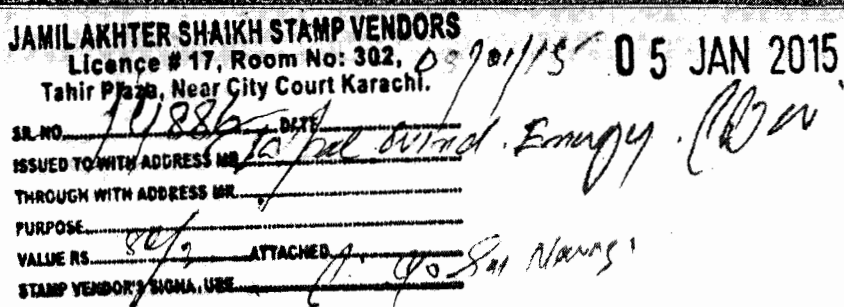
I, **Adnaan Tapal**, Chief Executive Officer of Tapal Wind Energy (Private) Limited further certify that the said resolution is still in force and has not been amended and that the authorized Directors/Officers are authorized to do necessary documentation for the Company pursuant to this resolution.




CEO/ Director



Corporate Seal




Adnan Tapal
Chief Executive Officer

VAKALATNAMA

I, MR. MUSTAFA TAPAL, Director of TAPAL WIND ENERGY (PRIVATE) LIMITED (the "Company"), hereby appoint and constitute MR. NADIR ALTAH, MR. MUSTAFA MUNIR AHMED, MS. NAZAN MEHAR IQBAL, MS. SAIRA KHALID, MR. ABDUL MANAN MOMAND, MR. SHAHRUKH IFTIKHAR of RIAALAW, Advocates and Corporate Counsellors 68, Nazimuddin Road, F-8/4, Islamabad, to appear and act for us as our advocates in connection with the processing, presentation of the Company's Application for the amendment of Generation License (the "Application") for the Company's 30 MW wind power project at Jhampir, Sindh (the "Project") with the National Electric Power Regulatory Authority ("NEPRA").

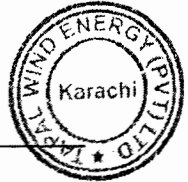
I/We also authorize the said Advocates or any one of them to do all acts and things necessary for the processing, completion and finalization of the Application with NEPRA.

ACCEPTED

SIGNATURE _____

Received by us: _____

From: _____



RIAALAW

ADVOCATES & CORPORATE COUNSELLORS

68 NAZIMUDDIN ROAD, F-8/4,

ISLAMABAD

UAN: 111-LAWYER



7th January, 2015

Mr. M. Qamar-uz-Zaman
Deputy Director (Finance)
National Electric Power Regulatory Authority
2nd Floor, NEPRA Building
Atta Turk Avenue, G-5/1
Islamabad.
Phone No. 051-2600057

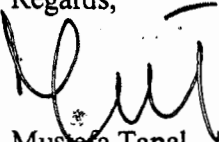
Subject: Payment of Fee for Modification of Generation Licence

Dear Sir,

This is reference to our Generation Licence No. WPGL/23/2013 dated November 26, 2013 regarding the above cited subject.

Please find attached Pay Order No. SCP098591 dated January 7, 2015 drawn on JS Bank totaling of Rs. 274,000/- for the Modification in Generation Licence No. WPGL/23/2013 dated November 26, 2013.

Regards,



Mustafa Tapal
Director

Enclosed: Pay Order No. SCP098591



JS Bank Limited
Shaheen Commercial Complex
Dr. Ziauddin Ahmed Road
Karachi-Pakistan

At the request of
FT15007TVDPV

TAPAL WIND ENERGY (PVT) LTD

Pay to the order of
NATIONAL ELECTRIC POWER REGULATORY
AUTHORITY

PKR TWO HUNDRED AND SEVENTY FOUR THOUSAND ONLY

PAYABLE AT ANY JS BANK BRANCH

OUR LIABILITY IS LIMITED IN ALL EVENTS TO THE SUM IN WRITING ABOVE

PAY ORDER NO

SCP098591

Date :

07 JAN 2015

PKR

274,000.00

PAYEE'S ACCOUNT ONLY

Reference

TAPAL WIND ENERGY (PVT) LTD

JS Bank Limited

Authorised Signature(s)

BEFORE
THE NATIONAL ELECTRIC POWER
REGULATORY AUTHORITY

PETITION FOR LICENSEE PROPOSED MODIFICATION OF LICENSE
No WPGL/23/2013

ON BEHALF OF
TAPAL WIND ENERGY (PRIVATE) LIMITED

Dated: 9 January 2015

Submitted by:

Legal Consultants
RIAALAW
Advocates & Corporate Counselors
68, Nazimuddin Road, F-8/4, Islamabad
Tel: 051-111-LAWYER, Fax: 051-2850444
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PETITION FOR LICENSEE PROPOSED MODIFICATION OF LICENSE No
WPGL/23/2013

ON BEHALF OF
TAPAL WIND ENERGY (PRIVATE) LIMITED

1. **Legal Basis:**

Tapal Wind Energy (Private) Limited in pursuance of *inter alia*, Regulation 10(2) of the (Application and Modification Procedure) Regulations, 1999 (the “AMPR”) and other applicable provisions of the Regulation of Generation Transmission and Distribution of Electric Power Act, 1997 (the “Act”), Rules, Regulations and applicable documents submits this Licensee Proposed Modification Application (the “LPM”) in respect of its Generation License # No. WPGL/23/2013.

Under Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, NEPRA awarded a Generation License to Tapal Wind Energy (Private) Limited for its Generation Facility/Wind Farm located at Jhampir, near Nooribad, District Thatta, in the Province of Sindh.

2. **Tapal Wind Energy (Private) Limited (“TWEL” or the “Company”) request for modification in a license:**

2.1 The Company was incorporated on 13 December 2010, and that the sponsors for Tapal’s Wind Power Project at Jhimpir, Sindh (the “Project”) have been actively developing the Project in collaboration with professional firms that are highly qualified and committed to developing and commissioning the Project on a fast track basis.

2.2 The Applicant is developing a 30MW wind power project under the upfront tariff regime prescribed by National Electric Power Regulatory Authority (“NEPRA”) vide its determination dated 24 April 2013 (the “Upfront Tariff”). The Company obtained Letter of Intent (“LOI”) dated 4 April 2013 from the Alternate Energy Development Board (AEDB)

and is diligently working towards the early implementation of the project. The Company is operating under a Build Own and Operate (BOO) basis. The construction of the wind farm will take approximately 18 months from the issuance of notice to commence to the project contractors, so that plant commissioning is expected in the 2nd- 3rd quarter, 2015.

2.3 The generation license issued to the Company was based on the selection of Goldwind Permanent Magnet Direct Drive GW109/2500EPC wind turbines. However, now the Company has decided to opt for GOLDWIND GW82/1500 wind turbines (the “**proposed modification**”). The selection of the proposed modification is based on prudence and proven acceptance.

2.4 Consequently to effect this change a modification in the existing generation license of TWEL is required. The Company earlier filed its petition under Section 15 of Regulation of Generation, Transmission and Distribution of Electric Power Act 1997 which was accepted by NEPRA.

“(1) No person shall, except under the authority of a license issued by the Authority under this Act and subject to the conditions specified in this Act and as may be imposed by the Authority, construct, own or operate a generation facility.

(2) An application for the grant of a license for a generation facility shall specify-

- (i) the type of facility for which the license is applied;*
- (ii) the location of the generation facility; and*
- (iii) the expected life of the generation facility.*

(3) The Authority may, after such enquiry as it may deem appropriate and subject condition specified in this Act and as it may impose, grant a license authorizing the licensee to construct, own or operate connected generation facility.

(4) In the case of a generation facility connecting directly or indirectly to the transmission facilities of the national grid company, the licensee shall make the generation facility available to the national grid company for the safe, reliable, non-discriminatory, economic dispatch and operation of the national transmission grid and connected facilities; subject to the compensation fixed by the Authority for voltage support and uneconomic dispatch directed by the national grid company.”

3. Pursuant to the proposed change in wind turbines, the following parameters of the license are required to be modified and incorporated.

3.1 Wind Farm Capacity and Utilization

(i)	Wind Turbine Type, Make and Model	GOLDWIND GW 82/1500
(ii)	Installed capacity of Wind Farm (MW)	30.00 MW
(iii)	Number of Wind Turbine Units/Size of each Unit (MW)	20 × 1.50 MW

3.2 Wind Turbine details

(a) Rotor		
(i)	Number of Blades	3 each
(ii)	Rotor Speed	9-17.3rpm
(iii)	Rotor Diameter	82.34m
(iv)	Swept Area	5325 m ²
(v)	Power Regulation	Yes
(vi)	Rated Power from	1.5Mw at 14 m/s
(vii)	Cut-in wind speed	3 m/s
(viii)	Cut-out wind speed	22 m/s
(ix)	Survival wind speed	52.5 m/s
(x)	Pitch regulation	Yes
(b) Blades		
(i)	Blade length	40.25
(ii)	Material	Glass Fiber reinforced resin
(iii)	Weight	Single blade 6.4 ton
(c) Gear box		
(i)	Type	Gearless
(ii)	Gear Ratio	NA
(iii)	Weight	NA
(iv)	Oil quantity	NA
(v)	Main shaft bearing	NA
(d) Generator		

(i)	Power	1500kW
(ii)	Voltage	690V
(iii)	Type	PMDD
(iv)	Speed	9-17.3 rpm
(v)	Enclosure class	Protection IP 23
(vi)	Coupling	N/A due to permanent magnets. Slip rings on stator
(vii)	Efficiency	Plant capacity factor 31%
(viii)	Weight	44 tons
(x)	Power Factor	0.9 leading to lagging
(e) Yaw System		
(i)	Yaw Bearing	Cast Iron
(ii)	Brake	Hydraulic Brake Disc
(iii)	Yaw drive	Induction Motors
(iv)	Speed	0.45 degrees / sec
(f) Control System		
(i)	Type	Micro Processor Based with remote monitoring
(ii)	Grid Connection	Monitored through SCADA system.
(iii)	Scope of Monitoring	Entire wind farm through optical fiber connected to a variety of sensors on WTGs and balance of plant electrical equipment
(iv)	Recording	All dated will be recorded and stored
(g) Brake		
(i)	Design	Blade Pitching
(ii)	Operational Brake	Aerodynamic brake
(iii)	Secondary Brake	Hydraulic Rotor brake
(h) Tower		
(i)	Type	High strength steel tower
(ii)	Hub heights	70m
(i) Compact Pre-Fabricated Substation		
(i)	Quantity	20 Each
(ii)	Voltage Level	33±2x2.5%/0.69kV
(j) 132 kv Substation		
(i)	Main Transformer	132/33kV
(ii)	Type	132/33kV, 25/31.5 MVA ONAN/ONAF, 132 kV ± 8x1.25%/33kV
(k) WTG's Foundation		
(i)	Quantity	20 Each
(ii)	Type	Reinforced concrete foundation on Natural

		Ground
(iii)	Natural Foundation Features	Highly-weathered limestone, moderately-weathered Limestone, highly-weathered sandy shale bed
(l) Contract Pre-Fabricated Substation Foundation		
(i)	Quantity	20 Each
(ii)	Type	Reinforced concrete foundation on Natural Ground
(iii)	Natural Foundation Features	Highly-weathered limestone, moderately-weathered Limestone, highly-weathered sandy shale bed
(m) Wind Resource		
(i)	Annual Average Wind Speed	7.3 m/s (70m height)
(ii)	Prevailing Winds	WSW
(iii)	Annual Expected Energy	81.46 MWh (based on 31% capacity factor)

3.3 Changes to layout of generation facility/wind farm

Please find attached Annexure-A.

3.4 Changes to micro sitting of generation facility

Please find attached as Annexure-B.

3.5 Changes to power curve (tabular format)

Please find attached as Annexure-C.

3.6 Changes to the schedule

Please find attached as Annexure-D.

4. **Rationale for Proposed Modifications:**

The proposed modification is required to incorporate the change of wind turbines in the generation facility.

5. **Impact of the Proposed Modification:**

5.1 Impact on Tariff

There will be no impact on Tariff.

5.2 Impact on Quality of Service

There will no impact on Quality of Services.

5.3 Impact on the obligations of the Company under the License

There will be no impact on the obligations of the Company under the License.

PRAYER:

In light of the aforesaid, it is respectfully prayed that NEPRA would permit the following modification to be made and allow a change of wind turbines from Goldwind Permanent Magnet Direct Drive GW109/2500EPC to Goldwind GW 82/1500.

The Company would like to incorporate by reference the contents of the documents attached to the Generation License No WPGL/23/2013 and request the same may be read as integral part of this modification petition.

We hope the information/explanation provided above meets your requirements, and we remain available to assist you if you have any further queries.

ANNEXURE A: LAYOUT OF GENERATION FACILITY/WIND FARM



ANNEXURE B: CHANGES TO MICRO SITTING OF GENERATION FACILITY

Site	Location (UTM Z42)	
	Easting [m]	Northing [m]
TWEL_1	382432.3	2762739
TWEL_2	382609.6	2762497
TWEL_3	382786.9	2762255
TWEL_4	382964.2	2762013
TWEL_5	383141.4	2761771
TWEL_6	383307.2	2761621
TWEL_7	383796	2760824
TWEL_8	383942.7	2760707
TWEL_9	384119.9	2760465
TWEL_10	384297.2	2760223
TWEL_11	384474.5	2759981
TWEL_12	384651.7	2759739
TWEL_13	384829	2759497
TWEL_14	385088.8	2759131
TWEL_15	385266.1	2758889
TWEL_16	385443.3	2758647
TWEL_17	385620.6	2758405
TWEL_18	385797.9	2758163
TWEL_19	385975.2	2757921
TWEL_20	386152.4	2757679

ANNEXURE C: POWER CURVE (TABULAR FORMAT)

Turbine type: GW82/1500

Standard: IEC61400-12-1-2005

Calculated GW 82/1500 Power Curve – Standard Condition

Air Density: 1.225kg/m³

Turbulence Intensity: 10 % or below

Wind Speed at Hub Height (m/s)	Power Output (KW)
3	28
4	89
5	181
6	309
7	497
8	744
9	1035
10	1302
11	1414
12	1475
13	1491
14	1500
15	1500
16	1500
17	1500
18	1500
19	1500
20	1500
21	1500
22	1500

ANNEXURE D: CHANGES TO THE SCHEDULE

-1	Total Installed/Gross ISO Capacity (MW)	30
-2	Total Annual Full Load Hours	2715.6
-3	Average Wind Turbine Generator(WTG) Availability	95%
-4	Total Gross Generation of the Generation Facility/Wind Farm (in GWh)	97.2
-5	Array & Miscellaneous Losses (GWh)	7.93
-6	Availability Losses(GWh)	4.61
-7	Balance of Plant Losses (GWh)	3.23
-8	Annual Energy Generation (20 year equivalent Net AEP) GWh	81.47
-9	Net Capacity Factor	31%