# National Electric Power Regulatory Authority
## Islamic Republic of Pakistan

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**Registrar**

No. NEPRA/R/LAG-348/21040-46

October 25, 2019

**Mr. Fahad Usman,**
Assistant Executive Engineer,
Norinco International Thatta Power (Private) Limited,
Suite No. 101, 1st Floor, Horizon Vista, Block 4, Clifton,
Karachi.
Contact No. 021-35371833-34

Subject: **Modification in Generation Licence No. WPGL/36/2016**
**Licence Application No. LAG-348**
**Norinco International Thatta Power (Private) Limited (NITPPL)**

*Reference:* *NITPPL's LPM submitted vide letter dated February 21, 2019 (received on February 22, 2019)*

It is intimated that the Authority has approved Modification in Generation Licence No. WPGL/36/2016 dated November 10, 2016 in respect of Norinco International Thatta Power (Private) Limited (NITPPL), pursuant to Regulation 10(11) of the NEPRA Licensing (Application and Modification Procedure) Regulations 1999.

2. Enclosed please find herewith determination of the Authority in the matter of Licensee Proposed Modification in the Generation Licence of NITPPL along with Modification-I in the Generation Licence No. WPGL/36/2016 as approved by the Authority.

**Encl: As above**

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25 X 19

**(Syed Safeer Hussain)**

Copy to:

1. Secretary, Power Division, Ministry of Energy, A-Block, Pak Secretariat, Islamabad.
2. Managing Director, NTDC, 414-WAPDA House, Lahore.
3. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
4. Chief Executive Officer, Alternative Energy Development Board (AEDB), 2nd Floor, OPF Building, G-5/2, Islamabad
5. Chief Executive Officer, Hyderabad Electric Supply Company Limited (HESCO), WAPDA Offices Complex, Hussainabad, Hyderabad
6. Director General, Environment Protection Department, Government of Sindh, Complex Plot No. ST-2/1, Korangi Industrial Area, Karachi.

# National Electric Power Regulatory Authority
# (NEPRA)

## Determination of the Authority in the Matter of Licensee Proposed Modification in the Generation Licence No. WPGL/36/2016 of Norinco International Thatta Power (Private) Limited

October 25, 2019
Case No. LAG-348

## (A). Background

**(i).** The Authority under Section-14B (previously Section-15) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act") granted two separate generation licences (No. WPGL/36/2016 dated November 10, 2016 and No. WPGL/51/2017 dated November 27, 2017) to Norinco International Thatta Power (Pvt.) Limited (NITPPL).

**(ii).** According to the above mentioned generation licences, two 50.0 MW generation facilities/wind power plants (WPPs) of NITPPL i.e. 50 MW Plant-I under the generation licence No. WPGL/36/2016 (Plant-I) and 50 MW under generation licence No. WPGL/51/2017 (Plant-II) are proposed to be setup at Deh Kohistan 7/1, Tapo Jhimpir, District Thatta, in the Province of Sindh. Each of the said WPP is proposed to be based on 20x2.5MW wind turbine generators (WTGs) of Goldwind (GW121-2.5MW).

## (B). Communication of Modification

**(i).** NITPPL in accordance with Regulation-10(2) of the NEPRA Licensing (Application & Modification Procedure) Regulations, 1999 (the "Licensing Regulations"), communicated a Licensee Proposed Modification (LPM) in its generation licence (No. WPGL/36/2016 dated November 10, 2016) on February 22, 2019.

**(ii).** In the "text of the proposed modification", NITPPL submitted that it intends to merge its two generation facilities/wind power plants (i.e. Plant-I and Plant-II) for which the Authority has granted two separate generation licences No. WPGL/36/2016 dated November 10, 2016 and No. WPGL/51/2017 dated November 27, 2017 respectively. After merger of the two generation facilities, the accumulative total installed capacity in the generation licence No. WPGL/36/2016 will be 100MW.[1]

[1] The generation licence No. WPGL/51/2017 dated November 27, 2017 has been cancelled vide letter No. NEPRA/ADG(Lic)/LAG-396/17952 dated September 30, 2019.

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**(iii).** Regarding the "statement of the reasons in support of the modification", NITPPL submitted that wind can provide low cost electricity generation from wind turbine when speeds are favorable. Due to the merger, the tariff will be lower and the generation capacity in the generation licence No. WPGL/36/2016 dated November 10, 2016 will change from 50 MW to 100 MW, which will lower the overall project cost.

**(iv).** About the "statement of the impact on the tariff, quality of service and the performance by the licensee of its obligations under the licence", NITPPL submitted that there would be no adverse impact on the tariff, quality of service and obligations of the licensee under the generation licence.

## (C). Processing of LPM

**(i).** After completion of all the required information as stipulated under the Regulation-10(2) and 10(3) of the Licensing Regulations by NITPPL, the Registrar published the communicated LPM on March 09, 2019, in one (01) Urdu (Daily Express) and one (01) English (Business Recorder) newspaper, informing the general public about the communicated LPM and inviting their comments within a period of fourteen (14) days from the date of the said publication.

**(ii).** Apart from the above, separate letters were also sent to other stakeholders including Government Ministries and their attached departments, various representative organization, individual experts and others, on March 11, 2019. Through the said letters, the stakeholders were informed about the communicated LPM and publication of its notice in the press. Further, the said entities were invited to submit their views and comments in the matter, for assistance of the Authority.

## (D). Comments of Stakeholders

**(i).** In reply to the above, the Authority received comments from four (04) stakeholders. These included Engineering Development Board (EDB), Central Power Purchasing Agency (Guarantee) Limited (CPPA-G), Energy Department, Govt. of Sindh (EDGoS) and Ministry of Science and Technology (MoST). The salient points of the comments offered by the said stakeholders are summarized below: -

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**(a).** EDB submitted that none of the clauses of the LPM are related to it however, it is recommended that efforts should be made to utilize indigenous potential available for the project;

**(b).** CPPA-G commented that all applications for the generation license are required to be scrutinized in light of the relevant provisions of the

NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules"). Considering the environmental grounds or the least cost option criteria, if the Authority is dissatisfied with the application, it may refuse to issue a license. Accordingly, for the proposed additions of capacity in the system, due consideration should be carried out regarding tariff of the proposed project and optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole. From review of the NEPRA State of the Industry Report, 2017 ("SIR 2017"), it is evident that the capacity addition in the system in each year, without rationalizing the same with the demand projections, is currently yielding a capacity surplus of 908 MW, which figure is projected to rise to approximately 13,934 MW by the year 2025, which carries with it significant financial implications for the end consumer. As the regulatory authority for the Pakistani power sector, the Authority has to safeguard the interests of the consumers and is required to examine 'least cost option criteria' enumerated in the Generation Rules. Therefore, the Authority must review the proposal in the context of the demand vs. supply situation;

**(c).** EDGoS submitted that the proposed modification/merger is as per government policy and NEPRA Licensing Rules. The resulting decrease in the end consumer tariff and project cost is appreciated, however, the same may be keenly examined. It should be ensured that there should be no adverse impact on quality of service and environment; and

**(d).** The MoST submitted that the notice does not contain any technical detail therefore, it is unable to provide any views/comments.

**(ii).** The Authority examined the above comments/observations of stakeholders and considered it appropriate to seek perspective of NITPPL on the comments/observations of CPPA-G, EDGoS and EDB.

**(iii).** In response to the comments of CPPA-G, NITPPL submitted that through the LPM it is not adding any additional capacity in the system. The LPM is just for the merger of the two existing generation licences (for 50 MW each) into one generation licence of 100 MW. Regarding comments of EDGoS, NITPPL has confirmed that the proposed modification will result in lower project cost and subsequently lower consumer

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end tariff. Further, NOC from Environmental Protection Agency Sindh (EPA, Sindh) have already obtained for the projects. On the observations of EDB regarding utilization of indigenous resources for development of the project, NITPPL has submitted that it has keen concern to utilize indigenous potential available for the project.

**(iv).** The Authority examined the submissions/response of NITPPL and found the same plausible. Foregoing in view, the Authority considered it appropriate to proceed further with the communicated LPM as stipulated in the Generation Rules.

## (E). Evaluation/Findings

**(i).** The Authority examined the entire case in details including the already granted generation licence, the communicated LPM, petition of NITPPL for determination of cost plus tariff, the provisions of the Policy for Development of Renewable Energy for Power Generation 2006 (the "RE Policy"), comments of the stakeholders and relevant rules & regulations.

**(ii).** In this regard, the Authority has observed that in terms of Regulation-10(5) of the Licensing Regulations, the Authority is empowered to modify a licence subject to and in accordance with such further changes as the Authority may deem fit if, in the opinion of the Authority such modification (a). does not adversely affect the performance by the licensee of its obligations; (b). does not cause the Authority to act or acquiesce in any act or omission of the licensee in a manner contrary to the provisions of the NEPRA Act or the rules or regulations made pursuant to it; (c). is or is likely to be beneficial to the consumers; (d). is reasonably necessary for the licensee to effectively and efficiently perform its obligations under the licence; and (e). is reasonably necessary to ensure the continuous, safe and reliable supply of electric power to the consumers keeping in view the financial and technical viability of the licensee.

**(iii).** The main features of the application under consideration are that the Authority originally granted two generation licences to the NITPPL for its two closely located generation facilities/WPPs with installed capacity of 50.0 MW each. The Plant-I of NITPPL was proposed to be connected to 220/132 kV Jhimpir substation through looping In/Out on the 132 kV single circuit from WPP of Shaheen Foundation to the WPP of Master Wind. Whereas Plant-II of NITPPL was proposed to be connected to 132 kV Jhimpir- T.M Khan Transmission line.

**(iv).** Later on, NITPPL decided to combine its two WPPs into a single 100 MW WPP with one 132 kV substation. Accordingly, NITPPL got its LOE modified from

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EDGoS. However, both of the WPPs were proposed to be connected to different loops and either of the loop does not have enough capacity to accommodate the additional 50 MW. The only available solution was swapping of interconnection one WPP of NITPPL with the 50.0 MW WPP of Sino Well (Pvt.) Limited. After agreement of the concerned parties and approval of relevant agencies (EDGoS and NTDC), the swapping of interconnection was carried out. Accordingly to the swapping arrangement, NITPPL has revised it GIS for 100 MW capacity and NTDC accorded its approval for the same. Now, the 100 MW WPP of the NITPPL is proposed to be connected to 132 kV Jhimpir- T.M Khan Transmission line, through one substation.

**(v).** Now, through the communicated LPM, the NITPPL intends to modify its generation licence (No. WPGL/36/2016 dated November 10, 2016) for incorporating the above mentioned changes/enhancement of capacity from 50 MW to 100 MW. In this regard, the Authority considers that every project/plant has its own construction, grid construction, interconnection and O&M cost. In view of the said, the Authority considers that the proposed modification will result in enhancement of the reduction of EPC cost, grid construction & interconnection cost and O&M cost of the project.

**(vi).** Regarding impact of the proposed LPM on tariff, the Authority considers that higher the installed capacity the lower will be the generation tariff. Therefore, the proposed arrangement will result in low end consumer tariff. In this regard, is clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. Currently, no tariff has been granted to NITPPL. However, NITPPL has filed tariff petition for 100 MW WPP for a control period of 25 years, which has been admitted by the Authority for further processing. The communicated LPM is in line with the admitted tariff petition for 100 MW capacity.

**(vii).** Regarding term of the generation licence, the Authority has observed that under Rules-5(1) of the Generation Rules the term of generation licence is to commensurate with the maximum expected useful life of the units comprised in a generation facility, except where an applicant for a generation licence consents to a shorter term. As per international benchmark, the useful life of WTGs is considered normally as 20 to 25 years. Further, the tariff petition filed by NITPPL and the cost plus tariff granted to similar WPPs also envisage a control period of 25 years. In view of the said, the Authority sets the useful life of the generation facility/wind power plant of NITPPL to 25 years from commercial operation date of the project.

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**(viii).** On the observation of CPPA-G regarding surplus capacity, the Authority has observed that CPPA-G in its comments has made reference to SIR 2017 and has contested that according to said report there will be surplus capacity in the years 2018-25. In this regard, the Authority hereby clarifies that:

**(a).** the specific provisions referred by CPPA-G are purely based on data provided by NTDC whereby it has been indicated that there may be surplus installed capacity due to addition of various types of power generation facilities including Coal, Gas, Wind, Solar Bagasse, Hydro and Nuclear. However, it has been clearly mentioned in Section 1.1 of said report that "...the capacity surplus in the later years i.e.2022 to 2025 may not be available due to multiple issues and resulting uncertainties in completion of large hydro-based power projects..." In this regard, the Authority hereby refers to the associated information contained in Table-31, Table-34 and Table-35 which together gives the capacity and the expected Commissioning Year of future projects pertaining to Hydel projects in the Public Sector, Hydel, Coal and RLNG Projects being set in the Private Sector Solar, Wind and Bagasse/Biomass based generation, facilities to be set up in the private Sector;

**(b).** A detailed review of these project reveals projects like Dasu (Phase-I), Mangla Up-gradation and Diamer Bhasha having accumulated installed capacity of 6970 MW, expected Commissioning Year of 2024 may be delayed considering the fact that a number of milestones pertaining to the projects including acquisition of land, preparation/approval of PC-I and award of contract(s) are facing delays for one reason or the other. Similar projects of coal and hydel in the private sector namely (a). Kohala; (b). Chakothi-Hattian; (c). Azad Pattan; (d). Kaigah; (e). Mahl; (f). Turtonas-Uzghor; (g). Athmuqam with accumulated installed capacity of 3810 MW, which envisaged expected Commissioning Date of December 2024 and 2025 are facing delays in Financial Close and thus construction and other related activities;

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**(c).** The review of the latest update available from PPIB indicates that these projects will not be coming online before December 2028. Further to the said, Imported/Local Coal projects of (a). Grange; (b). Shanghai Electric and (c). Oracle Thar of accumulated installed capacity of 2803

MW having expected Commissioning Date between September 2019-2021 are delayed considerably. According to the information available from PPIB, for the project of Grange, a notice for encashment of Guarantee has been issued which is under litigation. Further, the expected COD for projects of Shanghai and Oracle Thar will now be at least 2023;

**(d).** Regarding wind power projects, the Authority has issued licences and tariff to a number of wind power projects which are facing delay due to non-issuance of Letter of Support (LoS) due to which it is not clear that projects of (a). Shaheen Renewable Energy 1 (Private) Limited; (b). Western Energy (Private) Limited; (c). Lakeside Energy (Private) Limited; (d). Artistic Wind Power (Private) Limited; (e). Trans Atlantic Energy (Private) Limited; (f). Tricom Wind Power (Private) Limited; (g). Din Energy Limited; Act 2 Wind (Private) Limited; and (h). NASDA Green Energy (Private) Limited, having accumulated installed capacity of 449.3 MW which were earlier anticipated to be connected to the national grid between 2019-2025, will come online. Further, as of now there is no clarity whether these projects will be implemented under the cost plus regime or the competitive bidding arrangement and this uncertainty is resulting in further delays of project implementation;

**(e).** On the front of Solar, similar kind of situation is prevailing as the power projects mentioned in the Table-35 consist of (a). Access Solar (Pvt.) Limited; (b). Buksh Solar (Pvt.) Limited; (c). Jan Solar (Pvt.) Limited (JSPL); (d). Lalpir Solar Power (Pvt.) Limited; (e). Blue Star Hydel (Pvt.) Limited (BSHPL); (f). Blue Star Electric (Pvt.) Limited (BSEF'L); (g). Siddiqsons Energy Limited (SEL) and (h.) Zurlu Energy (Pvt.) Limited (ZEPL) of accumulated installed capacity of 193.52 MW are in limbo for same reasons as mentioned in the case of wind power projects;

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**(f).** The Authority granted generation licences and tariff to different bagasse based projects including: (a). Hunza Power (Pvt.) Limited; (b). Indus Energy Limited; (c). Faran Power (Pvt.) Limited; (d). Mirpurkhas Energy Limited; (e). Etihad Power Generation Limited; and (g). Bahawalpur Energy (Pvt.) Limited with accumulated installed capacity of 238.90 MW, however, the said projects are stuck up as Energy Purchase Agreements have not been achieved yet due to which these projects



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are facing delays and their expected COD will now be postponed for at least two (02) years instead of what is given in the SIR 2017.

**(ix).** In view of the above explanation it is clear that in totality at least thirty three (33) power projects of different fuel categories to the, tune of 11683.72 MW are facing delays due to different problems/issues as explained above and their COD is not certain. Therefore, the Authority considers and stresses that a proper demand-supply assessment/analysis must be carried out and the same must be aligned with the actual implementation schedule of the projects to determine whether practically there is any surplus or not. The Authority is also of the considered opinion that with the delays being experienced by the major projects it is very unlikely that there will be any surplus as claimed by CPPA-G. Therefore, the Authority is of the considered opinion that all the projects approaching it must be processed in accordance with the Law. The issues of surplus capacity and addition of new generation capacity in the system, have also been clarified in SIR 2018. In view of the above, the Authority considers that the observations of CPPA-G regarding surplus power in the system needs to be reviewed.

**(x).** On the specific observations raised by CPPA-G regarding Rule-3(5) of the Generation Rules, the Authority has observed that the said Rule describes a broad criterion for the grant of generation licence which includes: (a). sustainable development or optimum utilization of the RE or non-RE resources proposed for generation of electric power; (b). the availability of indigenous fuel and other resources; (c). the comparative costs of the construction, operation and maintenance of proposed generation facility against the preferences indicated by the Authority; (d). the cost and right-of-way considerations related to the provision of transmission and interconnection facilities; (e). the constraints on the transmission, system likely to result from the proposed generation facility and the costs of the transmission system expansion required to remove such constraints; (f). the short-term and the long term forecasts for additional capacity requirements; (g). the tariff resulting or likely to result from the construction or operation of the proposed generation facility; and (h)'. the optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole. In this regard, the Authority clarifies that while, deciding the applications for the grant of generation licences it invariably considers the provisions of the above mentioned Rules.

**(xi).** Foregoing in view, the Authority considers that the proposed LPM will not have any adverse effect on the performance of NITPPL of its obligations, instead its performance will be improved. Further, the LPM will not cause the Authority to act or

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acquiesce in any act or omission of the Licensee in a manner contrary to the provisions of the NEPRA Act or the rules or regulations made pursuant to the NEPRA Act. The LPM will be beneficial to the consumers in general as more of the cleaner and cheaper electricity will be available to the power purchaser and that too without installing any additional wind turbine generator. The LPM is reasonably necessary for the Licensee to effectively and efficiently perform its obligations under the Licence. The LPM is necessary to ensure the continuous, safe and reliable supply of electric power to the consumers keeping in view the financial and technical viability of the Licensee.

## (F). Approval of LPM

**(i).** In view of the above, the Authority is satisfied that the Licensee has complied with all the requirements of the Licensing Regulations pertaining to the modification. Therefore, the Authority in terms of Regulation-10(11) of the Licensing Regulations approves the communicated LPM.

**(ii).** Accordingly, the already granted Generation Licence (No. WPGL/36/2016 dated November 10, 2016) is hereby modified. The changes made in the generation licence are attached as annexure to this determination. The approval of the LPM will be subject to the provisions contained in the NEPRA Act, relevant rules framed there under, terms & conditions of the generation licence and other applicable documents.

## Authority

Rafique Ahmed Shaikh
(Member)

11/10/19

Rehmatullah Baloch
(Member)

14/10/19

Saif Ullah Chattha
(Member)

(Did not Attend the meeting-Away)

Engr. Bahadur Shah
(Member/Vice Chairman)

Tauseef H. Farooqi
(Chairman)

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25/10/19

# National Electric Power Regulatory Authority
# (NEPRA)
# Islamabad – Pakistan

## GENERATION LICENCE

## No. WPGL/36/2016

In exercise of the Powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-26 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended or replaced from time to time, the Authority hereby modifies the Generation Licence (No. WPGL/36/2016 dated November 10, 2016) granted to Norinco International Thatta Power (Pvt.) Limited, to the extent of changes mentioned hereunder:

(a). The **Installed Capacity** of the generation facility/wind power plant may be read as **100.00 MW** instead of **50.00MW;**

(b). Changes made in the **Articles** of the generation licence are attached as **Revised/Modified Articles;**

(c). Changes made in **Schedule-I** of the generation licence are attached as **Revised/Modified Schedule-I;**

(d). Changes made in **Schedule-II** of the generation licence are attached as **Revised/Modified Schedule-II**.

This **Modification-I** is given under my hand on this 25th day of **October Two Thousand & Nineteen**

25-X-19

**Registrar**

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## Article-1
## Definitions

**1.1** In this Licence

(a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended from time to time;

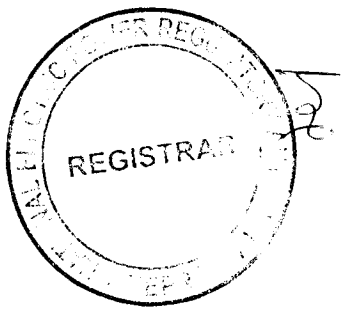
(b). "Applicable Documents" mean the Act, the NEPRA rules and regulations, any documents or instruments issued or determinations made by the Authority under any of the foregoing or pursuant to the exercise of its powers under the Act, the grid code, the applicable distribution code, commercial code, if any, or the documents or instruments made by the licensee pursuant to its generation licence, in each case of a binding nature applicable to the licensee or, where applicable, to its affiliates and to which the licensee or any of its affiliates may be subject;

(c). "Authority" means the National Electric Power Regulatory Authority constituted under Section-3 of the Act;

(d). "Bus Bar" means a system of conductors in the generation facility/wind power plant of the Licensee on which the electric power of all the wind turbine generators or WTGs is collected for supplying to the Power Purchaser;

(e). "Carbon Credits" mean the amount of Carbon Dioxide ($CO_2$) and other greenhouse gases not produced as a result of generation of energy by the generation facility/wind power plant, and other environmental air quality credits and related emissions reduction credits or benefits (economic or otherwise) related to the generation of energy by the generation facility/wind power plant, which are available or can be obtained in relation to the generation facility/wind power plant after the COD;

(f). "Commercial Operations Date (COD)" means the day immediately



following the date on which the generation facility/wind power plant of the Licensee is Commissioned;

(g). "CPPA-G" means Central Power Purchasing Agency (Guarantee) Limited or any other entity created for the like purpose;

(h). "Distribution Code" means the distribution code prepared by XW-DISCO(s) and approved by the Authority, as it may be revised from time to time with necessary approval of the Authority;

(i). "Energy Purchase Agreement" means the energy purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric energy generated by the generation facility/wind power plant, as may be amended by the parties thereto from time to time;

(j). "Generation Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000;

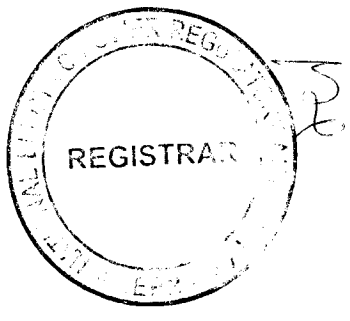
(k). "Grid Code" means the grid code prepared by NTDC and approved by the Authority, as it may be revised from time to time by NTDC with the approval by the Authority;

(l). "HESCO" means Hyderabad Electric Supply Company Limited and its successors or permitted assigns;

(m). "IEC" means the International Electro-technical Commission and its successors or permitted assigns;

(n). "IEEE" means the Institute of Electrical and Electronics Engineers and its successors or permitted assigns;

(o). "Law" means the Act, relevant rules and regulations made there under and all the Applicable Documents;



(p). "Licensee" means **Norinco International Thatta Power (Pvt.) Limited** and its successors or permitted assigns;

(q). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time;

(r). "NTDC" means National Transmission and Despatch Company Limited and its successors or permitted assigns;

(s). "Policy" means the Policy for Development of Renewable Energy for Power Generation, 2006 of Government of Pakistan as amended from time to time;

(t). "Power Purchaser" means the CPPA-G purchasing electric power on behalf of XW-DISCO(s) from the Licensee, pursuant to an Energy Purchase Agreement for procurement of electricity;

(u). "Wind Power Plant" or "Wind Farm" means a cluster of Wind Turbines in the same location used for production of electric power;

(v). "Wind Turbine Generator" or "WTG" means the machines installed at the generation facility/wind power plant with generators for conversion of wind energy into electric power/energy;

(w). "XW DISCO" means an Ex-WAPDA distribution company engaged in the distribution of electric power.

**1.2** Words and expressions used but not defined herein bear the meaning given thereto in the Act or rules and regulations issued under the Act.

## Article-2
## Applicability of Law

This Licence is issued subject to the provisions of the Law, as amended from time to time.

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## Article-3
## Generation Facilities

**3.1** The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical and functional specifications and other details specific to the generation facility/wind power plant of the Licensee are set out in Schedule-I of this Licence.

**3.2** The net capacity of the generation facility/wind power plant of the Licensee is set out in Schedule-II hereto.

**3.3** The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility/wind power plant before its COD.

## Article-4
## Term of Licence

**4.1** This licence shall become effective from its original date of issuance and will have a term of twenty five (25) years from the COD of the generation facility/Wind Power Plant/Wind Farm of the Licensee, subject to provisions of Section-14B of the Act.

**4.2** Unless suspended or revoked earlier, the Licensee may apply for renewal of this licence ninety (90) days prior to the expiry of the above term, as stipulated in the Licensing Regulations.

## Article-5
## Licence fee

After the grant of this licence, the Licensee shall pay to the Authority the Licence fee, in the amount, manner and at the time set out in the National Electric Power Regulatory Authority (Fees) Rules, 2002.

## Article-6
## Tariff

The Licensee shall charge only such tariff which has been determined, approved or specified by the Authority.

## Article-7
## Competitive Trading Arrangement

**7.1** The Licensee shall participate in such manner as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement. The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Licensee and another party with the approval of the Authority.

**7.2** Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

## Article-8
## Maintenance of Records

For the purpose of sub-rule (1) of Rule-19 of the Generation Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

## Article-9
## Compliance with Performance Standards

The Licensee shall comply with the relevant provisions of the National Electric Power Regulatory Authority Performance Standards (Generation) Rules 2009 as amended from time to time.

## Article-10
## Compliance with Environmental Standards

The Licensee shall comply with the environmental standards as may be prescribed by the relevant competent authority from time to time.

## Article-11
## Power off take Point and Voltage

The Licensee shall deliver power to the Power Purchaser at the outgoing bus bar of its grid station. The up-gradation (step up) of generation voltage up to the required dispersal voltage level will be the responsibility of the Licensee.

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## Article-12
## Performance Data of Wind Power Plant

The Licensee shall install monitoring mast with properly calibrated automatic computerized wind speed recording meters at the same height as that of the wind turbine generators and a compatible communication/SCADA system both at its wind power plant and control room of the Power Purchaser for transmission of wind speed and power output data to the control room of the Power Purchaser for record of data.

## Article-13
## Provision of Information

**13.1** The obligation of the Licensee to provide information to the Authority shall be in accordance with Section-44 of the Act.

**13.2** The Licensee shall in addition to 13.1 above, supply information to the Power Purchaser regarding the wind data specific to the site of the Licensee and other related information on a regular basis and in a manner required by it.

**13.3** The Licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or has been in the control or possession of the Licensee.

## Article-14
## Emissions Trading /Carbon Credits

The Licensee shall process and obtain emissions/Carbon Credits expeditiously and credit the proceeds to the Power Purchaser as per the Policy.

## Article-15
## Design & Manufacturing Standards

**15.1** The Wind Turbine Generator or WTG and other associated equipments of the generation facility/wind power plant shall be designed, manufactured and tested according to the latest IEC, IEEE standards or other equivalent standards in the matter.

**15.2** All the plant and equipment of the generation facility/wind power plant shall be unused and brand new.

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## Article-16
## Power Curve

The power curve for the individual Wind Turbine Generator or WTG provided by the manufacturer and as mentioned in Schedule-I of this Generation Licence, shall form the basis in determining the cumulative Power Curve of the generation facility/wind power plant.

## Article-17
## Compliance with Applicable Law

The Licensee shall comply with the provisions of the Applicable Law, guidelines, directions and prohibitory orders of the Authority as issued from time to time.

## Article-18
## Corporate Social Responsibility

The Licensee shall provide the descriptive as well as monetary disclosure of its activities pertaining to Corporate Social Responsibility (CSR) on annual basis.

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# SCHEDULE-I
# (Revised/Modified)

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facility/Wind Farm of the Licensee are described in this Schedule.

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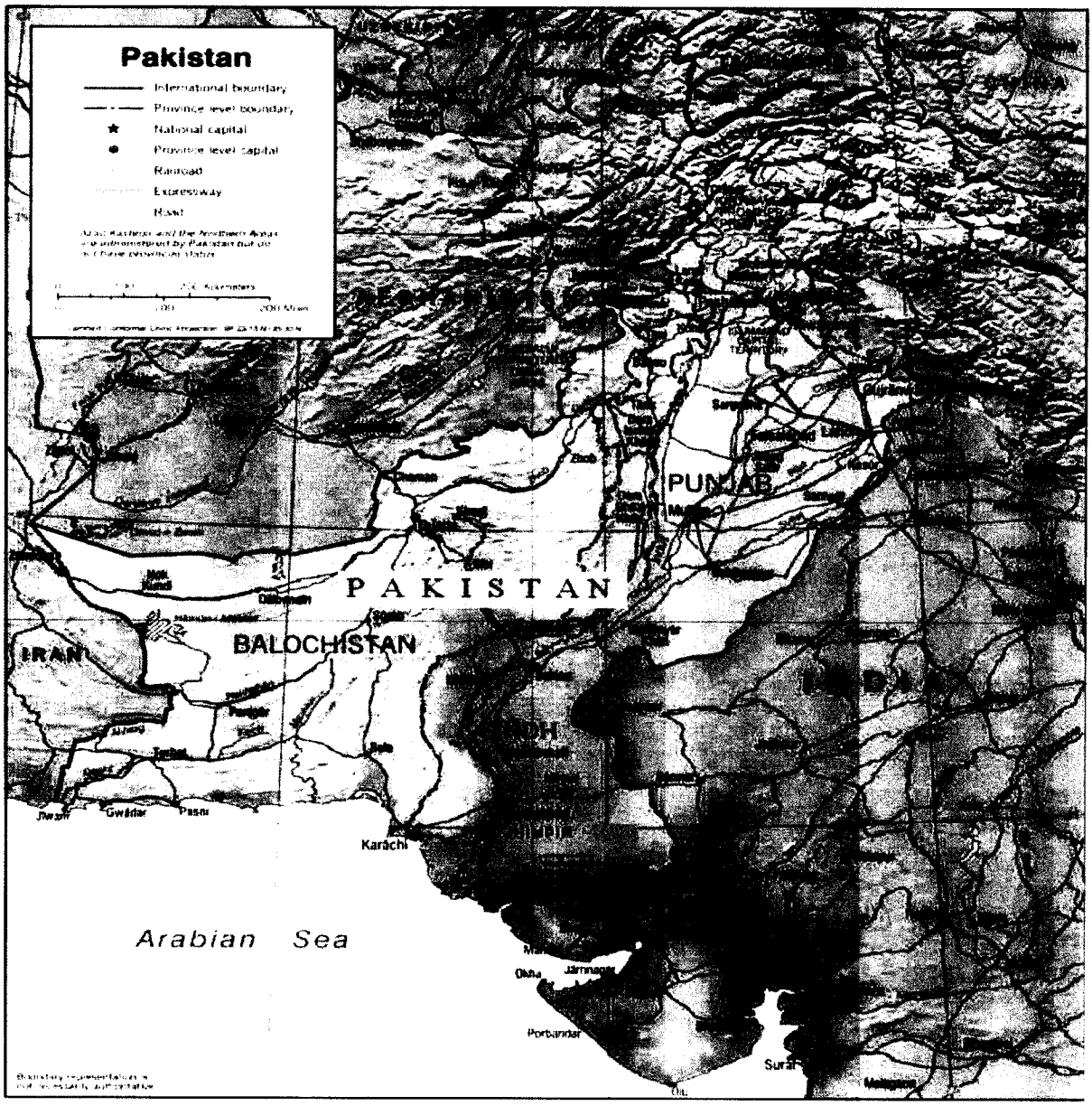
# Location of the Generation Facility/Wind Power Plant of the Licensee

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# Layout of the Generation Facility/Wind Power Plant of the Licensee

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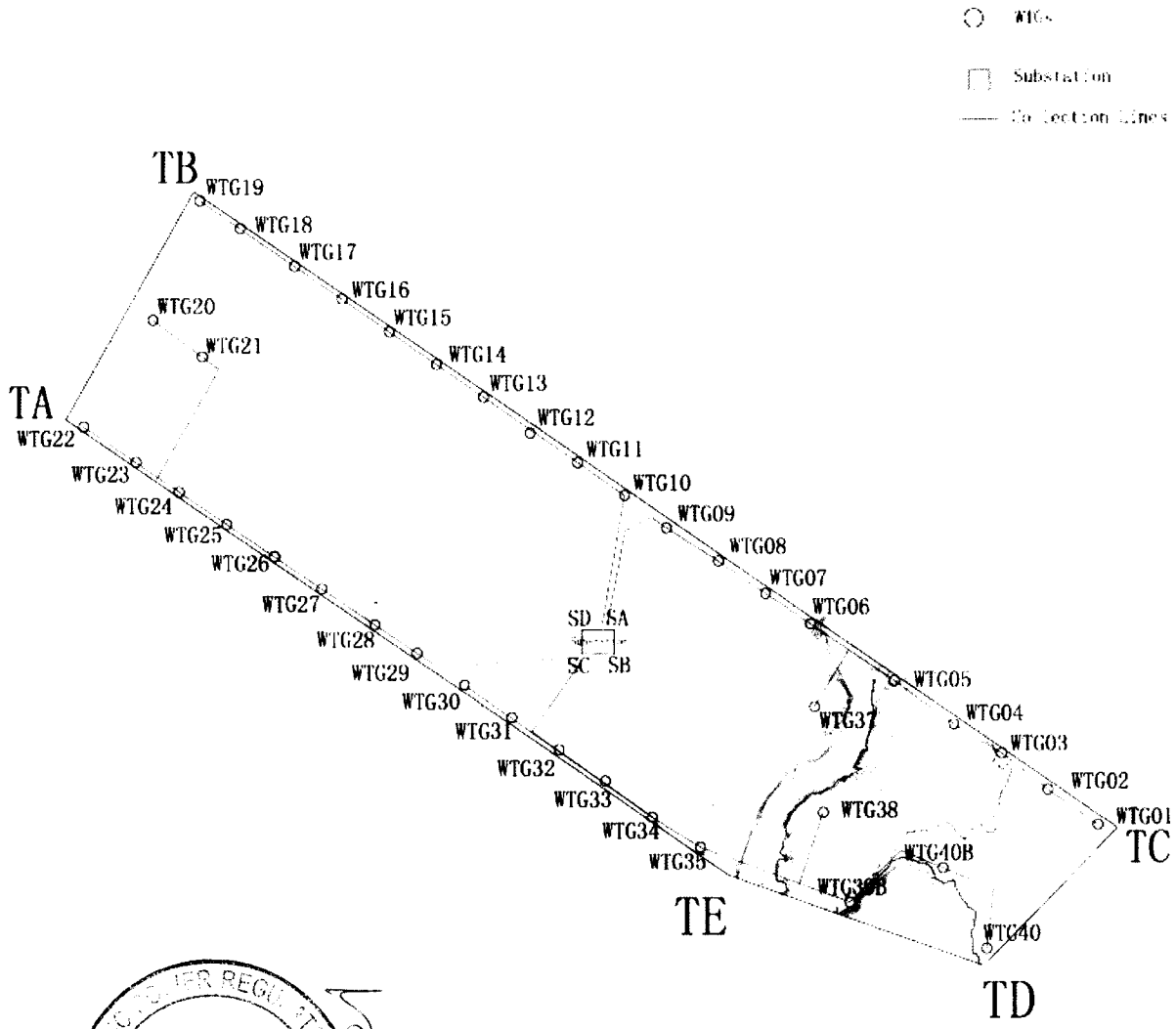
# Land Coordinates and Micro-Sitting of the Generation Facility/Wind Power Plant of the Licensee

| Boundry | Latitude | Longitude |
|---|---|---|
| TA | 25°07'19.2" | 68°00'03.9" |
| TB | 25°08'04.0" | 68°00'31.4" |
| TC | 25°06'00.5" | 68°03'54.7" |
| TD | 25°05'33.4" | 68°03'25.7" |
| TE | 25°05'50.9" | 68°02'29.3" |

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# Single Line Diagram (Electrical) of the Generation Facility/Wind Power Plant of the Licensee

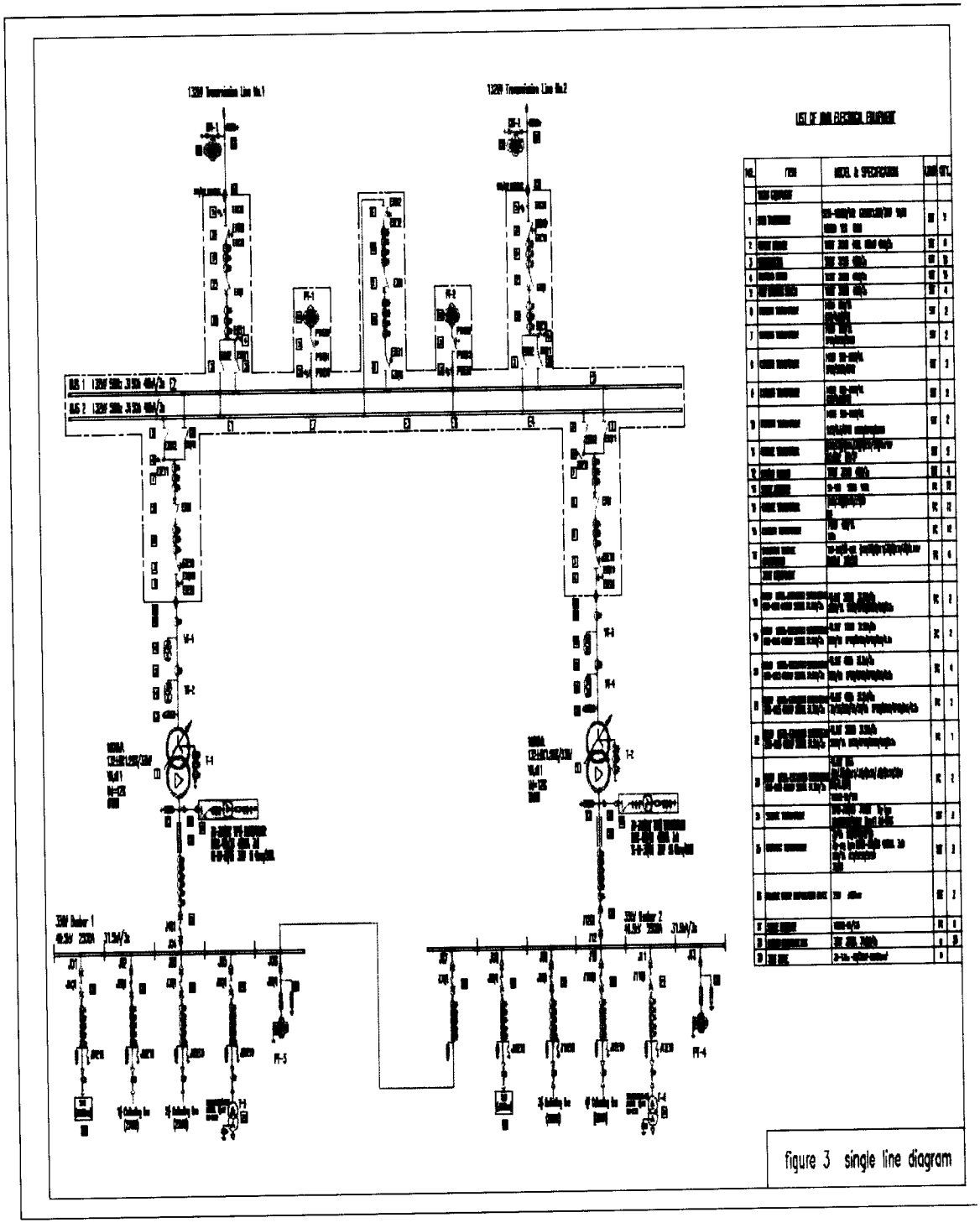

figure 3 single line diagram

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## Interconnection Arrangement for Dispersal of Power from the Generation Facility/Wind Power Plant of the Licensee

The power generated from the generation facility/wind power plant/wind farm of NITPPL shall be dispersed to the National Grid through the load center of HESCO.

**(2).** The proposed interconnection arrangement/transmission facilities for dispersal of power will consist of the following:-

**(a).** 132 kV double circuit transmission line approximately 1 km long on Greeley conductor for looping In/Out on the 132 kV single circuit from Tricom WPP to one circuit of the Jhimpir-I –T.M. Khan Transmission line

**(3).** Any change in the above mentioned interconnection arrangement/transmission facilities duly agreed by NITPPL, NTDC and HESCO shall be communicated to the Authority in due course of time.

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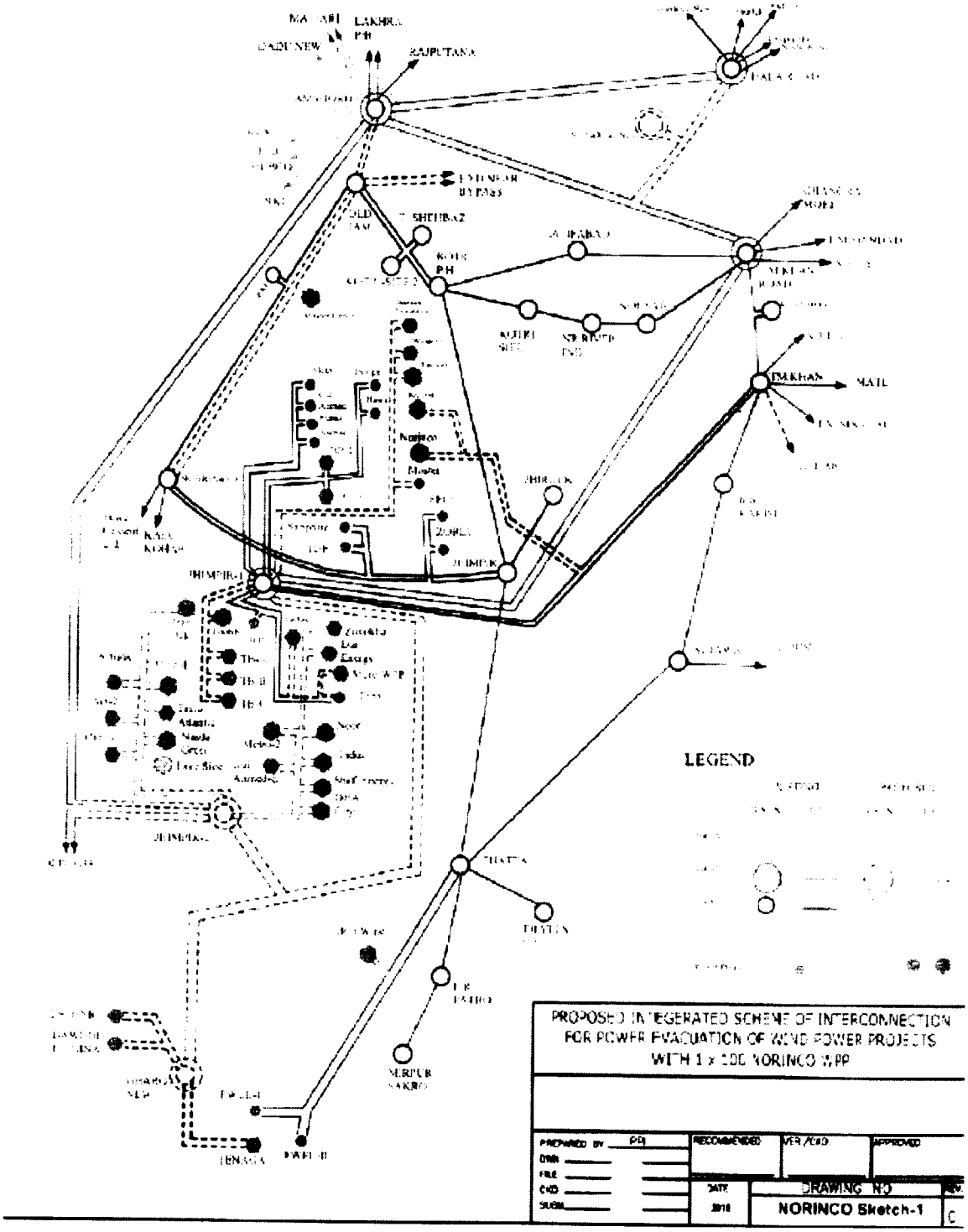
# Schematic Diagram for Interconnection Arrangement for Dispersal of Power from the Generation Facility/Wind Power of the Licensee

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# Detail of Generation Facility/Wind Power Plant/ Wind Farm of NITPPL

## (A). General Information

| | | |
|---|---|---|
| (i). | Name of the Company/Licensee | Norinco International Thatta Power (Pvt.) Limited |
| (ii). | Registered/Business Office | Suite No. 201, 2nd Floor, Horizon Vista, Block-4, Clifton, Karachi, |
| (iii). | Plant Location | Deh Kohistan 7/1, Tapo Jhimpir, District Thatta, in the Province of Sindh |
| (iv). | Type of Generation Facility | Wind Farm/Wind Power Plant |

## (B). Wind Farm Capacity & Configuration

| | | |
|---|---|---|
| (i). | Wind Turbine Type, Make & Model | Goldwind GW121/2500, Permanent Magnet Direct Drive (PMDD) |
| (ii). | Installed Capacity of Wind Farm (MW) | 100.00 MW |
| (iii). | Number of Wind Turbine Units/Size of each Unit (MW) | 40x2.50 MW |

## (C). Wind Turbine Details

| (a). | Rotor | |
|---|---|---|
| (i). | Number of blades | 3 |
| (ii). | Rotor diameter | 121 m |
| (iii). | Swept area | 11595 $m^2$ |
| (iv). | Power regulation | Combination of blade pitch angle adjustment and generator/converter torque control. |
| (v). | Cut-in wind speed | 3 m/s |

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| | | |
|---|---|---|
| (vi). | Cut-out wind speed | 22 m/s |
| (vii) | Survival wind speed | 52.5 m/s |
| (viii) | Pitch regulation | Independent Electrical Pitch control system, belt transmission, one for each blade. |
| **(b).** | **Blades** | |
| (i). | Blade length | 59.5 m |
| (ii). | Material | Glass Fiber Reinforced Resin |
| (iii). | Weight | 14200 kg (per piece) |
| **(c).** | **Generator** | |
| (i). | Nominal Power | 2500 (kW) |
| (ii). | Voltage | 690 V |
| (iii). | Type | PMDD synchronous generator |
| (iv). | Degree of Protection | IP54 |
| (v). | Coupling | No coupling |
| (vi). | Power factor | 0.90 (Leading to Lagging) |
| (vii). | Efficiency | 92.7% |
| (viii). | Weight | 55400 kg |
| **(d).** | **Control System** | |
| (i). | Type | Microprocessor controlled, DFAU (SCADA) |
| (ii). | Scope of monitoring | Remote monitoring of different parameters, e.g. temperature sensors, pitch parameters, speed, generator torque, wind speed and direction, etc. |

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| | | |
|---|---|---|
| (iii). | Recording | Production data, event list, long and short-term trends |
| **(e).** | **Brake** | |
| (i). | Design | 3-Aerodynamic Brakes for each blade |
| (ii). | Operational brake | Aerodynamic Brake |
| (iii). | Secondary brake | Hydraulic Brake (for maintenance only) |
| **(f).** | **Tower** | |
| (i). | Type | 4-Section Tubular Steel Tower |
| (ii). | Hub height | 90 m |

## (D). Other Details

| | | |
|---|---|---|
| (i). | Project Commissioning Date (Anticipated) | December 31, 2020 |
| (ii). | Expected Life of the Project from Commercial Operation Date (COD) | 25 Years |

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# Power Curve of Wind Turbine Generator of Goldwind GW121/2500 (Tabular)

| | |
|---|---|
| 3 | 59 |
| 4 | 185 |
| 5 | 372 |
| 6 | 645 |
| 7 | 1024 |
| 8 | 1516 |
| 9 | 2096 |
| 10 | 2500 |
| 11 | 2500 |
| 12 | 2500 |
| 13 | 2500 |
| 14 | 2500 |
| 15 | 2500 |
| 16 | 2500 |
| 17 | 2500 |
| 18 | 2500 |
| 19 | 2500 |
| 20 | 2500 |
| 21 | 2500 |
| 22 | 2500 |

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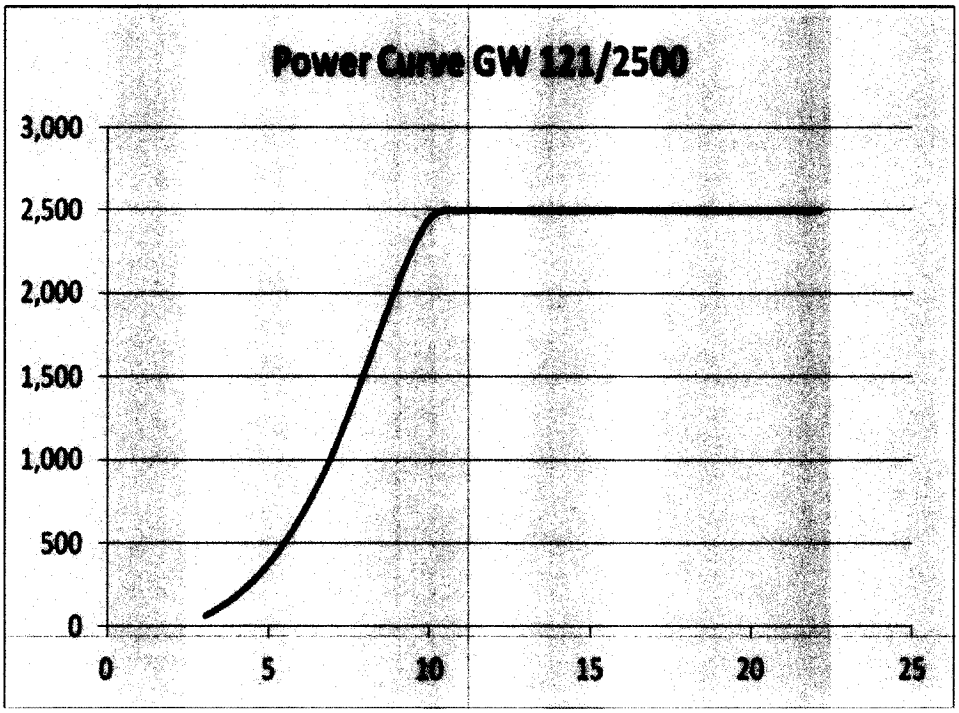
# Power Curve of Wind Turbine Generator of Goldwind GW121/2500 (Graphical)

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# SCHEDULE-II
# (Revised/Modified)

The Total Installed/Gross ISO Capacity (MW), Total Annual Full Load Hours, Average Wind Turbine Generator Availability, Total Gross Generation (GWh), Array & Miscellaneous Losses (GWh), Availability Losses (GWh), Balance of Plant Losses (GWh) Annual Energy Generation (GWh) and Net Capacity Factor of the Generation Facility/Wind Farm of Licensee are given in this Schedule

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# SCHEDULE-II

| | | |
|---|---|---|
| (1). | Total Installed Gross ISO Capacity of the Generation Facility /Wind Farm (MW) | 100.00 MW |
| (2). | Total Annual Full Load Hours | 3307Hrs |
| (3). | Average Wind Turbine Generator (WTG) Availability | 97.0 % |
| (4). | Total Gross Generation of the Generation Facility/Wind Farm (in GWh) | 384.5 GWh |
| (5). | Array & Miscellaneous Losses GWh | 30.76 GWh |
| (6). | Availability Losses GWh | 11.535 GWh |
| (7). | Balance of Plant Losses GWh | 11.535 GWh |
| (8). | Annual Energy Generation (25 years equivalent Net AEP) GWh | 330.67 GWh |
| (9). | Net Capacity Factor | 37.7 % |

Note

All the above figures are indicative as provided by the Licensee/NITPPL. The net energy available to power purchaser for dispatch will be determined through procedures contained in the energy purchase agreement.

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