



engro energy

Registrar

National Electric Power Regulatory Authority (NEPRA)

NEPRA Tower, Attaturk Avenue (East)

Sector G-5/1, Islamabad, Pakistan

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HC-3, Marine Drive, Block 4, Clifton
Karachi 75600 Pakistan

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FILE

May 08, 2019

Subject: Comments for Grant of Transmission License to STDC as Provincial Grid Company

Dear Sir,

With reference to Notice of Admission for application of Sindh Transmission & Dispatch Company (Pvt.) Limited (STDC) for Grant of Transmission License for Provincial Grid Company published on April 24, 2019, Engro Energy Limited (EEL) is pleased to submit its comments in regard to the application for grant of transmission license to STDC as Provincial Grid Company.

We, at EEL, believe that our country's economic prosperity depends on our industry's need to be competitive locally as well as globally with the businesses opting for increased efficiencies and lower cost of production. The electric power unit serves as one of the significant input cost elements to the overall production price in any competitive sector/environment and determines the basis of any manufacturing facility's ability to compete. The industries, as a result, should possess an option to source electric units from the least cost generation facility / utility of its choosing.

The Gharo - Keti Bandar corridor in Sindh possesses high renewable (wind as well as solar) resource and provides for such affordable alternative of electric power for the surrounding industries. The renewable resources serve as an attractive option at their ever-declining price point; however, the varying wind speed and differing solar irradiation makes these resources location / site specific and require safe and reliable transmission network for appropriate dispatch of electric units to the end consumer. With insufficient offtake capacities in the existing network hampering development and exploitation of such natural resources by the developers, a provincial grid company can come in to lay down transmission facilities to complement the national grid and serve as a carrier facility for the power generation facilities willing to supply cheaper electric units from the untapped renewable resources in the southern belt through bilateral PPAs.

EEL is, thus, in favor of granting a transmission license to STDC for a provincial grid company to set up its own transmission network and serve the bulk power consumers in the bilateral market with affordable and reliable electricity.

Regards,

Atif Muhammad Ali

Mr. Atif Muhammad Ali
General Manager - Business Development
Engro Energy Limited

For information & sign
- ADG (hc)
- MF
copy to
SA (tech)
- DG (M&E)
N 10/1/19
cc: ve/m (CA)
- m (CI)
- m (EC)

Scanned Copy

REGISTRAR
Dy. No: 4099
Date: 10-05-19

Planning Department
Atif Muhammad Ali
13-5-19

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- v. Employ a combination of macro and micro transmission grid model for wind corridor for initial supply of electricity to bulk consumers in Nooriabad industrial area, KE and other bulk buyers. The proposed model may comprise construction of 500 KVA 4-bundle double circuit transmission line along wind corridor; 500 KV junction grid in Nooriabad and expansion of transmission of power to the existing grids like KE Gharo grid, Gadap grid, Maymar grid or HESCO/SEPCO grids for supply of electricity.
- vi. Harness the massive potential of power generation using province's untapped renewable resources to produce clean electricity.

It is believed that the grant of Transmission license to STDC would entail following landmark activities:

- i. Construction of new Transmission Lines of 132kV and 220kV in Jhimpir area for evacuation of power from Wind Power Plants (WPPs).
- ii. Construction of new Grid Stations of 132kV and 220kV in Jhimpir area for evacuation of power from Wind Power Plants (WPPs).
- iii. Perform the operation and maintenance of all the associated transmission lines and grid stations in Jhimpir area.
- iv. The company would supply power to Pumping Station 1 & Pumping Station 2 of KWSB K-IV Power Project by constructing 02 Grid Stations of 132 kV each and 01 Double Circuit Transmission Line of 132 kV.
- v. Perform Operation and Maintenance of K-IV Power project.
- vi. Perform Operation and Maintenance of Nooriabad / KE Transmission Line.

2. The Government of Sindh therefore supports the petition of STDC for Provincial Grid Company (PGC) in the national interest to resolve the issues of evacuation of power in the jurisdiction of Sindh amicably in collaboration with NTDC in the light of NEPRA Amendment Act 2018.

(FAISAL HUSSAIN)
SECTION OFFICER (POWER)

C.C to:

- The CEO (STDC), Karachi.
- The Deputy Secretary (Staff) / PS to Minister for Energy GoS, Karachi.
- PS to Secretary, Energy Deptt: GoS, Karachi.
- Office file.

(FAISAL HUSSAIN)
SECTION OFFICER (POWER)

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Central Power Purchasing Agency Guarantee Limited

A Company of Government of Pakistan



CPPA-G/2019/ CEO/SMD/150-156

Er mughata s nfa ta May 21, 2019

The Registrar NEPRA,
NEPRA Tower,
Ataturk Avenue, G-5/1,
Islamabad

ADG (Lia) / G.P.H.
SA (Tech) - SA (I) e. chairman
DG (m & E) - LA (G-) MGT / m (m & E)
DRSI / DG-I - MF MCA, m (L-)

Dated: 24-05-19
By: No. 4557
REGISTRAR

Subject: Comments on Application of Sindh Transmission and Dispatch Company For Grant of Transmission License for Provincial Grid Company for Sindh Province

Reference: - NEPRA's Letter No. NEPRA/R/LAT-06/6926-33

This is with reference to NEPRA's letter referred above wherein following submissions are being placed by CPPA-G for the due consideration of the Authority:

- 1. Eligibility Criteria for Provincial Grid Company Not Prescribed:** Under Section 18A of the Act, the Federal Government shall prescribe eligibility criteria for grant of license as a provincial grid company. As of now, such eligibility criteria have not been prescribed by the Federal Government. In the absence of the prescribed eligibility criteria, it is imperative that the license for the provincial grid company could not be issued to any applicant. Therefore, it is suggested that the matter of granting appropriate license and the completion of the prerequisites associated with the process of granting such license should be actively pursued with the concerned authorities.
- 2. Procedure for Selection and Licencing of the Provincial Grid Company:** With reference to NEPRA Act Section 18A: Provincial Grid Company, it is mentioned that **only one license shall be issued for each province at one time**. Just like the NTDC, the Provincial Grid Company would also be the service provider and an important stakeholder in the power sector. Therefore, the selection and licencing of such entity should follow a comprehensive procedure and may involve competition among several applicants or any other prudent selection criteria to compete for the license rather than applying for a licence on first come first serve basis.
- 3. Legal and Regulatory Framework-Transmission of Power by the Provincial Entity to the National Grid:** It is apprised that by virtue of Article 142(a) of the Constitution and in context of the Eighteenth Amendment, the Parliament and Federal Government are exclusively empowered to (respectively) legislate and exercise executive authority over matters relating to 'Electricity'. Whereas, Article 157 of the Constitution makes specific provision with respect to 'Electricity'. According to the Article 157 of the Constitution which makes specific provision with respect to the authority and discretion of a Provincial Government that "*a Government of a Province may construct power houses and grid stations and lay transmission lines for use within the Province*". This infers that the construction of power infrastructure and facilities lies within the discretion of the Province until it is not connected to the national grid.

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As the applicant intends to transmit power to the existing grids of HESCO and SEPCO, it seems obvious that the electricity through the Provincial Grid Company would be injected in

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to the national grid. This calls for an interaction of the Provincial Government with the federal entities. According to the Federal Legislative List, Electricity is listed as Entry No. 4 in Part II of the Federal Legislative List and falls within the constitutional domain of the CCI. Subject to the Constitution and the law, decisions of the CCI may inform the interaction between the Federal and Provincial Governments with respect to matters relating to Electricity. CCI's decisions of 2011 and 2016, ECC Decision of 2015 and 2015 Policy endorse this fact. For instance, according to the 2015 Policy, for any project that is connected to the national grid "*Consent from the Power Purchaser (NTDC/CPA or DISCO) shall be obtained by Provincial Authority or Project Sponsor*".

It could be concluded that the function of power procurement by the federal entities is regulated by, inter alia, standards, prescriptions and requirements of the applicable legal and regulatory framework. Power procurement by the federal entities therefore, may additionally only be undertaken upon satisfaction of such other applicable requirements.

4. **Alignment with Indicative Generation Capacity Expansion Plan:** It is further elaborated that the applicant is targeting Keti Bander-Gharo-Jhimpir wind corridor and intend to construct a new transmission network in the wind corridor to harness the potential 50,000MW of capacity from wind power generation. As per Grid Code (Planning Code PC4), NTDC is mandated to prepare Indicative Generation Capacity Expansion Plan (IGCEP) considering the demand and supply position of the country. Hence, prior to any commitment with the new projects, endorsement of site, size and technology and timing should be aligned with IGCEP prepared by NTDC and Renewable Energy Policy under discussion with Ministry of Energy (Power Division).

The IGCEP has been submitted to NEPRA by NTDC. Therefore, any decision regarding induction of wind power in future, its quantum and timing should be strictly in line with the IGCEP. It is further suggested that subsequent studies should be done to evaluate which zones are most feasible to bring the wind power at the minimum levelized cost and maximum firm capacity contribution to the grid.

It is further highlighted that the applicant is intending to supply electricity from the wind corridor having potential of 50,000MW, mostly to the bulk power consumers of KE, HESCO and SEPCO. Here it is worth to mention that the current market share of one MW or above BPCs all across the country is approximately 16% only of the total energy demand. Therefore, the idea of selling 50,000MW to BPCs does not seem realistic even considering many years from now.

5. **Alignment with Transmission System Plan:** It could be assumed that since the 500kV line by PGC carries bulk power, so it is deemed to be connected to the National Grid. Construction of such line cannot be considered a matter of only the provincial interest because it is interconnecting with the national grid and therefore it is subject to the federal interest, which implies that it has to be centrally planned. The National Grid Planning is within the

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competency of NTDC and as a central planner, NTDC in coordination with DISCOs is responsible for carrying out in short, medium and long terms planning including transmission expansion planning. Therefore, it must be evaluated if the transmission network proposed to be constructed by the applicant is actually required under the Transmission System Expansion Plan of NTDC/DISCOs or not as per the planning criteria defined in the Grid Code and the Distribution Code.

6. **Operation of the Line and Dispatch of Generators:** It is further highlighted that, as the Generators constructed pursuant to IGCEP are subjected to central dispatch by NPCC as per the Section 14B of the Act and the Grid Code, the operation of the line and the dispatch of the generators would be carried out by the System Operator. Therefore, the provincial grid company would have no control over the dispatch of such generators within its territory.

Omer Haroon Malik
DGM SMD, CPPA

C.C.

- MD NTDC, WAPDA House Lahore
- Joint Secretary Power / Finance, MoE (Power Division), Islamabad
- Chief Engineer PSP, NTDC, WAPDA House Lahore
- CEO CPPA, Islamabad
- SO Technical, CPPA, Islamabad
- Master File

Franklin Law Associates

Experts in Consultancy, Insurance, Finance, Sales Tax, Income Tax,
Trade Mark, Civil/Companies Cases, Criminal, Rent & Arbitration

FIH

G. Hyder Sheikh

Shauk Ghulamullah

Faisal Ghani

Kashif Nazeer

Registrar

National Electric Power Regulatory Authority (NEPRA)

NEPRA Tower, Attaturk Avenue (East)

Sector G-5/1, Islamabad, Pakistan

May 22nd, 2019

Subject: Comments for Grant of Transmission License to STDC as Provincial Grid Company

The comments are being submitted with reference to the Notice of Admission for application of Sindh Transmission & Dispatch Company (Pvt.) Limited, (herein after referred to as STDC) for Grants of Transmission License for Provincial Grid Company published on April 24th, 2019, Franklin Law Associates is thus pleased to submit its comments on the above mentioned subject matter.

Franklin Law Associates believe that the country's economic prosperity depends on its industry's need to be competitive locally as well as internationally with the businesses increased efficiencies and lower production costs. Electricity serves as one of the significant input cost elements to the overall cost of production in any competitive sector/environment and this determines the basis of any manufacturing facility's ability to compete. The industries, as a result, should ideally possess an option to procure electric units from the least cost generation facility/utility of its choosing.

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Franklin Law Associates

Experts in all Commercial Matters, Customs, Sales Tax, Income Tax,
Banking, Insurance, Companies, Labour, Arbitration, Rent & Arbitration.

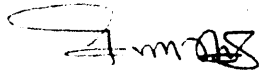
Laral Ghani

Kashif Nazeer

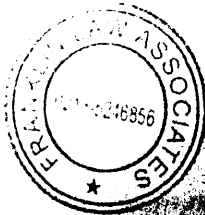
The Gharo-Kew Bandar corridor in Sindh has potential for high renewable resources such as wind and solar, and provides opportunity for such affordable alternatives of electric power for the surrounding industries. The renewable resources serve as an attractive option at their ever-declining price point; however, the varying wind speed and differing solar irradiation makes these resources location/site specific and require safe and reliable transmission network for appropriate dispatch of electrical units to the end consumer. With insufficient and inefficient offtake facilities in the existing network adversely affecting development and exploitation of natural resources by the developers, a provincial grid company can come in to lay down transmission facilities to complement the national grid and serve as a carrier facility for power generation facilities willing to supply cheaper electric units from the untapped renewable resources in the southern belt through the bilateral PPAs.

Franklin Law Associates is in favor of granting a transmission license to STDC for provincial grid company to set up its own transmission network and serve the bulk power consumers in the bilateral market with affordable and reliable electricity.

Regards,



Advocate Ghulamullah Shaikh
Partner- Franklin Law Associates



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F/I

Government of Pakistan
Ministry of Planning, Development & Reform
Energy Wing

No. 42(49) EW/PC/2019

Islamabad, the June 21, 2019

OFFICE MEMORANDUM

Subject: - Application of Sindh Transmission & Dispatch Company (pvt) Ltd For Grant of Transmission License for Provincial Grid Company For The Province of Sindh.

I am directed to refer to your letter No NEPRA/RLAT-06(PGC)/6909-17 dated

24th April, 2019 on above subject .The comments of Planning Commission are as under.

- I. While we support the establishment of Provincial Grid Company, the authority should carefully look into the manpower capacity of STDC. The details submitted in the petition shows that personals when appointed in STDC were short of required experience. It is apprehended that similar situation may occur in case of Provincial Grid Company.
- II. The quality of pre-Feasibility study attached with petition is not up to mark specially the section dealing with Human Resources its job description templates which are not standardized and the CVs attached.
- III. As given in pre-feasibility study section "Hiring of STDC office staff and O&M Staff" at page 145 it is stated that O&M would be outsourced and below are some of the advantages of outsourcing. However no advantages are shown.
- IV. NTDC transmission plan submitted to NEPRA may be consulted so that there may be no duplication in proposed lines and grid stations.

NEPRA
 Licensing Department
 License No. 4750
 Diary No. 256-19
 Date: 25-6-19

Mr. Iftikhar Ali Khan
 Director,
 Registrar Office,
 NEPRA,
 Islamabad

Disc-

(Signature)
 (Inayatullah Qureshi)
 Chief (EF&E)

For my action

~~ADG (Lic)~~ *ya 19.*

Gmb: 24 06 19

- ~~SA (Tech)~~ *e: chairman*
- ~~SAT-II~~ *m(T)/m(m)*
- ~~DG (m&E) - LA(G)~~ *m(CO)*
- ~~DPO I / Dy-I / MF~~ *m(Lic)*

Dy. No: 544
 Dated: 24-06-19

REGISTRAR

26/6/19

Dir
Dy. Dir
Sr. AD
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NATIONAL TRANSMISSION & DESPATCH CO. LTD

General Manager (Technical)

No. GMT/NTDC/7.2/4 768-71

Date: 21.06.2019

Mr. Iftikhar Ali Khan
Director, Registrar office NEPRA
NEPRA Tower, Attaturk Avenue (East),
G-5/1, Islamabad.

For my information & info. by
— ADG (Lic) —
Cp. h.
— SAC (Ch) — SAT-II
— DG (M&E) — LA (Lic)
— DRG I / DRG II / MF
a: Chairman
m (T) / m (M&E)
m (CA) — m (Lic)

REGISTRAR
DY. NO.: 5434
DATE: 24-06-19

Subject: PRELIMINARY COMMENTS/OBJECTIONS ON BEHALF OF NATIONAL TRANSMISSION AND DESPATCH COMPANY LIMITED (NTDC) ON APPLICATION OF STDC FOR GRANT OF TRANSMISSION LICENCE FOR PROVINCIAL GRID COMPANY FOR SINDH PROVINCE

Reference: NEPRA's Letter No. NEPRA/R/LAT-06(PGC)/6926-33 dated 24-04-2019.

Reference is made to NEPRA's letter referred above whereby NTDC, amongst other stakeholders, has been invited to express and tender its reservations/comments/objections on the Application of STDC for grant of transmission license for provincial grid company for Sindh province. Please find the preliminary objections/comments of NTDC on the subject application of STDC for grant of provincial transmission license as follows:

1. Eligibility Criteria

a) The Application under reply is liable to be rejected solely on the ground that the same fails to meet the basic eligibility criteria that is required under the law. Regulation 3 (h) of National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999 ("the Regulations") provides as under:

"(h) in case of a license for a new facility or system, a feasibility report in respect of the project, specifying in detail:

- (i) The type, technology, model, technical details and design of the facilities proposed to be constructed, developed or installed;
- (ii) The expected life of the facility or the system;
- (iii) The location of the facility or the system, or the territory with outer boundaries within which the facilities or the system is proposed to be installed and operated by the licensee, along with maps and plans' and
- (iv) The type and details of the services proposed to be provided."

The Application under consideration does not provide the mandatory feasibility report specifying the details as required under the above mentioned Regulation.

NEPRA
Licensing Department
Diary No. 5773
Date: 25-6-19

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NATIONAL TRANSMISSION & DESPATCH CO. LTD

General Manager (Technical)

- b) Also, the Application of STDC fails to comply with the criteria provided under Regulation 3(g) (b) of the Regulations which requires the transmission license applications to provide the type, technology, model, technical details and design of the facilities proposed to be acquired, constructed, developed or installed, a territorial map of the service area proposed to be covered and particulars in respect of the availability, sources, rates and evidence of commitments from the sources of electric power. No such information and specifications have been provided by the Applicant.
- c) Without prejudice to the above, it may pertinently be mentioned that under Section 18A of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997) ["the NEPRA Act"] the Federal Government shall prescribe eligibility criteria for grant of license as a provincial grid company. As of now, such eligibility criteria have not been prescribed by the Federal Government. In the absence of the prescribed eligibility criteria, it is imperative that the license for the provincial grid company could not be issued to any applicant. Therefore, it is suggested that the matter of granting appropriate license and the completion of the prerequisites associated with the process of granting such license should be actively pursued with the concerned authorities.

2. **Legal and Regulatory Framework-Transmission of Power by the Provincial Entity to the National Grid:** It is apprised that by virtue of Article 142(a) of the Constitution and in context of the Eighteenth Amendment, the Parliament and Federal Government are exclusively empowered to (respectively) legislate and exercise executive authority over matters relating to 'Electricity'. Whereas, Article 157 of the Constitution makes specific provision with respect to 'Electricity'. According to the Article 157 of the Constitution which makes specific provision with respect to the authority and discretion of a Provincial Government that "*a Government of a Province may construct power houses and grid stations and lay transmission lines for use within the Province*". This infers that the construction of power infrastructure and facilities lies within the discretion of the Province until it is not connected to the national grid.

As the applicant intends to transmit power to the existing grids of HESCO and SEPCO, it seems obvious that the electricity through the Provincial Grid Company would be injected in to the national grid. This calls for an interaction of the Provincial Government with the federal entities. According to the Federal Legislative List, Electricity is listed as Entry No. 4 in Part II of the Federal Legislative List and falls within the constitutional domain of the CCI. Subject to the Constitution and the law,

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General Manager (Technical)

decisions of the CCI may inform the interaction between the Federal and Provincial Governments with respect to matters relating to Electricity. CCI's decisions of 2011 and 2016, ECC Decision of 2015 and 2015 Policy endorse this fact. For instance, according to the 2015 Policy, for any project that is connected to the national grid "*Consent from the Power Purchaser² (NTDC/CPA or DISCO) shall be obtained by Provincial Authority or Project Sponsor*".

It could be concluded that the function of power procurement by the federal entities is regulated by, inter alia, standards, prescriptions and requirements of the applicable legal and regulatory framework. Power procurement by the federal entities therefore, may additionally only be undertaken upon satisfaction of such other applicable requirements.

Without prejudice to the foregoing, it may not be out of place to mention here that NTDC has already been awarded the service territory of whole Pakistan except Karachi (K-Electric area) pursuant to the exclusive Transmission License granted by NEPRA to NTDC, issued on 31 December 2002 for a period of 30 years and therefore the same is valid upto 30 December 2032. Granting of a parallel transmission license any company owned by the provincial government will lead to a conflicting situation and will render the exclusivity of NTDC's transmission license redundant.

3. Procedure for Selection and Licensing of the Provincial Grid Company:

With reference to NEPRA Act Section 18A: Provincial Grid Company, it is mentioned that **only one license shall be issued for each province at one time**. Just like the NTDC, the Provincial Grid Company would also be the service provider and an important stakeholder in the power sector. Therefore, the selection and licensing of such entity should follow a comprehensive procedure and may involve competition among several applicants or any other prudent selection criteria to compete for the license rather than applying for a licence on first come first serve basis.

4. Alignment with Indicative Generation Capacity Expansion Plan:

Without prejudice to the above, it is further elaborated that the Applicant is targeting Keti Bander-Gharo-Jhimpir wind corridor and intend to construct a new transmission network in the wind corridor to harness the potential 50,000MW of capacity from wind power generation. As per Grid Code (Planning Code PC4), NTDC is mandated to prepare Indicative Generation Capacity Expansion Plan (IGCEP) considering the demand and supply position of the country. Hence, prior to any commitment with the new projects, endorsement of site, size and technology and timing should be aligned with IGCEP prepared by NTDC and Renewable Energy Policy under discussion with Ministry of Energy (Power Division).

The IGCEP has been submitted to NEPRA by NTDC. Therefore, any decision regarding induction of wind power in future, its quantum and timings should be strictly in line with the IGCEP.

5. **Alignment with Transmission System Plan:** It could be assumed that since the 500kV line by PGC carries bulk power, so it is deemed to be connected to the National Grid.

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General Manager (Technical)

Construction of such line cannot be considered a matter of only the provincial interest because it is interconnecting with the national grid and therefore it is subject to the federal interest. which implies that it has to be centrally planned. The National Grid Planning is within the competency of NTDC and as a central planner, NTDC in coordination with DISCOs is responsible for carrying out in short, medium and long terms planning including transmission expansion planning. Therefore, it must be evaluated if the transmission network proposed to be constructed by the applicant is actually required under the Transmission System Expansion Plan of NTDC/DISCOs or not as per the planning criteria defined in the Grid Code and the Distribution Code. Moreover, the action taken by one grid operator may contradict/overlap the actions of other operator thus requiring comprehensively documented and communicated SOPs for all the stakeholders. Similarly, either one or both operators may attribute the responsibility of partial or full grid system collapses to each other.

It appears that STDC, subject to the grant of license, will be required to develop 500 kV network and 500 kV junction grids to transmit power to K-Electric grid, HESCO & SEPCO grid and other bulk buyers. Since 500 & 220 kV network in whole Pakistan alongwith Generation & Transmission Planning (except Karachi) is a mandate of NTDC, therefore sharing this mandate with STDC, will result in a big conflict from both Planning aspect & Operational aspect. The conflict will be a deviation from Integrated Power Planning and shall lead to heavy undue investments in the country from both Generation & Transmission aspects consequently adversely affecting optimal system performance.

6. Operation of the Line and Dispatch of Generators: It is further highlighted that, as the Generators constructed pursuant to IGCEP are subjected to central dispatch by NPCC as per the Section 14B of the Act and the Grid Code, the operation of the line and the dispatch of the generators would be carried out by the System Operator. Therefore, the provincial grid company would have no control over the dispatch of such generators within its territory. Moreover, it is pointed out that as per amendment 18 – A of the NEPRA Act, STDC can operate only as Transmission Company where as the despatch function which includes stable and economic transfer of power from generator to consumer in view of reliability and economy which is a specific function of despatch center has not been mentioned in the amendment. Hence STDC cannot be granted to operate as transmission and despatch company.

7. Wind Potential In Keti Bander- Gharo-Jhimphir

- a. Without Prejudice to the above and specifically responding to wind potential in Keti Bander- Gharo-Jhimphir, it is submitted that catering of huge wind potential in the Gharo-Jhimphir corridor does not solely depend on construction of transmission

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General Manager (Technical)

facilities. Tapping wind power to accommodate in the country's generation mix is much more difficult than any other type of power source. In general, wind power has an average of 31%-35% plant factor with an additional criticality of intermittency. An in-depth understanding and expertise of power system is the fundamental prerequisite for evacuation of heavy quantum of wind power (as well as variable renewable energy). It appears that major activities pertaining to development of Sindh wind Corridor include inviting the investors, constructing the interconnections and wheeling to national grid; this understanding is perhaps too limited. Certain other aspects carry important value such as detailed demand patterns both area-wise and country-wide, hourly basis and yearly basis, base load, intermediate load and peak load analysis on one hand and the generation type, location and availability on daily and yearly basis. Over and above to this, reinforcement to the transmission infrastructure and cost of balancing reserve are other critical aspects for wind power penetration to the national grid. In our opinion, following are the functions involved for optimal wind power utilization:

- Demand forecast of the interconnected grid for each time frame.
 - Least Cost Generation Expansion Plan over a horizon of at least ten years
 - Latest and approved Renewable Policy wherein targets for renewable are set
 - Transmission reinforcement studies in addition to Grid Interconnection Studies (GIS)
 - State-of-the-Art SCADA and forecasting functions at the central control room of the country level Dispatch Centre
 - Reserve balancing and corresponding system dynamics studies to observe critical power system parameters (such as frequency, angle and voltage) violations from the regulatory instrument i.e. Grid Code limits during wind intermittency.
 - System-wide dynamic stability studies (on PSSE simulator or a similar tool) to recommend FACTS device at critical locations of the national grid.
 - Inducting more and more Wind energy into the grid raises two important issues i.e. low inertia of the network and high cost of balancing reserve. Hence, exploring external supports from other networks in order to address these two issues is essential. International markets and system operators are focusing on these issues as a challenging problem.
- b. NTDC, having vast experience is already engaged in all the facets of transmission business, has developed least cost generation expansion plan showing optimum renewable share upto year 2040 using WASP simulation tools. The plan has already

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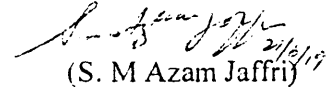
General Manager (Technical)

been submitted to NEPRA for approval. However, NTDC has also engaged international consultant, through World Bank funding, to assist in reviewing, updating and developing the least cost generation expansion plan which would incorporate targets of RE Policy 2019, plan horizon 2019-2047, with the application of a highly advanced and customized simulation tool known as 'PLEXOS'.

- c. Further other related studies, to address the unique nature of wind power, like RE Zoning and Locational Studies are currently in progress. Consequently, optimal harnessing of wind power falls under the domain of national level planning; requires high-level frame work and cannot be placed as a standalone activity under a smaller grid level.

The Respondent (NTDC) intends to urge and submit further grounds at or before the hearing of this Application and reserves its right to such extent. The Respondent also seeks an opportunity of hearing in the subject matter which may graciously be granted by the Authority in the interest of justice.

In view of the above preliminary submissions, the Respondent (NTDC) does not support the petition of STDC for issuance/grant of provincial transmission license. Therefore, it is humbly prayed that the Application under reply may kindly be rejected.


(S. M Azam Jaffri)

Chief Engineer (C&M)
For General Manager (Technical) NTDC

CC:

1. Managing Director NTDC, 414-WAPDA House, Lahore.
2. Dy. Managing Director (AD&M), 413-WAPDA House, Lahore.
3. General Manager (Power System Planning) NTDC, PIA Tower, Lahore.