



National Electric Power Regulatory Authority Islamic Republic of Pakistan

Registrar

NEPRA Tower, Attaturk Avenue (East), G-5/1, Islamabad
Ph: +92-51-9206500, Fax: +92-51-2600026
Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

No. NEPRA/R/DL/LAG-364/ 2754362

June 7, 2017

Mr. Khalid Mansoor,
Chief Executive Officer,
Thar Energy Limited (TEL),
11th Floor, Ocean Tower, Block-9,
Main Clifton Road, Karachi.

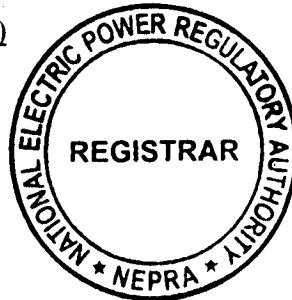
Subject: **Generation Licence No. IGSP/83/2017**
Licence Application No. LAG-364
Thar Energy Limited (TEL)

Reference: TEL's application vide letter dated August 11, 2016

Enclosed please find herewith Generation Licence No. IGSP/83/2017 granted by National Electric Power Regulatory Authority (NEPRA) to Thar Energy Limited, for its 330.00 MW Indigenous/Thar Coal based Thermal Generation facility located at Thar Coal Block-II, District Tharparkar, in the province of Sindh, pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997). Further, the determination of the Authority in the subject matter is also attached.

2. Please quote above mentioned Generation Licence No. for future correspondence.

Enclosure: **Generation Licence (IGSP/83/2017)**



Munir
07.06.17

(Syed Safer Hussain)

Copy to:

1. Secretary, Ministry of Water and Power, A-Block, Pak Secretariat, Islamabad.
2. Chief Executive Officer, Hyderabad Electric Supply Company Limited (HESCO), Old State Bank Building, G.O.R Colony, Hyderabad.
3. Chief Executive Officer, Sukkur Electric Supply Company (SEPCO), Old Thermal Power Station, Sukkur.
4. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
5. Managing Director, Private Power and Infrastructure Board (PPIB), Ground & Second Floors, Plot No. 10, Mauve Area, Sector G-8/1, Islamabad.
6. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
7. Director General, Environment and Alternative Energy Department, Government of Sindh, Plot No ST/2/1, Sector 23, Korangi Industrial Area, Karachi.
8. Chief Secretary, Government of Sindh, Sindh Secretariat, Karachi.

National Electric Power Regulatory Authority
(NEPRA)

Determination of the Authority
in the Matter of Application of Thar Energy Limited for the Grant
of Generation Licence

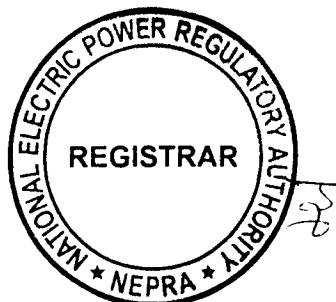
May 30, 2017
Case No. LAG-364

(A). Background

(i). Pakistan is a coal-rich country, with an estimated reserves around 185.00 billion tons. Most of these reserves are located in the area of Thar, in the Province of Sindh. The Federal Government and Provincial Governments are continuously trying to promote and develop the indigenous coal for power generation.

(ii). In order to tap and develop a part of the Thar Coal for power generation, the Sindh Engro Coal Mining Company Limited (SECMCL) has been established as a joint venture between the Government of Sindh (GoS) and Engro Powergen Limited-EPGL (a subsidiary of Engro Corporation Limited), for the purpose of mining coal from Thar Block II. In order to utilize the said coal, a number of mine mouth projects for generation of electric power are being set up. The Hub Power Company Limited (HUBCO) is setting up one such project for which Private Power Infrastructure Board (PPIB) issued a Letter of Intent (LoI) to the company.

(iii). In order to implement the project, HUBCO incorporated a Special Purpose Vehicle (SPV) in the name of Thar Energy Limited (TEL) under the Companies Ordinance, 1984. According to the terms and conditions of the above mentioned LoI, TEL decided to approach the Authority for the grant of Generation Licence.



(B). Filing of Application

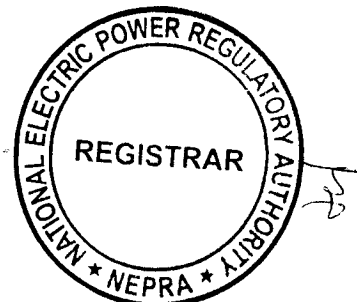
(i). TEL submitted an application on August 11, 2016 [in terms of Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act") read with the relevant provisions of the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 (the "Licensing Regulations")] requesting for the grant of generation licence.

(ii). The Registrar examined the submitted application to confirm its compliance with the Licensing Regulations and found the same compliant with the Licensing Regulations. Accordingly, the Authority considered the matter and determined the form and content of the application in substantial compliance with Regulation-3 of the Licensing Regulations. Accordingly, the Authority admitted the application on September 30, 2016 for consideration of the grant of the generation licence as stipulated in Regulation-7 of the Licensing Regulations. The Authority approved an advertisement to invite comments of general public, interested and affected persons in the matter as stipulated in Regulation-8 of the Licensing Regulations.

(iii). In addition to the above, a list of the stakeholders was also approved for seeking their comments for the assistance of the Authority in the matter. Accordingly, notices were published in one (01) Urdu and one (01) English newspapers on October 04, 2016. Further, letters were sent to different stakeholders as per the approved list on October 04, 2016, soliciting their comments for the assistance of the Authority.

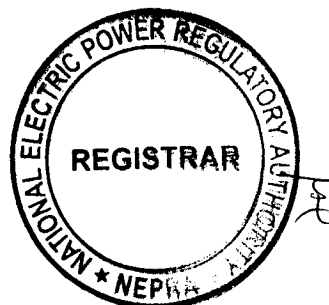
(C). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from three (03) stakeholders. These included Board of Investment (BoI), Pakistan Mineral Development Corporation (Pvt.) Limited (PMD CPL) and Ministry of Petroleum & Natural Resources (MoP&NR). The salient points of the comments offered by the above stakeholder are summarized in the following paragraphs: -



- (a). Bol commented that affordable and smooth supply of energy is the backbone for industrial growth as well as attracting Foreign Direct Investment (FDI) in the country. In view of the said, the proposal of TEL for setting up a 330.00 MW indigenous coal based generation facility is supported subject to a consumer friendly and competitive tariff and completion of all codal and technical formalities in the matter;
- (b). PMDCPL stated that energy crisis of the country and the resultant severe load-shedding is affecting the economic growth of the country. All the available resources must be utilized to generate cost-effective electricity to overcome the menace of lasting load-shedding on commercial basis. The inevitable utilization of indigenous coal resource however will ultimately bring down the circular debt which will not only benefit economical-growth of the country but also invite foreign investment, besides strengthening the control process over the increasing dependence of imported fuel;
- (c). MoP&NR supported the grant of generation licence to TEL for the proposed 330.0 MW coal based thermal power plant to be located at Thar Coal Block-II.

(ii). The Authority reviewed the above comments of the stakeholders and found the same favorable. Accordingly, the Authority considered it appropriate to proceed further in the matter of application of TEL for the consideration of grant of generation licence as stipulated in the Licensing Regulations and NEPRA Licensing (Generation) Rules 2000 (the "Generation Rules").

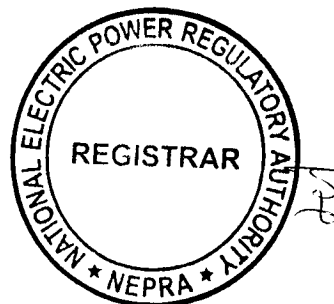


(D). Evaluation/Findings

(i). The Authority has examined the submissions of TEL including the information provided in its application for the grant of generation licence. The Authority has also considered the feasibility study of the project, interconnection & dispersal arrangement studies, provisions of the relevant power policy and the relevant rules & regulations.

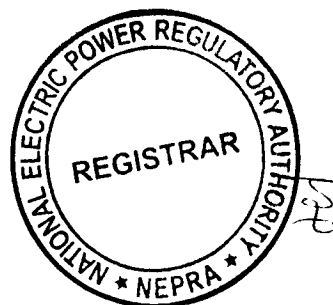
(ii). The Authority has observed that the main sponsor of the project is HUBCO which is considered a pioneer in the field of the Independent Power Producer (IPP) history in Pakistan as it set up a 1292.00 MW power project as an IPP in the early nineties at Hub in the province of Baluchistan. Later on, HUBCO set up another generation facility in district Narowal in the province of Punjab and the same came in operation in April 2011. It also developed the first hydel IPP of the country in the name of Laraib Energy Limited which is 84.00 MW run of river project and is operational since March 2013. HUBCO is involved in development of a 1320.00 MW imported coal based generation facility at Hub Baluchistan through an associated company in the name of China Power Hub Generation Company (Pvt.) Limited. It is pertinent to mention that HUBCO has also equity interest in SECMCL, the company involved in mining of the Thar Coal in Block-II. According to the Balance Sheet of 2016, HUBCO has an assets of approximately Pak Rs. 148.00 Billion. In view of the above, the Authority is of the considered opinion that the sponsor of the project i.e. HUBCO not only has a very good financial health but also have strong experience for the development of various type of electric power generation facilities.

(iii). As explained in the preceding paragraphs, in order to implement the project the sponsors incorporated an SPV in the name of TEL under Section-32 of the Companies Ordinance 1984 (XLVII of 1984) having Corporate Universal Identification No. 0099674, dated May 17, 2016. The memorandum of association of SPV/Project Company inter alia, includes power generation and its sale as one of its business objects. The Authority has observed that the SPV/TEL carried out a feasibility study of the project including inter alia, proposed equipment for



generation facility/thermal power plant, soil tests reports, technical details pertaining to selection of steam turbine generator and other allied equipment, electrical studies, environmental study and project financing etc. According to the feasibility study, the Project will be located at Block II of Thar Coalfields (Latitude: 24° 43' 38" - 24° 50' 18" & Longitude: 70° 17' 36" - 70° 26' 16") about 400 KM from the port city of Karachi and about 20-Km from City of Islamkot, near the villages of Singharo-Bitra in Taluka Islamkot, District Tharparkar, in the province of Sindh. The road network upto the project site has already been built by the Govt. of Sindh to support Thar projects and the same will be used for this project. The Authority has observed that SECMCL has been allocated sufficient quantity of land for setting up 4,000 MW Energy Park. The Govt. of Sindh has physically handed over the required land to SECMCL which is being further sub-leased to various developers including TEL. In this regard, TEL has confirmed allocation of 80.00 acres of land from SECMCL for the project.

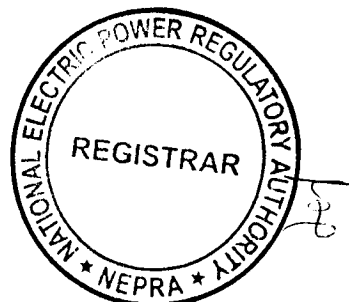
(iv). The Authority has observed that TEL will be setting up a 1 x 330.00 MW conventional steam turbine based generation facility/thermal power plant which will be utilizing the coal of Thar Block-II being mined by SECMCL. The Authority has noted that the coal from Thar Block-II is lignite in nature which is characterized by high water content (47%), ash (6%), volatile matter (24%), fixed Carbon (17%), Sulphur (1.2%) and average heating value of 5,774 Btu/lb. In view of the size of the project and the source of coal available, Circulating Fluidized Bed (CFB) coal boiler technology has been selected after a detailed techno-economical studies. The Authority considers that the selected technology will be providing more flexibility of operation for the proposed generation facility/thermal power plant due to its ability to provide improved thermal efficiency and its excellent ability to burn a wide range of coal. The gross efficiency of the proposed generation facility/thermal power plant will be greater than 40.00% whereas the net efficiency of same will be slightly greater than 37.00%. In view of the quality of coal, the Authority considers that the selected technology is reasonable for the proposed project.



(v). The availability of sufficient water for a conventional steam turbine based generation facility like that of TEL, is very important. The primary source of water for the proposed generation facility/thermal power plant will be from Left Bank Outfall Drain (LBOD). Further, there is an option to utilize the ground water (aquifers), to be pumped out of the mining area. The available amount of ground water is sufficient for the water requirements of the project of TEL and other projects even for peak loads. In view of the said, the Authority considers that reasonable quantity of water will be available for the proposed project for its smooth operation.

(vi). About the interconnection study/arrangement, the Authority has observed that same has been carried out by Power Planners International. According to the said study, the electric power from the proposed generation facility/thermal power plant of TEL will be dispersed to the system of NTDC at 500 kV Voltage Level. The interconnection/dispersal arrangement will be consisting of a 500 kV Double Circuit (D/C) transmission line (Measuring about 5-KM quad-bundled Araucaria conductor), for making In-Out of one circuit of 500 kV D/C Engro Thar-Matiari transmission line connecting the generation facility/thermal power plant of TEL with the National Grid. The Authority has observed that NTDC has already approved the above mentioned arrangement, confirming that the proposed interconnection study will not have any adverse impact on its system.

(vii). The sponsors of the project have confirmed that the project will have a total cost U.S. \$ 497.70 million consisting of U.S. \$ 124.40 million as equity of the project (25% of the total project cost) and the balance of U.S. \$ 373.30 million will be debt (75% of the total project cost). In this regard, the sponsors of the project have confirmed that the project is part of the China Pakistan Economic Corridor (CPEC) and is being implemented accordingly. In this regard, debt for the project is planned to be raised from the Chinese banks for which three (03) Chinese banks namely China Development Bank, China Exim Bank and Industrial & Commercial Bank of China have expressed their willingness to raise debt for the project. TEL has submitted that it will not be possible for the project to secure debt financing for



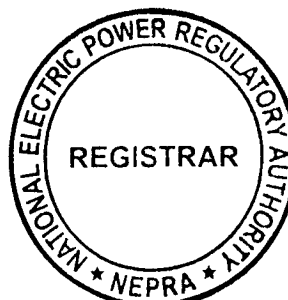
the entire project through Chinese banks due to the limitation arising out of Sinasure which only guarantees up to 85% of EPC value (assuming Chinese EPC contractor and majority equipment coming from China) in addition to own premium amount of Sinasure. The balance amount will be financed through local banks.

(viii). As explained above, the proposed generation facility/thermal power plant of TEL, for which generation licence has been sought is based on Indigenous Coal of Thar. The coal based generation facilities may be harmful to environment because of emission of SO_x, NO_x, particulate matters, Green House Gases (GHG), production of ash and other effluents. In this regard, TEL confirmed that proposed generation facility/thermal power plant would have Air Emission Control equipment including an Electro Static Precipitator (ESP). Further, for Flue Gas Desulfurization (FGD), the CFB boiler will have the in-situ desulfurization capability which will reduce the SO_x emissions upto National Environmental Quality Standards (NEQS) acceptable levels. CFB Boilers are low temperature combustion boilers which will ensure that NO_x emission complies with National and Global standards. Waste water would be treated and utilized in-plant, with a small quantity of effluent discharged after further treatment to meet environmental standards. Conventional solid wastes (bottom and fly ash) would be disposed at the ash yard, while hazardous waste would be collected and treated in-plant.

(ix). Further periodic monitoring of groundwater would be done to prevent water contamination. Efforts would be made to maximize use of fly ash and gypsum to reduce waste disposal. Water would be constantly sprayed in the coal yard to reduce coal dust. Sound attenuation material would be applied on machinery generating high noise levels. Pollution monitoring system inside and around the station would be set up to constantly monitor the environmental conditions. For coal based power plants, a lot of ash is produced during its operation. In order to handle ash, it has been informed that there are two alternates available for disposal of ash i.e. ash yard (which will be built for initial few years of operation) and the mine dump (inside dumping with overburden of mine). In order to prevent ash yard from rainwater washing, a rain water drain system will be developed. Further, to prevent fly ash and bottom ash from polluting

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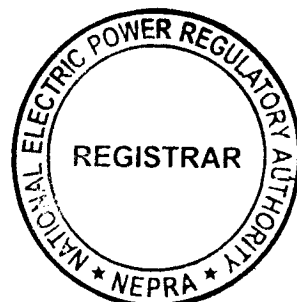
b



underground water after being wetted by rainwater, an impervious membrane will be laid on bottom of ash yard. TEL has assured compliance of the environmental standards and has also provided a No Objection Certificate from Environmental Protection Agency Govt. of Sindh (EPAGoS).

(x). In terms of Rule-3 of the Generation Rules, the Authority may grant a generation licence to any person to engage in the generation business. The said rule stipulates various conditions pertaining to the grant of generation licence as explained in Rule-3(2), Rule-3(3) and Rule-3(5). In the particular case under consideration, the Authority has observed that TEL has provided details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical limits, technical functional specifications and other details specific to the generation facilities satisfying provisions of Rule-3(2) and Rule-3(3) of the Generation Rules.

(xi). Rule-3(5) of the Generation Rules stipulates that the Authority may refuse to issue a generation licence where the site, technology, design, fuel, tariff or other relevant matters pertaining to the generation facility/thermal power plant proposed in an application for a generation licence are either not suitable on environmental grounds or do not satisfy the least cost option criteria. In this regard, the Rule-3(5) of the Generation Rules stipulates the conditions pertaining to Least Cost Option Criteria 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 the proposed generation facility/thermal power plant 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/thermal power plant 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/thermal power plant; and (h). the



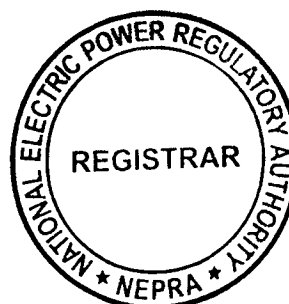
optimum utilization of various sites in the context of both the short-term and the long-term requirements of the electric power industry as a whole.

(xii). In consideration of the above, the Authority observes that the proposed project is being developed in terms of the Up-Front Tariff Determination whereby the Authority has fixed various parameters of the project including efficiency (net), cost of the construction/EPC cost, operation and maintenance costs etc. In the said determination, the Authority has duly considered the cost of power generation for various other alternatives and has fixed the parameters accordingly which is very reasonable cost for the end consumer. The sponsors of the project had carried out the Grid Interconnection Study which concludes that a 500 kV D/C Transmission Line (Measuring about 5-KM) will be required to connect the project with the system of NTDC. Further, the study has confirmed that the project will not face any constraints in transmission system. Further, being located at reasonable distance from the thick population, the project will not result in cost and right-of-way issues for the provision of transmission and interconnection facilities. The Authority has duly considered the fact that NTDC has included the project in its medium-term and the long-term forecasts for additional capacity requirements. In view of the explanation given above, the Authority is of the considered opinion that the project fulfils the eligibility criteria for grant of generation licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

(E). Grant of Generation Licence

(i). Electricity is a key infrastructural element for economic growth. The electricity consumption per capita has a strong correlation to the Social Development indices (HDI, life expectancy at birth, infant mortality rate, and maternal mortality) and Economic Indices (such as GDP per capita).

(ii). Increasing electricity consumption per capita can directly stimulate faster economic growth and indirectly achieve enhanced social development. In short, the Economic Growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of electricity. In view of the said, the



Authority is of the considered opinion that for sustainable development all types of indigenous power generation resources including coal, hydel, wind, solar and other renewable energy resources must be tapped and developed on priority basis both in Public and Private Sectors.

(iii). The existing energy mix of the country is heavily skewed towards the costlier thermal generation facilities/power plants, operating on Imported Furnace Oil. The import of furnace oil not only creates a pressure on the precious foreign exchange reserves of the country but also causes an increase in the consumer end tariff. The increase in the consumer end tariff not only results in higher inflation but it also affects the competitiveness of the local Industry with its foreign peers. In order to address the said issues, the Authority considers it imperative that efforts must be made to change the energy mix based on relatively cheaper fuels. With the depleting natural gas reserves in the country and relatively longer lead time for the construction of hydroelectric power projects, the coal power plants are considered the best option in the short and medium term planning. Therefore, to reduce the demand-supply gap and to achieve sustainable development, it is vital that indigenous as well as imported coal projects are given priority for power generation and their development is encouraged. In view of the said, the Counsel of Common Interests (CCI) approved the Power Policy 2015 which envisages rationalizing the energy mix and reducing the demand-supply gap through Imported and Indigenous coal based power generation. In consideration of the said, the Authority is of the view that the proposed project of TEL is consistent with the provisions of Power Policy 2015.

(iv). As explained above, TEL has provided the details of location, technology, size, net capacity, interconnection arrangements, technical details and other related information for the proposed generation facility/thermal power plant. The sponsors of the project have acquired the required land for setting up the generation facility/thermal power plant. The details of the land coordinates have been incorporated in Schedule-I of the generation licence. Accordingly, the Authority directs TEL to utilize the allocated land exclusively for the generation

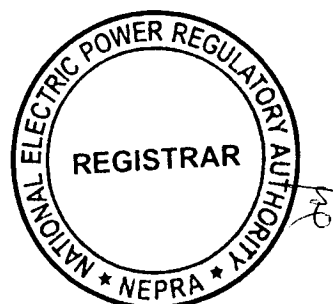


facility/thermal power plant and not to carry out any other generation activity on the said land except with its prior approval.

(v). The term of a generation licence under Rule-(5)(1) of the Generation Rules is required to match with the maximum expected life of the units comprised in a generating facility. According to the information provided by TEL, the Commercial Operation Date (COD) of the proposed generation facility/thermal power plant will be on March 01, 2020 and it will have a useful life of more than thirty (30) years from its COD. In this regard, TEL has requested that the term of the proposed generation licence may be fixed to thirty (30) years, consistent with the term of the proposed Power Purchase Agreement (PPA) to be signed with Power Purchaser. In this regard, the Authority considers that as per international benchmark/standards the life of a brand new steam turbine is taken as at least thirty (30) years. The Authority considers that the information provided by TEL about the useful life of its generation facility/thermal power plant is consistent with international benchmarks and other similar cases. Therefore, the Authority fixes the term of the generation licence as thirty (30) years from COD of the project.

(vi). Regarding tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determination of tariff, rate and charges etc. is the sole prerogative of the Authority. In the particular case, the Authority has already granted an Up-Front Tariff to the project through its determination No. NEPRA/TRF-368/TEL-2016/14208-14210 October 18, 2016. Notwithstanding the aforementioned, the Authority directs TEL to charge the power purchaser only such tariff which has been determined, approved or specified by the Authority. In this regard, the Authority has made explicit provision in the Article-6 of the generation licence for TEL. The Authority directs TEL to adhere to the provision of the said article of the generation licence in letter and spirit without any exception.

(vii). Regarding compliance with the environmental standards, as stated in the preceding paragraphs, TEL has provided the NOC from EPAGoS and has confirmed that project will comply with the required standards during the term of the generation licence. In view of the importance of the issue, the Authority has

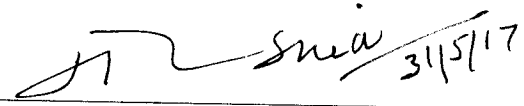


decided to include a separate article (i.e. Article-10) in the generation licence along with other terms and conditions making it obligatory for TEL to comply with relevant environmental standards at all times. Further, the Authority directs TEL to submit a report on a bi-annual basis, confirming that operation of its generation facility/thermal power plant is in compliance with the required environmental standards as prescribed by the concerned environmental protection agency.

(viii). In view of the above, the Authority hereby approves the grant of generation licence to TEL on the terms and conditions set out in the generation licence annexed to this determination. The grant of generation licence will be subject to the provisions of the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents.


Authority

Maj. (R) Haroon Rashid
(Member)



Syed Masood-ul-Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

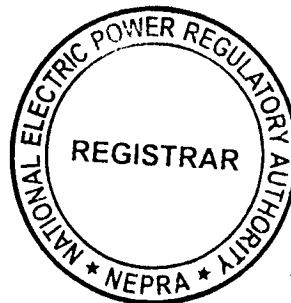


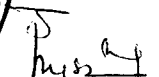
Saif Ullah Chattha
(Member/Vice Chairman)


_____ 1.6.2017

Tariq Saddozai
(Chairman)






07.06.17

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

GENERATION LICENCE

No. IGSPL/83/2017

In exercise of the Powers conferred upon under Section-15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority hereby grants Generation Licence to:

THAR ENERGY LIMITED

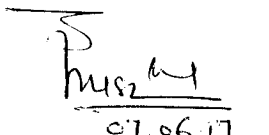
Incorporated Under Section-32
of the Companies Ordinance, 1984 (XL VII of 1984) Having Corporate
Universal Identification No. 0099674, Dated May 17, 2016

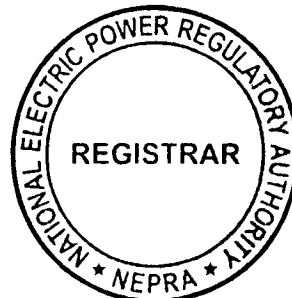
**for its Indigenous/Thar Coal Based Generation Facility/Thermal Power
Plant Located at Thar Coal Block-II, District Tharparkar, in the Province of
Sindh**

(Installed Capacity: 330.00 MW Gross)

to engage in generation business subject to and in accordance
with the Articles of this Licence.

Given under my hand on 7th day of **June Two Thousand
& Seventeen** and expires on 28th day of **February Two
Thousand & Fifty.**

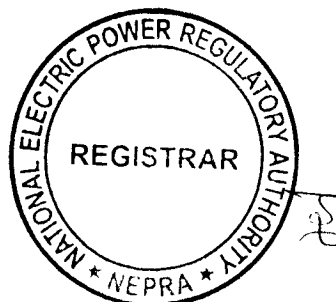

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Registrar



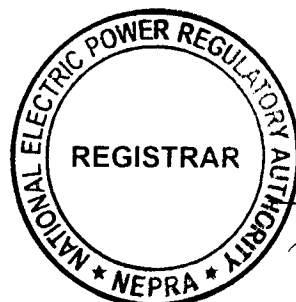
Article-1
Definitions

1.1 In this licence

- (a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 as amended or replaced from time to time;
- (b). "Applicable Documents" mean the Act, the rules and regulations framed by the Authority under the Act, 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, 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). "Applicable Law" means the Act, relevant rules and regulations made there under and all the Applicable Documents;
- (d). "Authority" means the National Electric Power Regulatory Authority constituted under Section-3 of the Act;
- (e). "Bus Bar" means a system of conductors in the generation facility/Thermal Power Plant of the Licensee on which the electric power from all the generators is collected for supplying to the Power Purchaser;
- (f). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Thermal Power Plant of the Licensee is commissioned;



- (g). "CPPA-G" means "the Central Power Purchasing Agency (Guarantee) Limited" or any other entity created for the like purpose;
- (h). "Distribution Code" means the distribution code prepared by the distribution licensee and approved by the Authority, as it may be revised from time to time with necessary approval of the Authority;
- (i). "Generation Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 as amended or replaced from time to time;
- (j). "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 any necessary approval by the Authority;
- (k). "IEC" means the International Electrotechnical Commission or its successors or permitted assigns;
- (l). "IEEE" means the Institute of Electrical and Electronics Engineers or its successors or permitted assigns;
- (m). "Licensee" means "**THAR ENERGY LIMITED**" or its successors or permitted assigns;
- (n). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application & Modification Procedure) Regulations, 1999 as amended or replaced from time to time;
- (o). "NTDC" means National Transmission and Despatch Company Limited or its successors or permitted assigns;



- (p). "Power Purchase Agreement (PPA)" means the power purchase agreement, entered or to be entered into by and between the Power Purchaser and the Licensee, for the purchase and sale of electric power generated by the generation facility/Thermal Power Plant, as may be amended by the parties thereto from time to time;
- (q). "Power Purchaser" means the CPPA-G purchasing power on behalf of XW-DISCOs from the Licensee, pursuant to Power Purchase Agreement;
- (r). "Thermal Power Plant" means a generation facility using fossil fuel for generation of electric power;
- (s). "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.

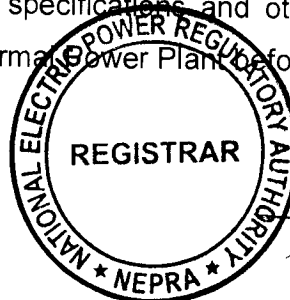
Article-2 **Applicability of Law**

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

Article-3 **Generation Facilities**

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

3.2 The net capacity of the generation facility/Thermal Power Plant of the Licensee is set out in Schedule-II hereto. The Licensee shall provide the final arrangement, technical and financial specifications and other specific details pertaining to its generation facility/Thermal Power Plant before its COD.



Article-4
Term of Licence

4.1 This Licence shall become effective from the date of its issuance and will have a term of thirty (30) years from the COD of the generation facility/Thermal Power Plant of the Licensee.

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

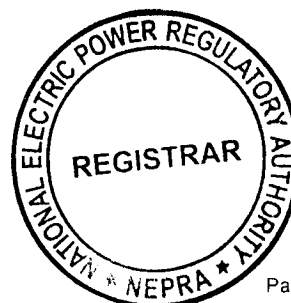
The Licensee shall pay to the Authority the licence fee as stipulated in the National Electric Power Regulatory Authority (Fees) Rules, 2002 as amended or replaced from time to time.

Article-6
Tariff

The Licensee shall charge the Power Purchaser 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.

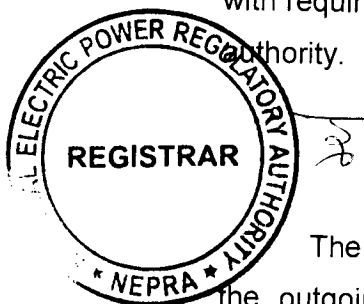
Article-9
Compliance with Performance Standards

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

Article-10
Compliance with Environmental & Safety Standards

10.1 The generation facility/Thermal Power Plant of the Licensee shall comply with the environmental and safety standards as may be prescribed by the relevant competent authority from time to time.

10.2 The Licensee shall provide a certificate on a bi-annual basis, confirming that the operation of its generation facility/Thermal Power Plant is in conformity with required environmental standards as prescribed by the relevant competent authority.



Article-11
Power off take Point and Voltage

The Licensee shall deliver the electric power to the Power Purchaser at the outgoing Bus Bar of its generation facility/Thermal Power Plant. The Licensee shall be responsible for the up-gradation (step up) of generation voltage up to the required dispersal voltage level.

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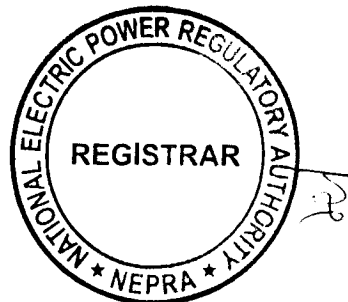
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Article-12
Provision of Information

In accordance with provisions of Section-44 of the Act, the Licensee shall be obligated to provide the required information in any form as desired by the Authority without any exception.

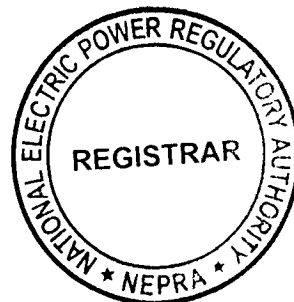
Article-13
Design & Manufacturing Standards

The generation facility/Thermal Power Plant of the Licensee shall be designed, manufactured and tested according to the latest IEC, IEEE or other equivalent standards. All the plant and equipment of the generation facility/Thermal Power Plant shall be unused and brand new.

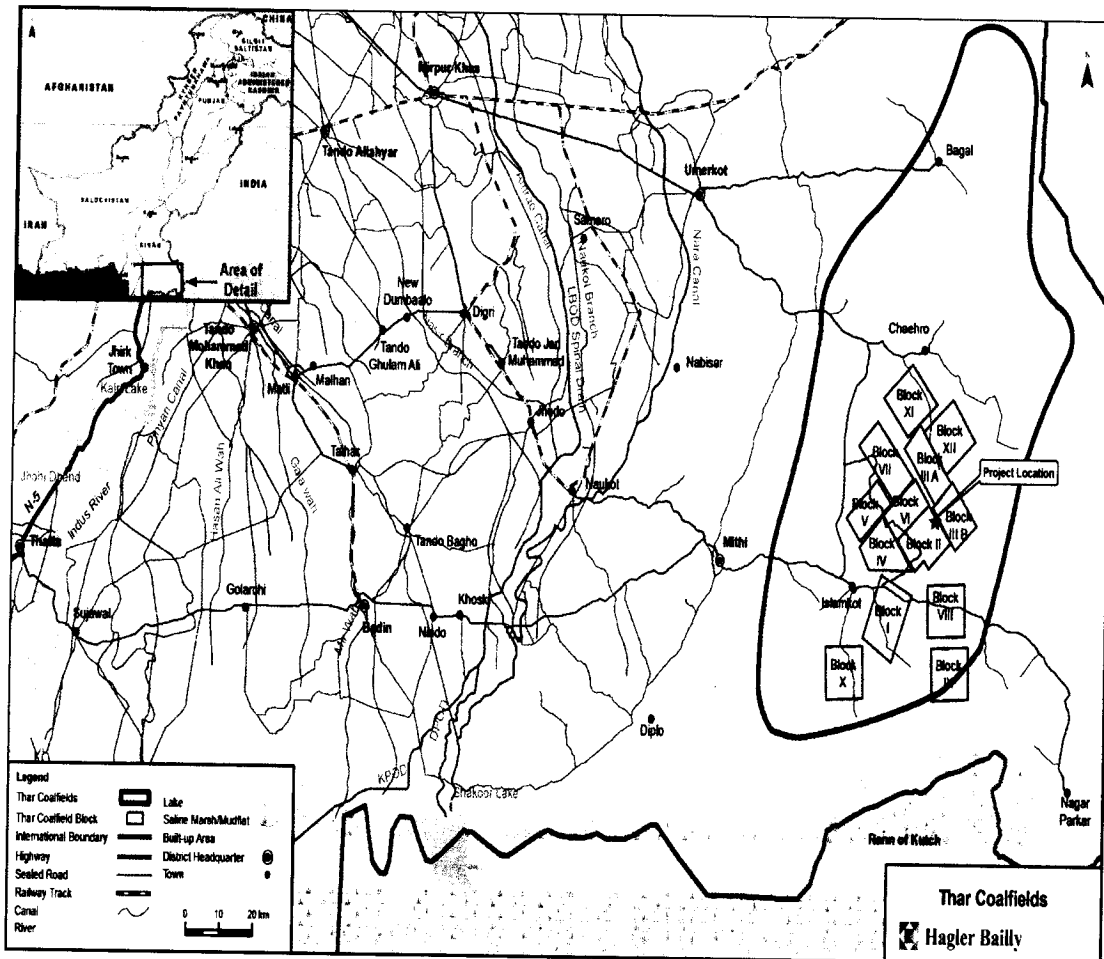


SCHEDULE-I

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 Facilities of the Licensee are described in this Schedule.



Location of the Generation Facility/Thermal Power Plant of the Licensee

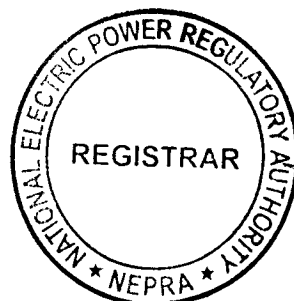
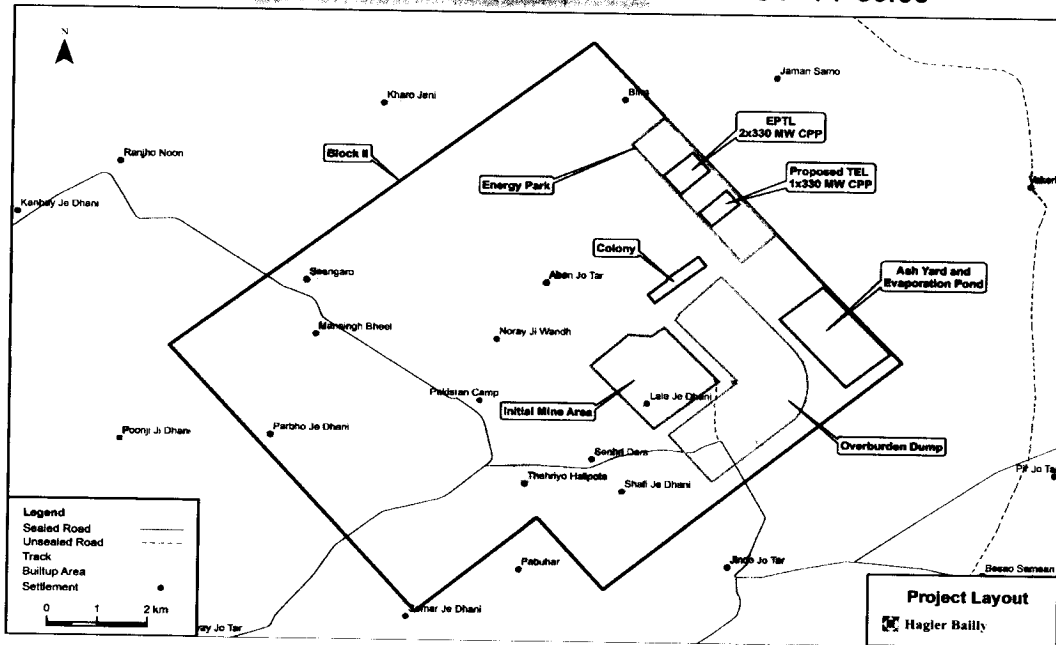


Land Coordinates
of the Generation Facility/Thermal Power Plant
of the Licensee

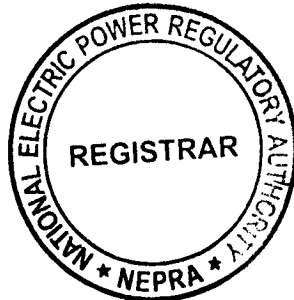
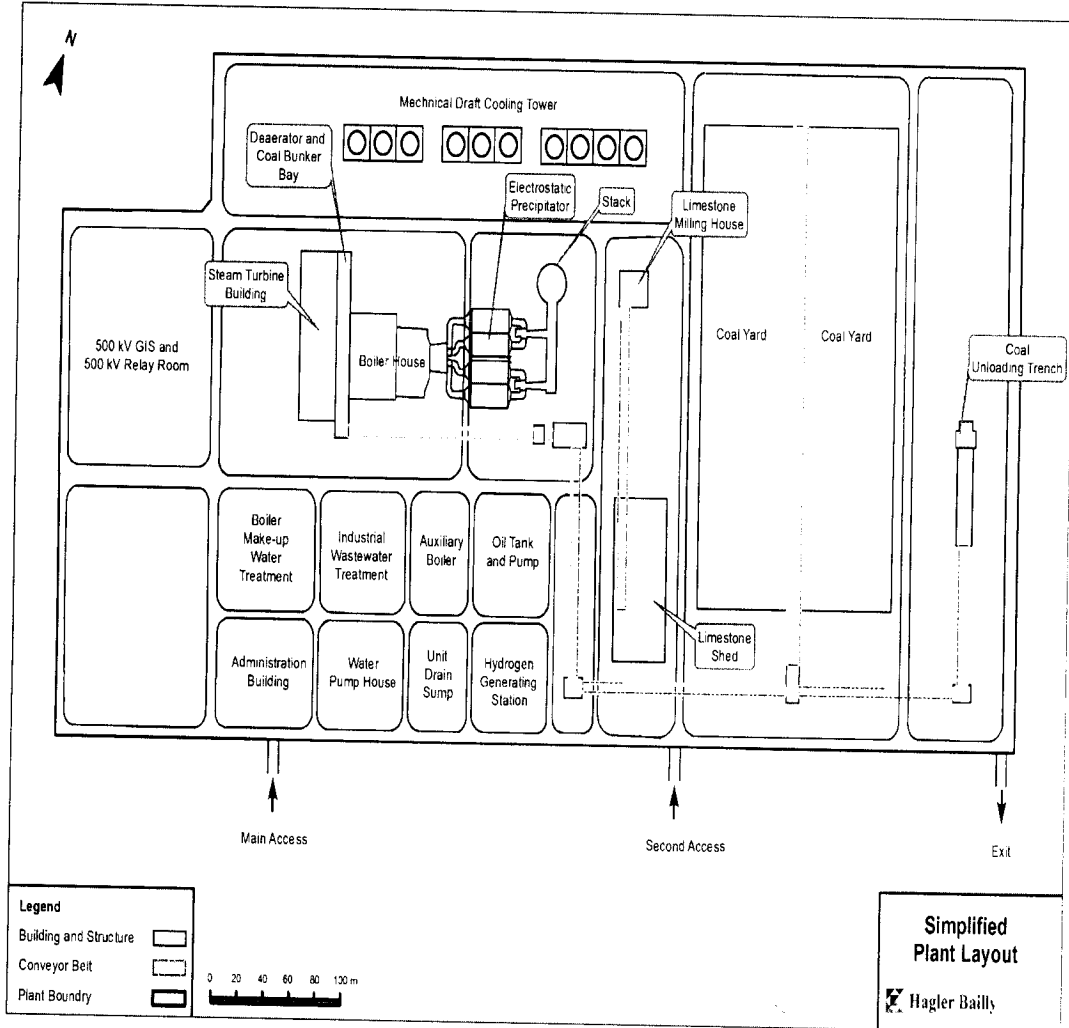
Total Land Area: 80 Acres

Geodetic Coordinates

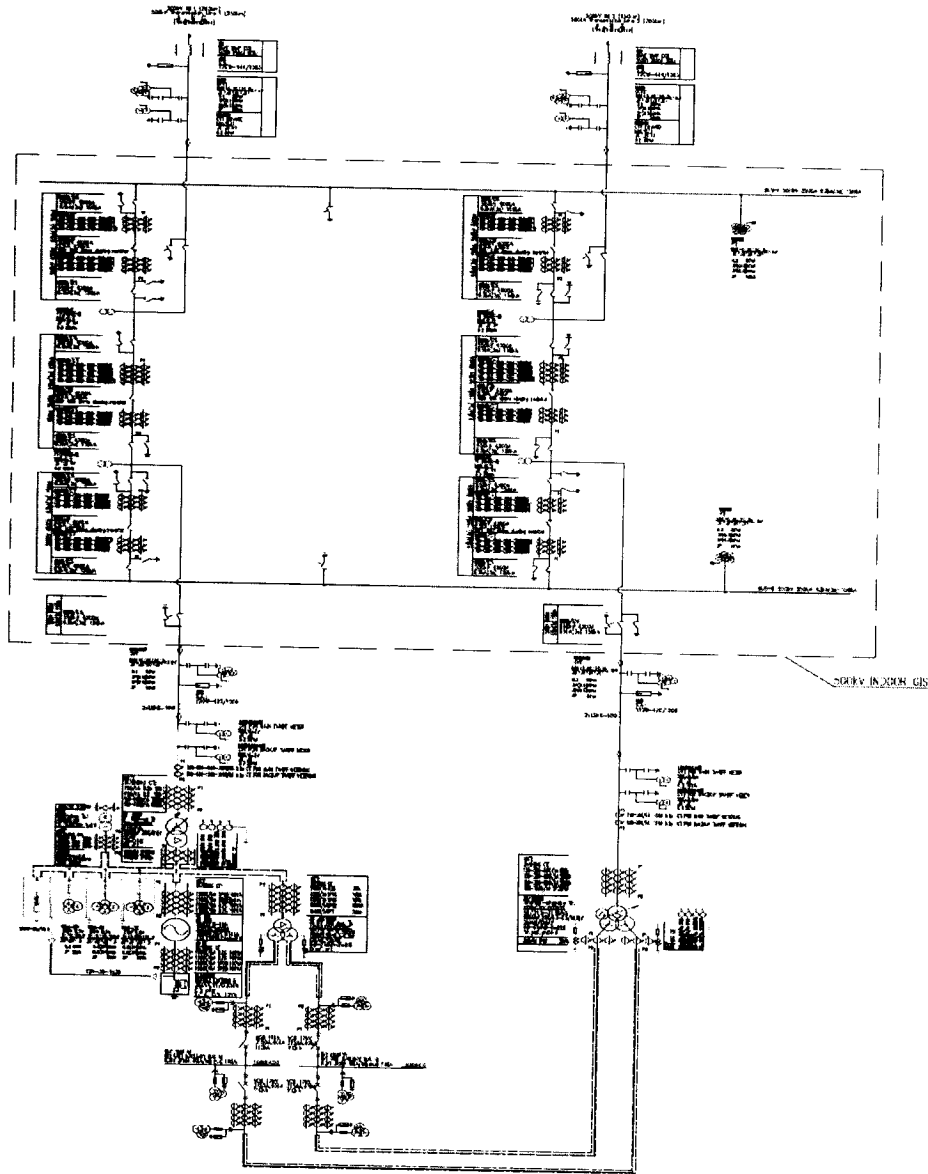
Boundary Point No.	Latitude (N)	Longitude (E)
1	27° 44' 79.30"	64° 17' 34.00"
2	27° 44' 28.50"	64° 21' 78.00"
3	27° 43' 54.10"	64° 13' 32.00"
4	27° 43' 08.50"	64° 12' 31.00"
5	27° 43' 91.10"	64° 12' 30.00"
6	27° 44' 71.00"	64° 12' 68.00"
7	27° 44' 40.50"	64° 15' 30.00"
8	27° 44' 53.00"	64° 14' 30.00"



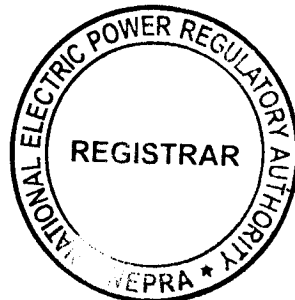
Layout of the Generation Facility/Thermal Power Plant of the Licensee



Single Line Diagram of the Generation Facility/Thermal Power Plant of the Licensee



LEGEND	
	Circuit Breaker
	Disconnect
	Earthing Switch
	Main Stop Coil
	Current Transformer
	Neutral Point Grounding Transformer
	Generator
	SF-6 Gas Insulated To Charge Transformer
	Pot Coreless Sump
	Capacitor Voltage Transformer
	Potential Transformer
	Lightning Arrester
	Voltage Transformer
	Neutral
	Tri-Phase Oil-Immersion Transformer
	SF-6 Gas Insulated To Charge Transformer With Safety Relay



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Interconnection Arrangement
For Dispersal of Electric Energy/Power from the
Generation Facility/Thermal Power Plant

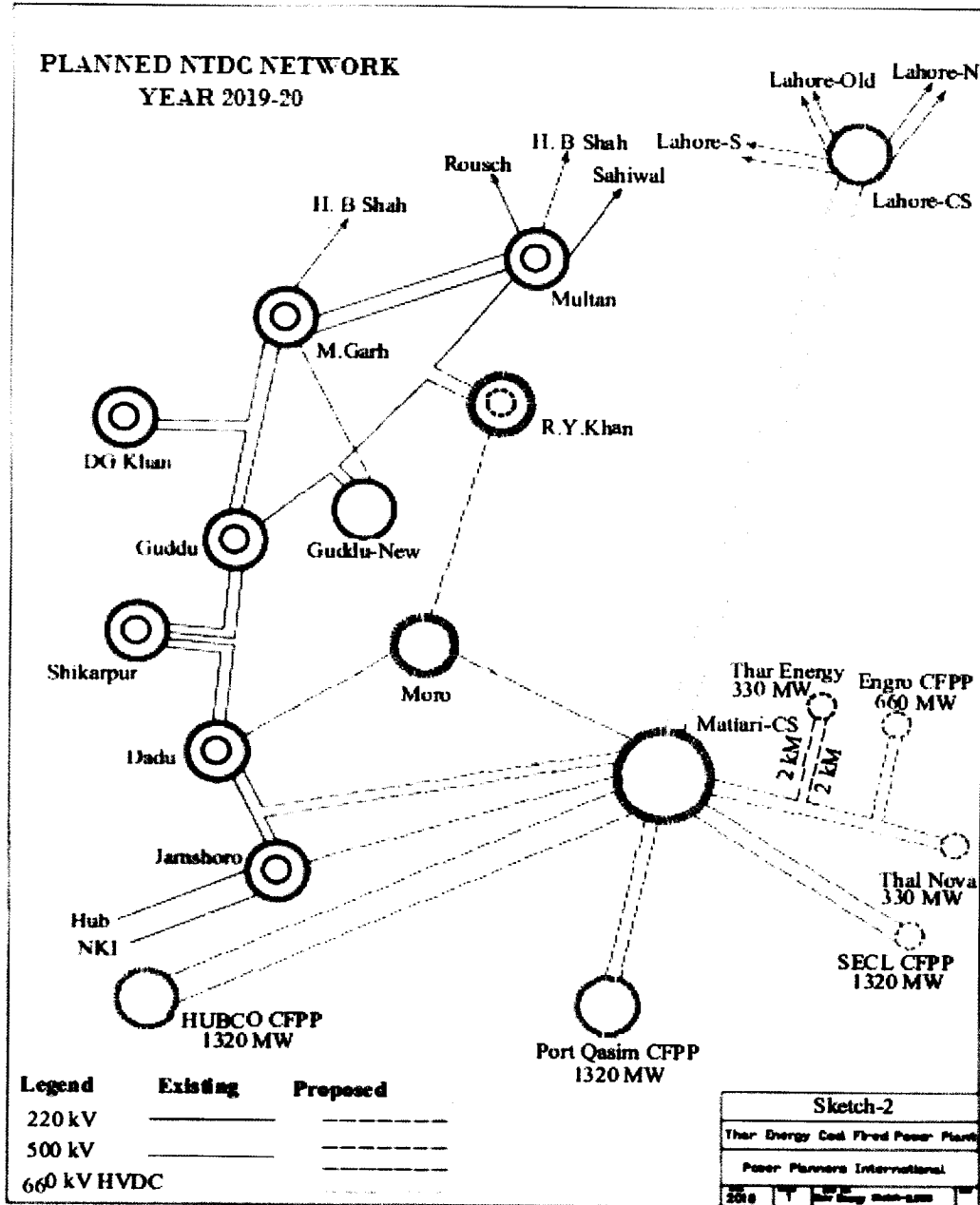
The electric power from the coal based generation facility/Thermal Power Plant of Thar Energy Limited (TEL) will be dispersed to the National Grid.

(2). The Interconnection Facilities (IF)/Transmission Arrangement (TA) for supplying to National Grid from the above mentioned generation facility/Thermal Power Plant shall be at 500 KV level. The Interconnection/Dispersal Arrangement will be consisting of a 500 kV Double Circuit (D/C) transmission line (Measuring about 5 KM on Quad-bundled Araucaria conductor) for making In/Out of one circuit of 500 KV D/C Engro Thar-Matiari transmission line connecting the generation facility/Thermal Power Plant of TEL with the National Grid.

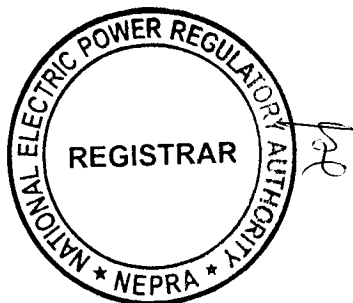
(3). Any change in the above mentioned IF/TA for dispersal of electric power as agreed by the Licensee and the Power Purchaser shall be communicated to the Authority in due course of time.



Schematic Diagram of Interconnection Arrangement for Dispersal of Power from the Generation Facility/Thermal Power Plant



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**Details of
 Generation Facility/Thermal
 Power Plant**

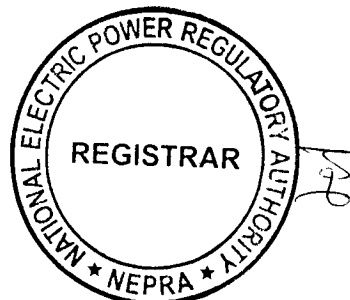
(A). General Information

(i).	Name of Company/Licensee	Thar Energy Limited
(ii).	Registered/Business Office of the Company	11 th Floor, Ocean Tower, Block-9, Main Clifton Road, Karachi
(iii).	Location of the Generation Facility	Thar Coal Fields Block-II, Tehsil Mithi, District Tharparkar, Sindh Province
(iv).	Type of Generation Facility	Sub-critical, CFB technology, 1x330MW Thermal Coal Fired Power Plant based on indigenous (lignite) Coal of Thar Block-II

(B). Plant Configuration

(i).	Installed Capacity of the Generation Facility	330.00 MW	
(ii).	Technology of the Generation Facility	Sub-critical CFB technology 1x330MW Thermal Coal Fired Power Plant	
(iii).	Number of Units/Size (MW)	1 x 330 MW	
(iv).	Unit Make/Model/Type & Year of Manufacture Etc.	Boiler	Sub-critical Circulating Fluidized Bed Boiler with one reheat and balanced draft furnace/Make G.E. (ALSTOM)
		Steam Turbine	Sub-critical, once-reheat, tandem compound, condensing steam turbine/Make: G.E. (ALSTOM)
		Generator	330 MW hydrogen cooled generator/Make: GE (ALSTOM)

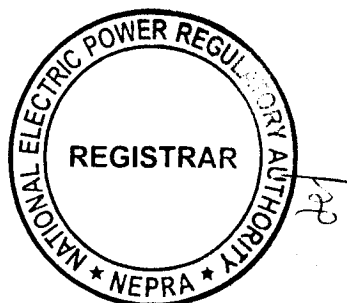
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(v).	COD of the Generation Facility (Expected)	March 01, 2020
(vi).	Expected Useful Life of the Generation Facility From COD	30 years

(C). Fuel/Raw Material Details

(i).	Primary Fuel	Indigenous Coal from Thar Block-II Coal fields	
(ii).	Start-up Fuel	High Speed Diesel (HSD)	
(iii).	Fuel Source for each of the above (i.e. Imported/Indigenous)	Primary Fuel: Lignite/Sub-Bituminous Coal from Thar Block-II Start-up: Indigenous/Imported	
(iv).	Fuel Supplier for each of the above	Primary Fuel	Start-Up Fuel
		SECMC (Thar Block-II)	PSO / Shell / Bakri Trading Company Ltd
(v).	Supply Arrangement for each of the above	Primary Fuel	Start-Up Fuel
		Trucking (Mine mouth Plant)	Oil tankers
(vi).	No of Storage Bunkers/Tanks/Open Yard	Primary Fuel	Start-Up Fuel
		One Open Rectangular Yard	Two Tanks
(vii).	Storage Capacity of each Bunkers/Tanks/ Open Yard	Primary Fuel	Start-Up Fuel
		30 days	2 x 300 m ³
(viii).	Gross Storage	Primary Fuel	Start-Up Fuel
		187,500 ton (approx.)	600 m ³



(D). Emission Values

		Primary Fuel	Start-Up Fuel
(i).	SO _x (mg/Nm ³)	< 850	N/A
(ii).	NO _x (mg/Nm ³)	< 510	N/A
(iii).	CO ₂ %	To be provided later	N/A

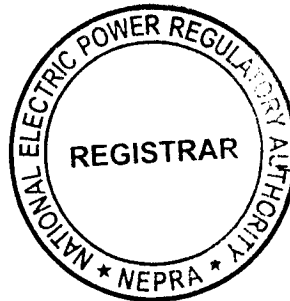
(E). Cooling System

(i).	Cooling Water Source/Cycle	LBOD water in closed cooling water cycle
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(F). Plant Characteristics

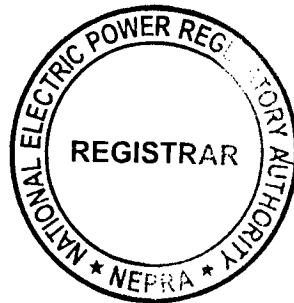
(i).	Generation Voltage	20 ~ 22 kV
(ii).	Frequency	50 Hz
(iii).	Power Factor	0.8 (lagging) / 0.9 (leading)
(iv).	Automatic Generation Control (AGC) (MW control is the general practice)	Yes
(v).	Ramping Rate (MW/min)	0.5-1% rated load (3.3-6.6MW/Minute). This figure is indicative and will be confirmed after engineering design of the plant
(vi).	Time required to Synchronize to Grid (Hrs.)	5 minutes. This figure is indicative and will be confirmed after engineering design of the plant

LSA



SCHEDULE-II

The Installed/ISO Capacity (MW), De-Rated Capacity at Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity at Mean Site Conditions (MW) of the Generation Facilities of Licensee are given in this Schedule



SCHEDULE-II

(1).	Total Installed Capacity of the Generation Facility	330.00 MW
(2).	De-rated Capacity of the Generation Facility at Reference Site Conditions	330.00 MW
(3).	Auxiliary Consumption of the Generation Facility	29.70 MW
(4).	Total Net Capacity of the Generation Facility at Reference Site Conditions	300.30 MW

Note

All the above figures are indicative as provided by the Licensee. The Net Capacity available to Power Purchaser for dispatch will be determined through procedure(s) contained in the Power Purchase Agreement or any other Applicable Document(s).

