National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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Registrar

No. NEPRA/R/DL/LAG-409/ 2500-05 February 15, 2018

Mr. Ahad Khan Cheema
Chief Executive Officer,
Punjab Thermal Power (Private) Limited,
1st Floor, 7C-1, Gulberg III,
Lahore.

Subject: **Generation Licence No. IGSPL/97/2018**
Licence Application No. LAG-409
Punjab Thermal Power (Private) Limited (PTPPL)

Reference: PTPPL's application vide letter dated July 26, 2017 (received on July 27, 2017)

Enclosed please find herewith Generation Licence No. IGSPL/97/2018 granted by National Electric Power Regulatory Authority (NEPRA) to Punjab Thermal Power (Private) Limited (PTPPL), 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 (IGSPL/97/2018)

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15-02-18

(Syed Safeer Hussain)

Copy to:

1. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
2. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
3. Chief Executive Officer, Faisalabad Electric Supply Company Limited, Abdullahpur, Canal Bank Road, Faisalabad.
4. Managing Director, Private Power and Infrastructure Board (PPIB), 50-Nazimuddin Road, Sector F-7/4, Islamabad.
5. Director General, Environment Protection Department, Government of Punjab, National Hockey Stadium, Ferozpur Road, Lahore.

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Punjab Thermal Power (Private) Limited for the Grant of Generation Licence

February 15, 2018
Case No. LAG-409

(A). Background

(i). In order to reduce the demand-supply gap in the country, the Govt. of Pakistan (GoP) has initiated a number of projects. These projects include not only the conventional fossil fuel but also Renewable Energy (RE) projects. In view of the continued shortage of electric power in the country, the Cabinet Committee on Energy (CCoE) of GoP in its meeting held on June 06, 2017 approved a new electric power project for implementation through Govt. of the Punjab (GoPb).

(ii). In consideration of the above, the GoPb decided to set up a Re-Gasified Liquefied Natural Gas (RLNG) based generation facility/Thermal Power Plant in district Jhang in the province of Punjab. In order to implement the project, GoPb incorporated a special purpose vehicle (SPV) in the name of Punjab Thermal Power (Private) Limited (PbTPPL) and decided to approach the Authority for grant of the generation licence.

(B). Filing of Application

(i). PbTPPL submitted an application on July 27, 2017 for grant of the generation licence 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").

(ii). The Registrar examined the submitted application to confirm its compliance with the Licensing Regulations and observed that the application

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lacked some of the required information/documentation. Accordingly, PbTPPL was directed to submit the missing information/documentation and the same was received on September 08, 2017. The Authority considered the matter and found 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 27, 2017 for consideration of 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. Accordingly, notices were published in one (01) Urdu and one (01) English newspapers on September 29, 2017.

(iii). In addition to the above, the Authority also approved a list of stakeholders for seeking their comments for the assistance of the Authority in the matter in terms of Regulation-9(2) of the Licensing Regulations. Accordingly, letters were sent to different stakeholders as per the approved list on September 29, 2017, soliciting their comments for assistance of the Authority.

(C). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from five (05) stakeholders. These included Petroleum Division of Ministry of Energy (PDMoE), Faisalabad Electric Supply Company Limited (FESCO), Anwar Kamal Law Associate (AKLA), Punjab Power Development Board (PPDB) and Sui Northern Gas Pipelines Limited (SNGPL). The salient points of the comments offered by the said stakeholders are summarized in the following paragraphs: -

(a). PDMoE submitted that it has allocated 200 MMCFD of RLNG to PbTPPL for the project on "Take or Pay" basis subject to certain conditions including (a). providing a firm guarantee in the form acceptable to the RLNG supplier; (b). executing a Gas Sales and Purchase Agreement (GSPA); (c). the Take or Pay quantities and obligations related thereto the Sales and Purchase Agreement (SPA) for RLNG would be reflected in the

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GSPA; (d). the price of RLNG would be as per approval of the ECC of the Cabinet for supply of RLNG to power sector or as notified by OGRA/PSO/other nominated entity; (e). the company would obtain Letter of Intent (LoI)/Letter of Support (LoS)/Implementation Agreement (IA)/Power Purchase Agreement (PPA) from PPIB as per the policies of the GoP. In consideration of the said, PDMoE stated that the Authority may consider the above submitted comments during the processing of the application of PbTPPL;

(b). FESCO commented that it has no reservation to grant of the generation licence to PbTPPL. In case the interconnection is at 132 kV the cost may be borne by Central Power Purchasing Agency (Guarantee) Limited (CPPAG) or National Transmission and Despatch Company Limited (NTDC) being the ultimate power purchaser;

(c). AKLA in its comments highlighted various issues including (a). holding of public hearings during processing of applications for grant of the generation licence; (b). the determinations of the Authority for grant of the generation licence must deliberate various issues including location of the generation facility, fuel, selection of machines and their efficiency, interconnection arrangement and least cost generation plan etc.; (c). the Economic Merit Order (EMO) should be based on total cost of electric power instead of fuel cost component; (d). the existing liquid fuel and natural gas based generation facilities are underutilized then why new projects are being set up? (e). setting up of new generation facilities is justified only in a competitive environment without any long term contracts and commitment of payment i.e. "Take or Pay" arrangement; (f). addition of more generation facilities without any proper justification may result in surplus situation; (g). must run wind

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and solar generation facilities are operated in violation of the EMO; (h). approval of CCI may be obtained for projects being set up by the Provincial Governments for which allocation of the fuel and/or its transportation/transmission falls in the ambit of the Federal Government; (i). projects not falling in the National Least Cost Generation Plan but being pursued by the Provincial Governments may be considered by CCI to maintain provincial harmony; (j). instead of setting up costlier new generation facilities, efforts should be made to utilize the available generation capacity to its full; (k). the new generation project should only be set up as per real need; (l). efforts should be made to encourage investors to set up generation facilities in a competitive power market;

(d). PPDB commented that the salient features of the proposed thermal power plant/project have been examined and it has been observed that it will have a greater net efficiency (of 61.16%) and higher annual availability factor (of 92%). Further, the proposed project will have an early gestation period visualized by the company. In view of the said, the Authority is requested for favorable consideration of the application of PbTPPL under the relevant provisions of the NEPRA Act; and

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(e). SNGPL submitted that PDMoE has allocated 200 MMCFD RLNG for the project therefore, it has no objection to grant of the generation licence to PbTPPL.

(ii). The Authority examined the above comments of the stakeholders and in view of the observations of PDMoE, FESCO and AKLA it was considered appropriate seeking perspective of PbTPPL. On the observations of PDMoE, the project company submitted that it would provide a firm guarantee to the fuel supplier, execute the GSPA within the requisite timeline, incorporate relevant "Take or Pay" clauses, accept RLNG pricing as determined by the relevant

authority and would obtain the required concessional documents (LOI, PPA or IA etc.) in line with the relevant policies. Regarding the observations of FESCO, the project company i.e. PbTPPL confirmed that interconnection will be at 220 KV and will be constructed and managed by NTDC.

(iii). On the various observations of AKLA, the company submitted a detailed reply. About holding of public hearing for the grant of generation licence cases, PbTPPL submitted that the Authority had been holding public hearings for cases pertaining to grant of the generation licence and also had been deliberating on issues *inter alia* pertaining to selection of machines, fuel, efficiency and location etc. In this regard, PbTPPL referred to the cases of Quaid-e-Azam Thermal Power (Pvt.) Limited and National Power Parks Management Company Limited for their Bhikki, Balloki and Haveli Bahadur Shah power plants.

(iv). Regarding the EMO and setting of new plants, PbTPPL clarified that under the current regime, per unit electricity cost is a sum of (i). capacity payment price, and (ii). energy payment price. The capacity payments are a smaller portion of the total per unit cost. Fuel cost, which is the larger portion, is completely passed through item in the tariff. Simple cost of fuel does not determine the per unit electricity cost as it is a product of fuel cost with efficiency of the power plant. It was stated that if the older generation plants with degraded efficiency ratings of 35% (majority of IPPs) to 57% (few IPPs) are operated only in consideration of capacity payments, the consumer will be made worse-off as per unit electricity cost will increase. New power plants of high efficiency, such as that of PbTPPL, having efficiency of 61.16% or more, when operated as base load power plant, will result in cheaper per unit electricity for the consumer while simultaneously reducing the power outages. It was stated that PbTPPL has achieved lowest known per MW EPC cost for the project along with one of the highest efficiencies ever achieved in the country. The same would lead to lower capacity and energy payments, eventually contributing to the lowering of the basket tariff to the consumer. The plant is located near the load center, and is based on the latest and most efficient state of the art technology and does not

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pose any environmental hazards. Furthermore, it will be the latest and most efficient power generation plant in the country and CPPA-G has also provided its consent to purchase power from this plant.

(v). Regarding the "Take or Pay" arrangement, PbTPPL submitted that the said arrangement under a long term PPA is envisaged in the Power Generation Policy, 2015 (the "Power Policy") as approved by the GoP and CCI, is completely compliant legally and in terms of the Power Policy. Further, it was stated that the "Take and Pay" regime has only been allowed/made applicable for either short-term IPPs or captive power plants. It was claimed that financing from the lenders, as envisaged under the Power Policy, would not be possible if a "Take and Pay" methodology is adopted.

(vi). About the suggestion that the power plants be operated under the "Take and Pay" regime in a competitive power market, it was submitted that as observed from global practice, it is only possible once the market for power generation, distribution and fuel supply etc. are deregulated. Further, it was also submitted that contention of AKLA that the Authority should develop a comprehensive plan for the induction of new power plants and retirement of existing power plants is misconceived. The said planning function rests with the GoP. The company stated that its application for grant of the generation licence is required to be perused and evaluated in light of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 (the "Generation Rules") and the Licensing Regulations. The comments made by AKLA on the application for grant of the generation licence filed by PbTPPL/the Applicant, do not contain or raise any concern with regard to the requirements of the Generation Rules or the Licensing Regulations as such hence, do not bear any impact.

(vii). The Authority examined the above submissions of PbTPPL on the comments of stakeholders and considered it appropriate to process the generation licence application of PbTPPL as stipulated in the Licensing Regulations and the Generation Rules.

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(D). Evaluation/Findings

(i). The Authority has examined the submissions of PbTPPL including the information provided in its application for grant of the generation licence. The Authority has also considered the issued LoI, Feasibility Study of the project, Letter of Support (LoS), GIS, provisions of the relevant Power Policy and the relevant rules & regulations.

(ii). The main sponsors of the project is the GoPb which has decided to set up RLNG based generation facility/Thermal Power Plant near the town of Haveli Bahadur Shah, district Jhang, in the province of Punjab. In order to undertake the project, GoPb has incorporated the SPV in the name of PbTPPL under Section-16 of the Companies Act 2017 (XIX of 2017) having Corporate Universal Identification No. 0109152, dated June 08, 2017. The registered/business office of the company is located at 7-C1, Gulberg-III, Lahore in the province of Punjab. According to its Memorandum of Association, the principle line of business of the company is to establish, construct and maintain a 1200 MW RLNG based power plant near load centers in the province of Punjab. It is pertinent to mention that the main sponsor of the Project (i.e. GoPb) already owns and operates a RLNG based Combined Cycle Power Plant (CCPP) at Bhikki, in District Sheikhupura in the province of Punjab. The Authority has observed that GoPb has committed to fund the equity part of the project whereas the debt part of the project is to be provided by consortium of financial institutions/commercial banks including National Bank of Pakistan, Habib Bank Limited, United Bank Limited and the Bank of Punjab. In view of the said, the Authority is of the considered view that the sponsors of the project have financial and technical expertise to develop the project.

(iii). As explained above, the Project will be located near the town of Haveli Bahadur Shah, Tehsil Shorkot, district Jhang in the province of Punjab. In this regard, the sponsors of the project have acquired around 170 acres of land for the project. The site of the project is located on main Jhang-Shorkot road at a distance of around 25.00 KM from the city of Jhang and is well

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connected by road and railway line and is reasonably located to the National Grid. In view of the said, the Authority considers that the selected site has the required basic attributes which can justify the sitting of a generation facility/Thermal Power Plant.

(iv). The proposed generation facility/Thermal Power Plant will be a CCPP consisting of two (02) gas turbines, two (02) heat recovery steam generators (HRSGs), One (01) steam turbine and three (03) generators. In this regard, PbTPPL has confirmed that Siemens SGT5-8000H gas turbines have been selected for the project through an international competitive bidding (ICB) process. It is pertinent to mention that the selected Gas Turbine is top of the line machine and is offering the highest efficiency of 61.16% at mean site conditions.

(v). The above combination of gas turbine (2 x 420.00 MW at ISO conditions) and steam turbine (1x438.70 MW at ISO Conditions) will result in a total installed capacity of the CCPP to 1278.70 MW and will have an output of 1263.20 MW at mean site conditions. The net output of CCPP at mean site conditions will be 1242.70 MW after allowing an auxiliary consumption.

(vi). As explained in the preceding paragraphs, the company has been allocated 200.00 MMCFD imported RLNG for the project which will be sufficient to meet its fuel requirements for its operation. In this regard, the project company has confirmed that it is negotiating a GSPA with Pakistan LNG Limited which will act as a one-window facility for import of LNG, arrange its storage and ultimate transportation of the same via pipeline to the site of the project.

(vii). The water requirements of the CCPP are much lesser than conventional steam turbine power plant. In this regard, it has been confirmed that water from Trimmu-Sidhnai Link Canal will be drawn to meet with the requirements of the proposed CCPP;

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(viii). About the GIS, it is clarified that the same has been carried out by GM (Planning) NTDC. According to the said study, the electric power from the proposed generation facility/Thermal Power Plant of PbTPPL will be dispersed to the system of NTDC at 220 and 132 kV voltage levels. The interconnection/dispersal arrangement will be consisting of (a). a 220 kV Double Circuit (D/C) transmission lines, approx. 35 km in length on twin-bundled ACSR rail conductor from the generation facility/Thermal Power Plant of PbTPPL to 220 kV grid station of T.T. Singh; (b). 1 x 250 MVA, 220/132 kV transformer at 220 kV T.T. Singh grid station; (c). a 132 kV D/C transmission line, approx. 15 km in length on ACSR rail conductor, from 220 kV T.T. Singh grid station to T.T. Singh (Old); and (d). 220 kV D/C transmission line, approx. 125 km in length on twin-bundled ACSR rail conductor, from 220 kV Lalian grid station to 220 kV T.T. Singh grid station by making an in-out of one circuit of 220 kV circuit at the generation facility/Thermal Power Plant. It is pertinent to mention that NTDC through its letter dated November 28, 2017 has also endorsed the above mentioned arrangement;

(ix). The sponsors have confirmed that the proposed generation facility/Thermal Power Plant will comply with the environmental standards of the country. Further, PbTPPL has provided a copy of the NOC issued by EPA, Punjab confirming that the project will be compliant with National Environmental Quality Standards (NEQS) and the same will be followed.

(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. In the particular case under consideration, the Authority has observed that PbTPPL 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 facility/ power plant satisfying the provisions of Rule-3(2) and Rule-3(3).

(xi). The Rule-3(5) of the Generation Rules stipulates the least cost option criteria necessary for the grant of generation licence which includes (a)

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sustainable development or optimum utilization of the renewable energy or non-renewable energy 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 considers that the proposed project will result in optimum utilization of the imported LNG for generation of an environment friendly electric power. The Authority has observed that the sponsors of the project had carried out of a competitive bidding process which has resulted in lowest per MW project cost being installed in the country. In view of the said, the Authority through its determination No. NEPRA/TRF-408/PTPL-2017/20789-20791, December 26, 2017 determined a tariff which works out to be U.S. ¢ 6.5374/kwh which is very competitive and is on the lowest side.

(xiii). As explained in the preceding paragraphs above, the sponsors of the project carried out the GIS which conclude 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 issue for the provision of transmission and interconnection facilities. The Authority has observed that CPPA-G and NTDC has included the project in its mid and long-term forecasts for additional capacity requirements. In view of the said, the Authority is of the considered view that the project of PbTPPL fulfills the eligibility

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criteria for grant of generation licence as stipulated in the NEPRA Act, rules and regulations and other applicable documents.

(xiv). The Authority has considered the comments of the stakeholders and the rejoinder filed by PbTPPL in the matter. It has been observed that apart from AKLA, rest of the stakeholders have supported grant of the generation licence to the company. Regarding the observations of AKLA which has raised different issues including (a). holding of public hearings by the Authority for applications pertaining to grant of the generation licence; (b). the determinations of the Authority for the generation licence must deliberate various issues including selection of location, fuel, machines, efficiency, interconnection arrangement and least cost generation plan etc.; (c). the EMO should be based on total cost instead of fuel cost component only; (d). the existing generation facilities are underutilized then why new projects are being set up? (e). future projects may only be set up in competitive mode without any long term contracts/ commitments; (f). must run wind and solar generation facilities are operated in violation of the EMO; (g). approval of CCI for projects of the Provincial Governments; (h). projects not falling in the National Least Cost Generation Plan but being pursued by the Provincial Governments may be considered by CCI to maintain provincial harmony; (j). instead of setting up costlier new generation facilities, efforts should be made to utilize the available generation capacity to its full; (k). the new generation project should only be set up as per real need.

(xv). The Authority observes that AKLA has been raising these issues on a consistent basis. In this regard, a comprehensive reply on the issues of (a). underutilization of plants; (b). capacity payment without taking electricity from power plants; and (c). addition of RE project having high tariff was sent to AKLA through letter no. NEPRA/SAT-I/TRF-100/7060, dated December 27, 2016. The Authority reiterates its earlier findings and observations given in the aforementioned letter in the matter and is of the considered opinion that in fact there still persists a supply-demand gap resulting in load-shedding and load management. The aforementioned is strengthened from the fact that the proposed generation facility/ Thermal Power Plant of

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PbTPPL is included in the future expansion plan of NTDC. Regarding the observations of AKLA that the Authority must hold public hearings as part of the processing of applications pertaining to grant of the generation licence, reference is made to the provisions of Rule 3(4) of the Generation Rules wherein it is stated that holding a public hearing in the licensing matter is not a mandatory requirement under the law. In this regard, the Authority further clarifies that hearings are held whenever the issues involved in the matter warrant so.

(xvi). About the observation of AKLA that determination for the generation licence must deliberate various issues including selection of location, fuel, machines, efficiency, interconnection arrangement and least cost generation plan etc., the Authority clarifies that that such issues are discussed in its determination for the generation licence and in this regard various determinations pertaining to local/imported coal, LNG, wind, solar and other technologies may be referred wherein such issues had been adequately discussed and addressed.

(xvii). Regarding the comments that EMO should be based on total cost instead of fuel cost component only, the Authority considers that it had been directing National Power Control Center (NPCC) to follow the EMO in letter and spirit without any exception. However, EMO is based on variable cost and is always prepared on proper algorithm as per the international practices. In this regard, NTDC and NPCC had confirmed that EMO as per the international standard is being maintained and followed therefore, the said observations of AKLA does not merit any further consideration.

(xviii). AKLA has raised the issue of under-utilization of power plants and availability of surplus energy in the system. Further, AKLA has observed that despite the surplus generation capacity why new projects are being set up? In this regard, the Authority has observed that AKLA has assumed the utilization of the dependable capacity for each of the power plant to the tune of 100% which is practically not possible. A power plant is required to undergo routine as well as forced outages due to which power plant cannot operate with 100% capacity and plant factor. Further, there are a number of

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other constraints which affect the plant factor of a power plant including fuel constraints, load requirements, transmission system constraints and system disturbances etc. The Authority continuously monitors the situation and also seeks clarification and reasons of underutilization from licensees, if required. In this regard, a number of advisories have been issued to Ministry of Energy and legal actions had been taken to ensure effective utilization of the available generation resources. However, it is worth mentioning that the Authority cannot indulge itself in the routine operational matters of the licensees and has directed NPCC of NTDC for optimal utilization of available generation capacity. Further, on a number of occasions NPCC has also confirmed that maximum generation is being obtained from all the power plants duly considering their availability, transmission system constraints, fuel constraints and the load requirements etc. In consideration of the above, the Authority has observed that due to supply-demand in the country, the proposed generation facility/Thermal Power Plant is already included in the future plans of CPPA-G and NTDC.

(xix). With respect to the observations of AKLA regarding tariff on take and pay basis, the Authority would like to highlight that in order to attract investment of private parties in the power sector of the country, GoP has formulated various power policies where various incentives have been allowed to the investor. Almost all the announced power policies including currently in vogue, allow a two-part tariff structure with the option of take or pay to make the projects bankable. In view of the above, the Authority considers that the relevant observations of AKLA stand addressed.

(E). Grant of Generation Licence

(i). The sustainable and affordable energy/electricity is a key prerequisite for socio-economic development of any country. In fact, the economic growth of any country is directly linked with the availability of safe, secure, reliable and cheaper supply of energy/electricity. In view of the said reasons, the Authority is of the considered opinion that for sustainable

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development, all types of power generation resources including local as well as imported must be developed on priority basis.

(ii). The existing energy mix of the country is heavily skewed towards the lower efficiency thermal power plants, mainly operating on imported residual furnace oil. The use of imported furnace oil in lower efficiency generation facilities/Power Plants not only creates pressure on the precious foreign exchange reserves of the country but is also a serious environmental concern. Therefore, in order to achieve sustainable development, it is imperative that high efficiency generation facilities/power plants are given priority for power generation and their development is encouraged. In view of the said, the CCI approved the Power Policy which envisages rationalizing the energy mix and reducing the demand-supply gap through different fuels. In consideration of the said, the Authority is of the view that the proposed project of PbTPPL is consistent with provisions of the Power Policy.

(iii). As explained in the preceding paragraphs above, PbTPPL has provided the details of location, technology, size, net capacity/energy yield, interconnection arrangements, technical details and other related information for the proposed generation facility/Thermal Power Plant. In this regard, the Authority has observed that sponsors of the project have acquired around one hundred seventy (170) acres of land for setting up the generation facility/ Thermal Power Plant. The said details have been incorporated in Schedule-I of the proposed generation licence. In this regard, the Authority directs PbTPPL that the aforementioned land shown in Schedule-I of the generation licence, shall exclusively be used by it for the generation facility/Thermal Power Plant and PbTPPL cannot carry out any other activity on this land except with prior approval of the Authority.

(iv). The term of a generation licence under Rule-5(1) of the Generation Rules is required to match with the maximum expected useful life of the units comprised in a generating facility. According to the information provided by PbTPPL, the Commercial Operation Date (COD) of the proposed generation

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facility/Thermal Power Plant will be March 31, 2020 and it will have a useful life of more than thirty (30) years from its COD. In this regard, PbTPPL has requested that the term of the proposed generation licence may be fixed to thirty (30) years in consistent with the term of the proposed Power Purchase Agreement (PPA) to be signed with the power purchaser. The Authority considers that said submission of PbTPPL about the useful life of the generation facility/Thermal Power Plant and the subsequent request of PbTPPL to fix the term of the generation licence is consistent with international benchmarks therefore, the Authority fixes the term of the generation licence to thirty (30) years from COD of the project.

(v). Regarding the tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. As explained in the previous paragraphs above, the Authority through its determination No. NEPRA/TRF-408/PTPL-2017/20789-20791, December 26, 2017 has already determined tariff for PbTPPL. The Authority directs PbTPPL to adhere the terms and conditions of the said determination in letter and sprite without any exception. Notwithstanding the said, the Authority directs PbTPPL to charge the power purchaser only such tariff which has been determined, approved or specified by it. In this regard, the Authority has included a specific article (i.e. Article-6) in the proposed generation licence and directs PbTPPL to adhere to the provision of the said article of the generation licence without any exception.

(vi). Regarding compliance with the environmental standards, as explained above, PbTPPL has provided the NOC from EPA, Punjab. Further, PbTPPL has submitted that project will comply with the required environmental standards during the term of the generation licence. In view of the importance of the issue, the Authority has included an exclusive article (i.e. Article-10) in the generation licence, making it obligatory for PbTPPL to comply with relevant environmental standards at all times. Further, the Authority directs PbTPPL to submit a report on a bi-annual basis, confirming that operation of its generation

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facility/Thermal Power Plant is in compliance with the required environmental standards as prescribed by the concerned environmental protection agency.

(vii). In view of the above, the Authority hereby approves the grant of generation licence to PbTPPL 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 contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents.

Authority:

Syed Masood-ul-Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

13.2.2018

Tariq Saddozai
(Chairman)

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15.02.18

National Electric Power Regulatory Authority (NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. IGSPL/97/2018

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 the Generation Licence to:

PUNJAB THERMAL POWER (PRIVATE) LIMITED

Incorporated under Section-16 of the Companies Act 2017 (XIX of 2017) having Corporate Universal Identification No. 0109152, dated June 08, 2017

for its Imported Re-Gasified Liquefied Natural Gas (RLNG) based Generation Facility/Thermal Power Plant Located Near Mouza Haveli Bahadur Shah, Tehsil Shorkot, District Jhang in the Province of Punjab

(Total Installed Capacity: 1278.70 MW Gross ISO)

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

Given under my hand on this 15th day of February Two Thousand & Eighteen and expires on 30th day of March Two Thousand &Fifty.

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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 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;

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(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 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 concerned XW-DISCO and approved by the Authority, as it may be revised from time to time with necessary approval of the Authority;

(i). "FESCO" means Faisalabad Electric Supply Company Limited or its successors or permitted assigns;

(j). "Generation Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 as amended or replaced from time to time;

(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 necessary approval by the Authority;

(l). "GoP" means the Government of Pakistan acting through the PPIB which has issued or will be issuing to the Licensee a LoS for the design, engineering, construction, insuring, commissioning, operation and maintenance of the generation facility/Thermal Power Plant and has signed or will be signing an IA with the Licensee;

(m). "IEC" means the International Electrotechnical Commission or its successors or permitted assigns;

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

(o). "Implementation Agreement (IA)" means the implementation agreement signed or to be signed between the GoP and the Licensee in relation to this particular generation facility/Thermal Power Plant, as may be amended from time to time;

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(p). "Letter of Support (LoS)" means the letter of support issued or to be issued by the GoP through the PPIB to the Licensee;

(q). "Licensee" means "**Punjab Thermal Power (Private) Limited**" or its successors or permitted assigns;

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

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

(t). "Policy" means the "Power Generation Policy 2015" of GoP as amended from time to time;

(u). "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;

(v). "Power Purchaser" means CPPA-G which will be purchasing electric power from the Licensee either on behalf of all XW-DISCOs or any single XW-DISCO, pursuant to the PPA for procurement of electric power;

(w). "PPIB" means the Private Power Infrastructure Board or any other entity created for the like purpose established by the GoP to promote private sector participation in the power sector of the country to facilitate investors in establishing private power projects and related infrastructure, executes IA with sponsors of project and issues sovereign guarantees on behalf of GoP;

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(x). "SCADA System" means the supervisory control and data acquisition system for gathering of data in real time from remote locations to control equipment and conditions;

(y). "Thermal Power Plant" means a generation facility using fossil fuel for generation of electric power;

(z). "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.

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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.

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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.

Article-12
Performance Data

12.1 The Licensee shall install SCADA System or compatible communication system at its generation facility/Thermal Power Plant as well as at the side of the Power Purchaser.

12.2 The Licensee shall transmit the data for the flow of water and electric power output data of its generation facility/Thermal Power Plant to the control room of the Power Purchaser.

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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.

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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

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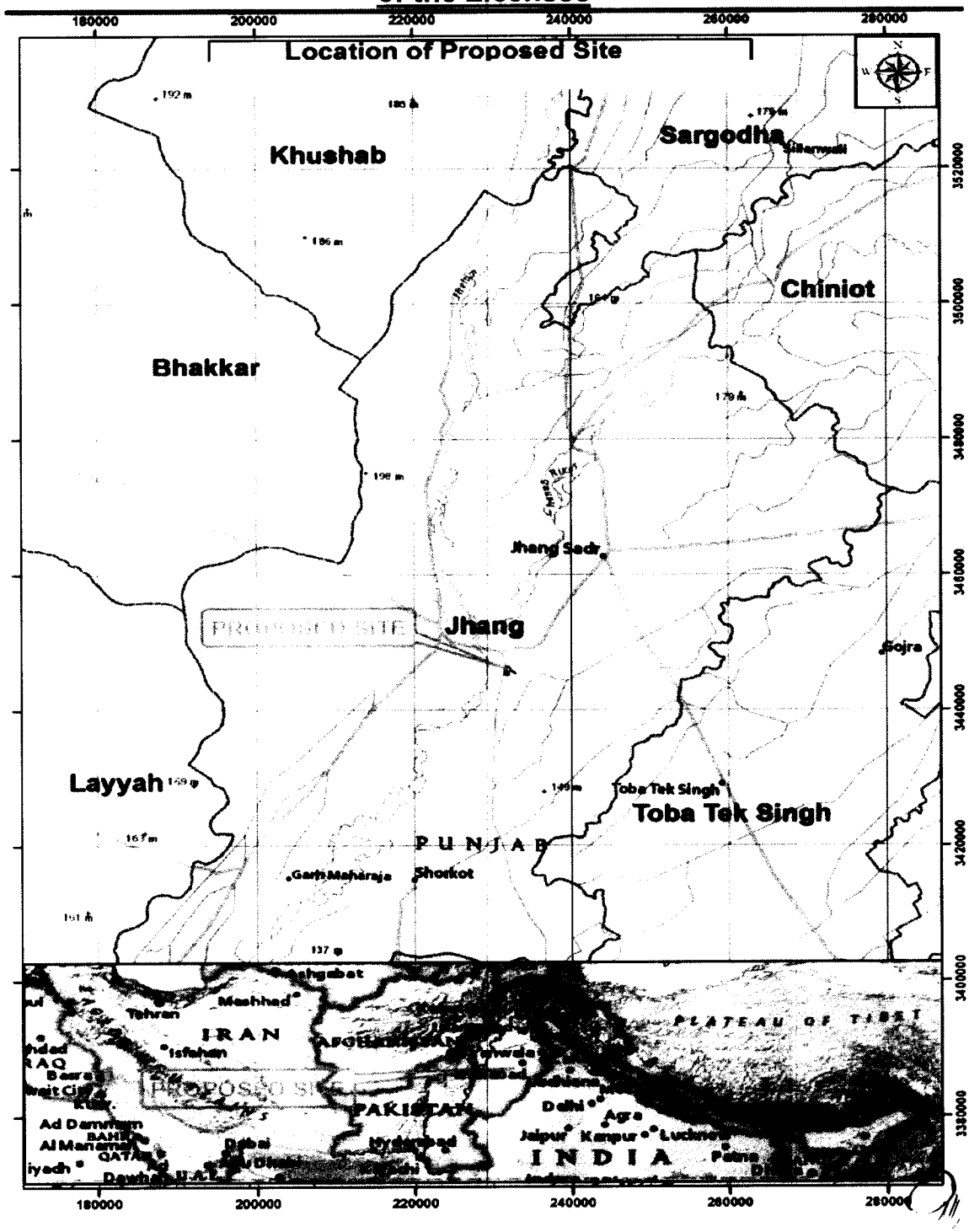
Location of the Generation Facility/Thermal Power Plant of the Licensee



UTM Coordinates

E = 231793.91, and N = 3445591.56

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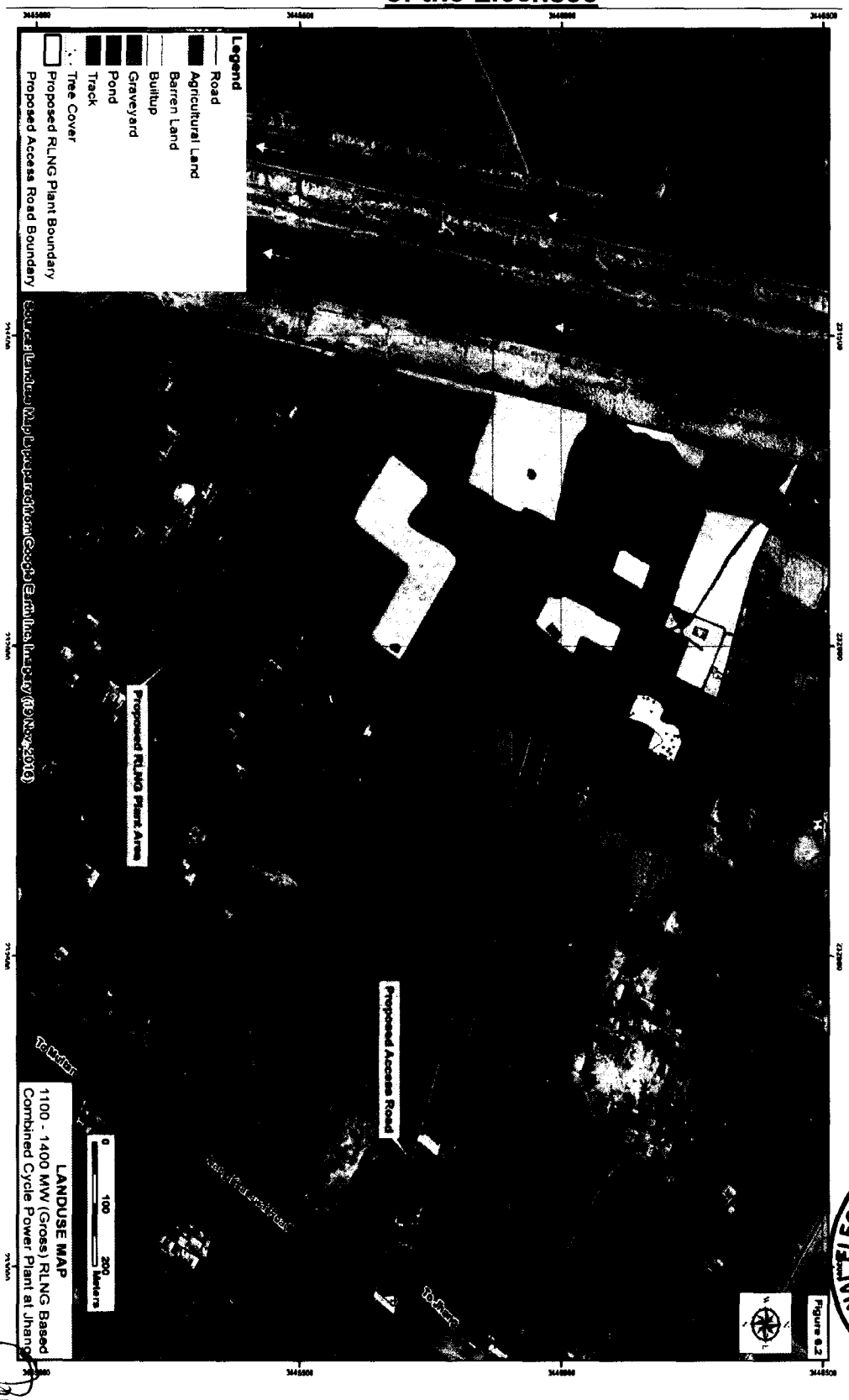
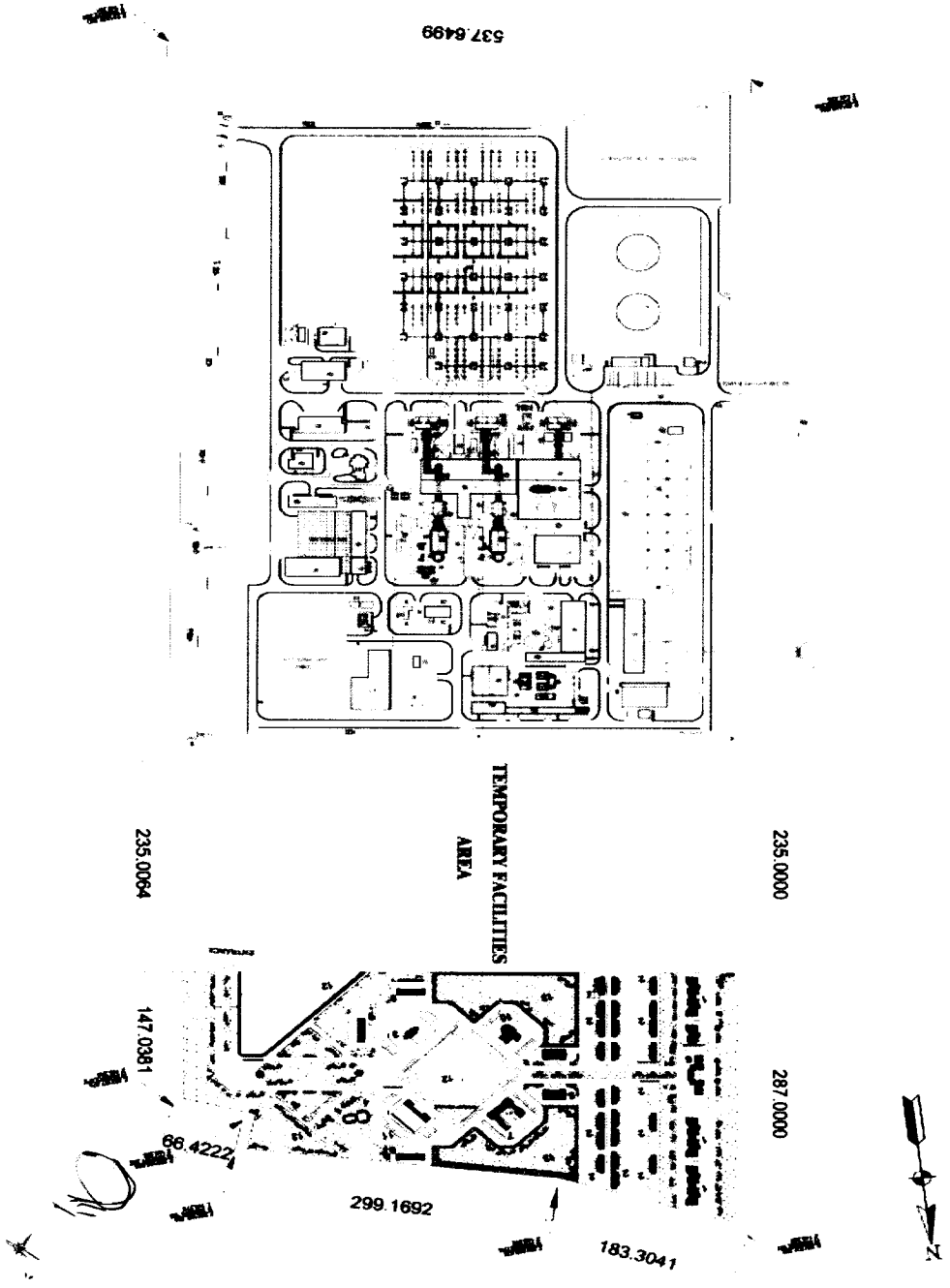
Location of the Generation Facility/Thermal Power Plant of the Licensee



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



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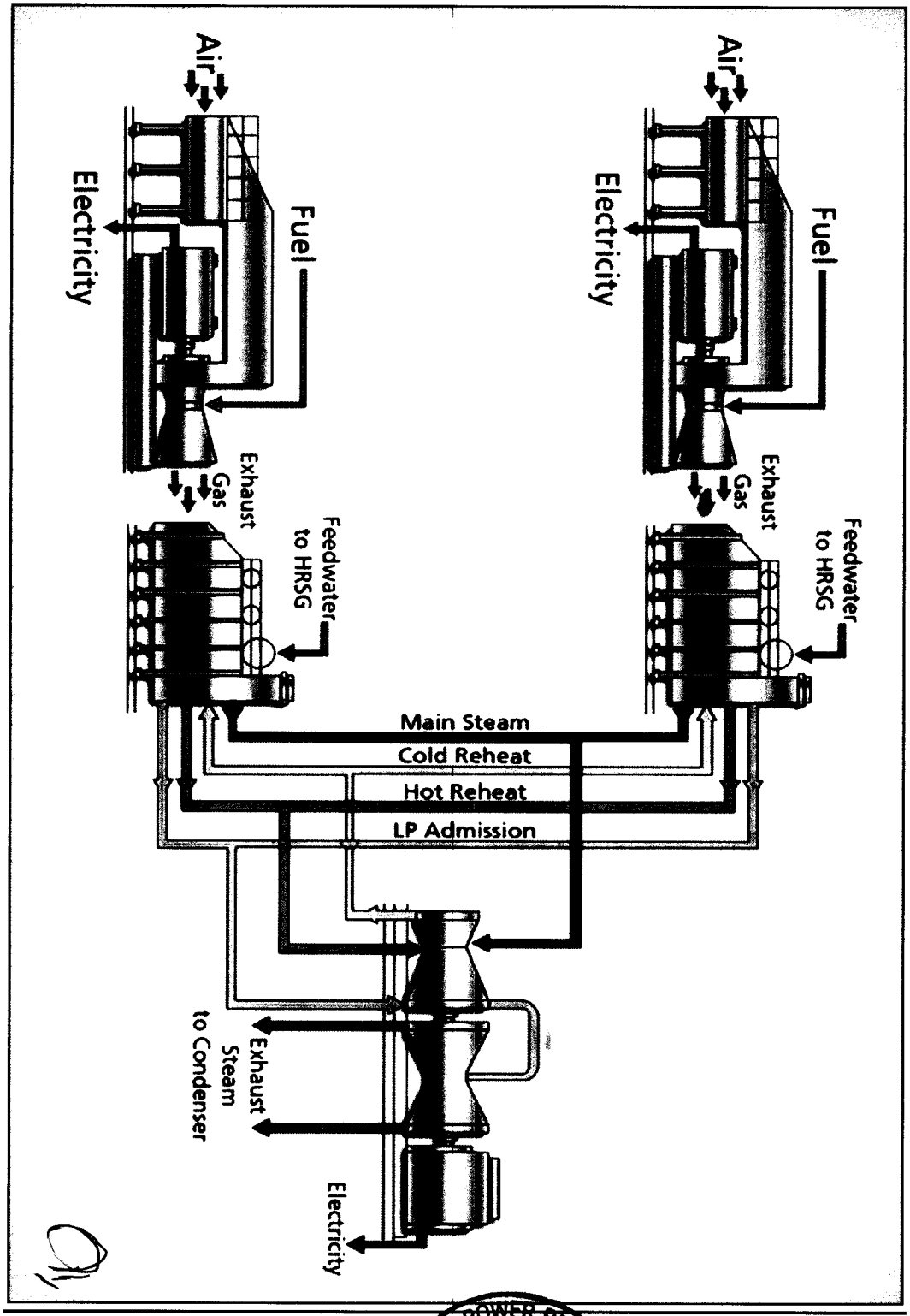
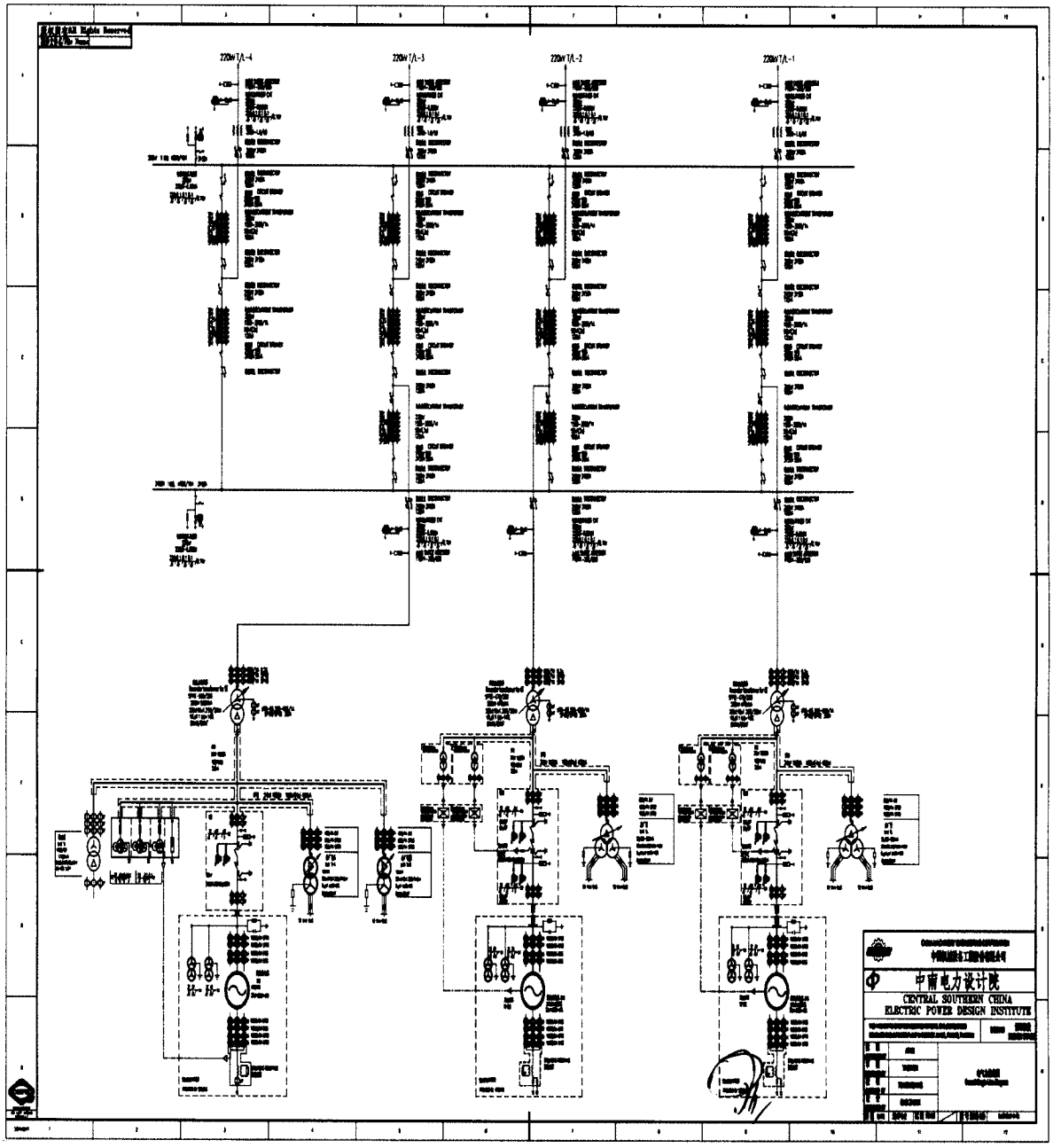
Conceptual Diagram of the Generation Facility/Thermal Power Plant of the Licensee



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



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Interconnection Facilities/ Transmission Arrangements for Dispersal of Electric Power from the Generation Facility/Thermal Power Plant

The electric power from the imported R-LNG based generation facility/Thermal Power Plant of the Licensee/ Punjab Thermal Power (Private) Limited (PbTPPL) will be supplied to the Power Purchaser by dispersing the same to the National Grid.

2. The interconnection facilities/transmission arrangements for supplying to National Grid from the above mentioned generation facility/Thermal Power Plant shall be at 220kV and 132kV levels as detailed below: -

(a). A 220 kV Double Circuit (D/C) transmission lines, approx. 35 km in length on twin-bundled ACSR Rail Conductor from generation facility/Thermal Power Plant of PbTPPL to 220 kV grid station of T.T. Singh;

(b). 1 x 250 MVA, 220/132 kV Transformer at 220 kV T.T. Singh grid station;

(c). A 132 kV D/C transmission line, approx. 15 km in length on ACSR Rail conductor, from 220 kV T.T. Singh grid station to T.T. Singh (Old);

(d). A 220 kV D/C transmission line, approx. 125 km in length on twin-bundled ACSR Rail conductor, from 220 kV Lalian grid station to 220 kV T.T. Singh grid station by making an in-out of one circuit of 220 kV circuit at the generation facility/Thermal Power Plant

3. Any change in the above mentioned interconnection facilities/transmission arrangements for dispersal of electric power as agreed by the Licensee, NTDC or the Power Purchaser shall be communicated to the Authority in due course of time.

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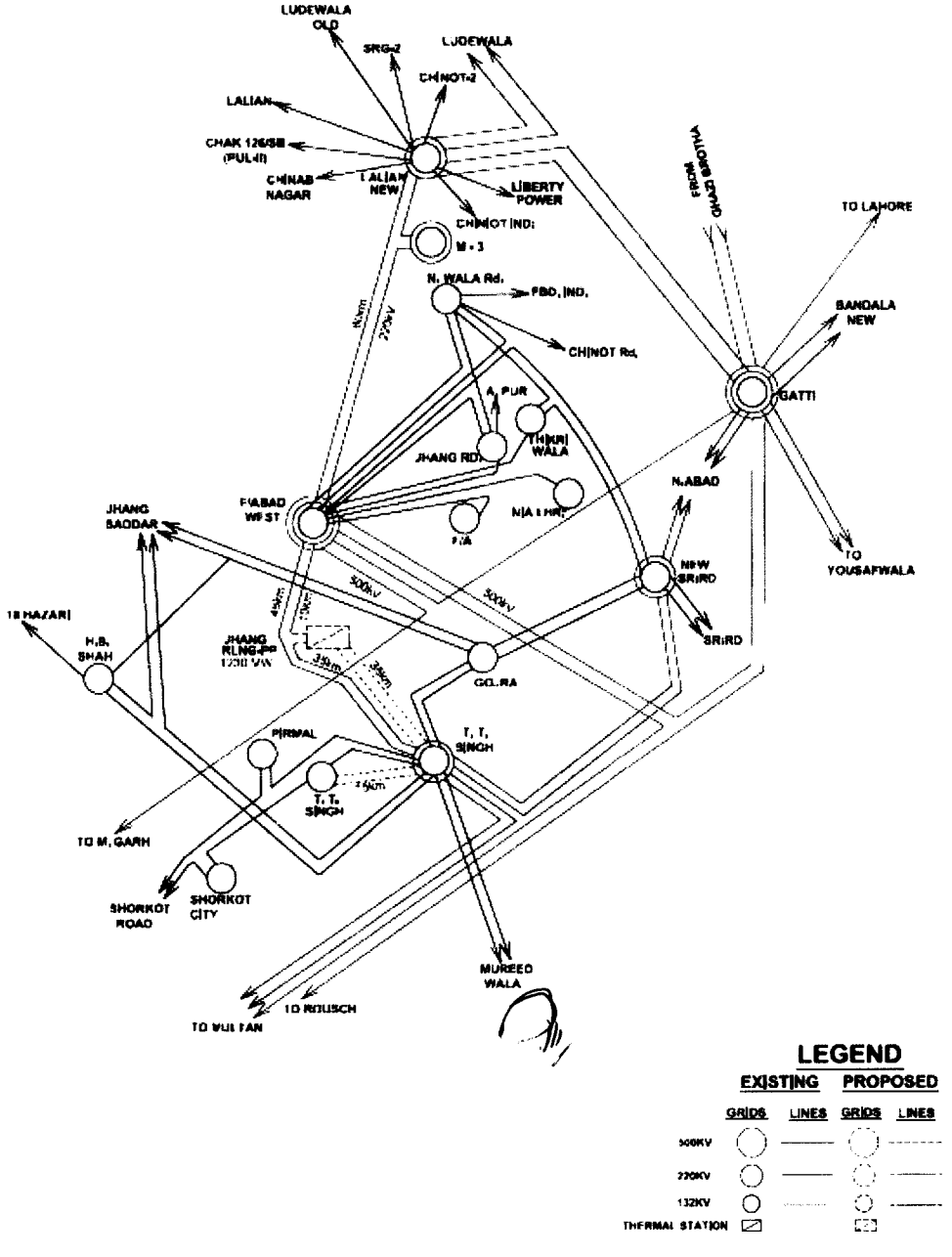
Schematic Diagram of the Interconnection Facilities/ Transmission Arrangements for Dispersal of Power from the Generation Facility/Thermal Power Plant of the Licensee



LEGEND

	EXISTING		PROPOSED	
	GRIDS	LINES	GRIDS	LINES
500KV	○	——	○	----
220KV	○	——	○	——
132KV	○	.....	○	——
THERMAL STATION	▨		▨	

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Detail of Generation Facility/Thermal Power Plant

(A). General Information

(i).	Name of Company/ Licensee	Punjab Thermal Power (Pvt.) Limited
(ii).	Registered Office	1st Floor, 7 C1, Gulberg-III, Lahore in the province of Punjab
(iii).	Business Office	-Do-
(iv).	Location of the Generation Facility/ Power Plant	Near Trimmu barrage, Mouza Haveli Bahadur Shah, District Jhang, in the Province of Punjab
(v).	Type of Generation Facility/ Power Plant	Thermal Generation Facility

(B). Configuration of Generation Facility

(i).	Type of Technology	Combined Cycle Power Plant (CCPP) having Two (02) Gas Turbines, Two (02) Heat Recovery Steam Generators-(HRSGs) and One (01) Steam Turbine	
(ii).	Number of Units/Size (MW)	2 x 420.00 MW Gas Turbine + 1 x 438.70 MW Steam Turbine (ISO conditions)	
(iii).	Unit Make/Model/Type & Year of Manufacture Etc.	Gas Turbine	Siemens SGT5-8000H
		Steam Turbine	Siemens SST5-5000
(iv).	COD of the Generation Facility/Thermal Power Plant	March 31, 2020 (Anticipated)	
(v).	Expected Useful Life of the Generation Facility/Thermal Power Plant from COD	30 years	

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(C). Fuel/Raw Material Details

(i).	Primary Fuel	Re-Gasified Liquefied Natural Gas (RLNG)	
(ii).	Back-Up Fuel	High Speed Diesel (HSD)	
(iii).	Fuel Source	Primary Fuel	Back-Up Fuel
		Imported	Imported/Indigenous
(iv).	Fuel Supplier	Primary Fuel	Back-Up Fuel
		Pakistan LNG Limited – PLL	Oil Marketing Companies (OMCs)
(v).	Supply Arrangement	Primary Fuel	Back-Up Fuel
		Pipeline	Through Oil Tankers/Bowsers
(vi).	No of Storage Tanks	Primary Fuel	Back-Up Fuel
		Not applicable	2
(vii).	Storage Capacity of each Tanks	Primary Fuel	Back-Up Fuel
		Not applicable	Approx. 20,000 m^3
(viii).	Gross Storage	Primary Fuel	Back-Up Fuel
		Not applicable	Approx. 40, 000 m^3

(D). Emission Values

		Primary Fuel	Back-Up Fuel
(i).	SO_x (mg/Nm^3)	Negligible	As per the NEQS

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(ii).	NO_x (ppm, dry, Ref. 15% O_2)	≤ 50	-Do-
(iii).	CO (ppm, dry, Ref. 15% O_2)	≤ 80	-Do-
(iv).	Particulates (mg/Nm^3)	≤ 5	-Do-

(E). Cooling System

(i).	Cooling Water Source/Cycle	Once-Through Cooling; Intake from and discharge to Trimmu-Sidhnai Link Canal for 10-11 months of the year. Cooling Towers; During canal closure period, utilization of deep well pumps as source of cooling water.

(F). Plant Characteristics

(i).	Generation Voltage	Gas Turbine	Steam Turbine
		22 KV	22KV
(ii).	Frequency	50 Hz (rated)	
(iii).	Power Factor	0.80 (lagging)-0.90 (leading)	
(v).	Automatic Generation Control (AGC)	Yes	
(vi).	Tentative Ramping Rate (MW/Min)	20 MW/min with holding time	
(vii).	Tentative Time required to Synchronize to Grid	160 Minutes	

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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

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SCHEDULE-II

(1).	Total/Gross Installed Capacity (ISO) of the Generation Facility/Thermal Power Plant	1278.70 MW
(2).	De-rated Capacity of Generation Facility/ Thermal Power Plant at Mean Site Conditions	1263.20 MW
(3).	Auxiliary Consumption of the Generation Facility/Thermal Power Plant at Mean Site Conditions	20.50 MW
(4).	Total Net Capacity of Generation Facility/ Thermal Power Plant at Mean Site Conditions	1242.70 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).

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