National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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

Registrar

No. NEPRA/R/DL/LAG-370/ 13357-64

July 31, 2017

Mr. Nasir Ahmed Malik
Chief Executive Officer,
Gugera Hydro Power Company (Private) Limited,
64 – Ahmed Block, New Garden Town,
Lahore.
Tel: 042-35851559-60

Subject: **Generation Licence No. IGSPL/87/2017**
Licence Application No. LAG-370
Gugera Hydro Power Company (Private) Limited (GHPCL)

Reference: *GHPCL's application vide letter dated October 05, 2016 (received on October 06, 2016.*

Enclosed please find herewith Generation Licence No. IGSPL/87/2017 granted by National Electric Power Regulatory Authority (NEPRA) to Gugera Hydro Power Company (Private) Limited (GHPCL) for its 3.60 MW Hydel Generation facilitiy located on Upper Gugera Branch Canal at RD 214+500, Near Nankana Sahib, District Nankana Sahib, in the province of Punjab, 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/87/2017)

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

31/07/17

(Syed Safeer Hussain)

Copy to:

1. Secretary, Ministry of Water and Power, Block – A, Pak Secretariat, Islamabad.
2. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
3. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
4. Managing Director, Punjab Power Development Board (PPDB), Energy Department 1st Floor, Irrigation Secretariat, Old Anarkali, Lahore.
5. Director General, Environment Protection Department, National Hockey Stadium, Ferozpur Road, Lahore.
6. Chief Executive Officer, Lahore Electric Supply Company Limited, 22-A, Queens Road, Lahore.
7. Chairman, Indus River System Authority (IRSA), Service Road South, 44100, Kashmir Highway, Islamabad

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Gugera Hydro Power Company (Private) Limited for the Grant of Generation Licence

July 24, 2017
Case No. LAG-370

(A). Background

(i). Pakistan is primarily an agricultural country and to fulfill the water requirements of the said sector, a number of dams, link canals and head works have been built all over the country. A significant portion of the said network is located in the province of Punjab and offers a good hydel potential for generation of clean energy.

(ii). In order to tap the available resources for power generation in the province, the Government of Punjab (GoPb) has formulated a policy titled as Punjab Power Generation Policy 2006 (the "Punjab Power Policy"). Further, GoPb has set up Punjab Power Development Board (PPDB) as one window facilitator for private sector investment in the province. In this regard, PPDB has issued Letter of Intent (LoI) to different project developers/entrepreneurs for setting up hydro power projects on canals. One such LoI has been issued to Gugera Hydro Power Company (Private) Limited (GHPCL) under the Punjab Power Policy. The LoI envisaged development of a hydropower plant on Upper Gugera Branch Canal at RD 214+000 to RD 220+750, district Nankana Sahib, in the province of Punjab.

(iii). The above mentioned LoI required GHPCL to conduct a Feasibility Study (FS) of the project to be approved by PPDB appointed Panel of Experts (PoEs). The FS was conducted and the same was approved on June 23, 2016. Accordingly, PPDB directed the company to approach the Authority for the grant of generation licence.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(B). Filing of Application

(i). GHPCL submitted an application on October 06, 2016 for the grant of 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 application to confirm its compliance with the Licensing Regulations and found the same compliant with the Licensing Regulations and submitted the matter before the Authority for admission of the application or otherwise. 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 November 10, 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. Accordingly, advertisement was published in one (01) Urdu and one (01) English newspapers on November 12, 2016 respectively.

(iii). In addition to the above, the Authority approved a list of stakeholders for seeking their comments for 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 approved list on November 16, 2016, soliciting their comments for the assistance of the Authority.

(C). Comments of Stakeholders

(i). In response to the above, the Authority received comments from seven (07) stakeholders. These included Engineering Development Board (EDB), Ministry of Industries & Production (MoI&P), Indus River System Authority (IRSA), Lahore Electric Supply Company Limited (LESCO), Irrigation Department Government of Sindh (IDGoS), Anwar Kamal Law Associates

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(AKLA) and PPDB. The salient points of the comments offered by the said stakeholders are summarized below:-

(a). EDB did not express any concern pertaining to the project however, it suggested that efforts should be made for utilization of indigenous resources;

(b). MoI&P endorsed the above comments of EDB;

(c). IRSA in its comments desired a presentation/briefing on feasibility study of the project;

(d). LESCO confirmed the vetting of grid interconnection study of the project. Further, LESCO also confirmed giving consent for purchasing power from the project;

(e). IDGoS supported the grant of generation licence subject to the condition that water of Indus river shall not be utilized for the proposed project; and

(f). AKLA highlighted different issues pertaining to the power sector of the country including (a). surplus capacity; (b). under-utilization of power plant; and (c). induction of new power plants on "Take or Pay" basis etc. Further, AKLA contested that Renewable Energy (RE) power plants are not viable financially and economically due to higher upfront tariff and "must run conditions". AKLA also questioned the induction of RE projects in the current scenario (i.e. reduction in oil prices, RLNG contract with Qatar, upcoming coal power projects and introduction of competitive market etc.), affordability vs. availability of electric power and long term Power Purchase Agreements (PPAs) on "Take or Pay" basis etc. AKLA stated that it is not against setting up of new power plants and in this regard a careful estimates of required generation capacities should be made or the licences should be granted on "Take and Pay" basis;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(g). PPDB confirmed the issuance of LoI to GHPCL and supported the grant of generation licence to the same.

(ii). The Authority examined the comments of the stakeholders and decided to seek the perspective of GHPCL on the observations of IRSA, AKLA and IDGoS. On the comments of IRSA, it was submitted that the project is being developed on the Upper Gugera branch canal which takes-off from Lower Chenab Canal and the proposed project will not have any impact on hydrology of the downstream canal as all the water will be flowing back into the canal. The company contested that there is no involvement of IRSA in its case and therefore, its application for grant of generation licence may be processed expeditiously. On the said, GHPCL was directed to address the observations of IRSA by arranging the required presentation and obtain a No Objection Certificate (NOC) in the matter.

(iii). In consideration of the above, GHPCL not only took up the matter with IRSA but also approached PPDB for resolution of the issue. On the said, PPDB submitted that there is no requirement of NOC from IRSA for the grant of generation licence according to Rule-3(5) of the NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules"). Further, PPDB stated that according to Clause-14(D) of the Water Apportionment Accord 1991, the provinces have liberty to modify system-wise and period-wise uses within their allocation and therefore, IRSA has nothing to do with the allocation made within the province under the said accord. On the said, IRSA clarified that as the proposed project is a run of canal therefore, the matter may be taken up with Punjab Irrigation Department. In this regard, the Authority observed that PPDB while issuing LoI to the company has duly considered this aspect therefore, the Authority considers that there is no need to approach Punjab Irrigation Department again and therefore, the comments of IRSA stand resolved.

(iv). Regarding the comments of AKLA, it was submitted that the observations made are not relevant to the project as it is being developed under the upfront tariff for small hydropower projects determined by the Authority which is on unit delivered basis and all aspects have been discussed in the said determination. GHPCL submitted that it has already applied

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

for unconditional acceptance of upfront tariff for small hydropower projects. On the comments of IDGoS, the company reiterated its position as explained above and stated that the proposed generation facility/Hydel Power Plant shall not be utilizing the water of river of Indus.

(v). The Authority has considered the comments of the stakeholders, reply of GHPCL and observes that AKLA has raised certain observations regarding the project. The Authority observes that AKLA while submitting its comments has referred to its previous correspondences in different matters relating to licence and tariff which include (a). surplus capacity; (b). capacity payments without supplying electricity; (c). addition of high cost renewable plants; (d). under-utilization of power plants; and (e). induction of new power plants on "Take or Pay" basis and others. In this regard, the Authority observes that it has duly addressed the aforementioned objections/comments and sent a comprehensive reply to AKLA through letter no. NEPRA/SAT-I/TRF-100/17060, dated December 27, 2016. The Authority reiterates its earlier findings and observations given in the aforementioned letter. Further, the Authority is of the considered opinion that there is considerable supply-demand gap resulting in load shedding and load management. The same is substantiated by the fact that the proposed generation facility/Hydel Power Plant of GHPCL is included in the future expansion plan of LESCO for which it has already given a consent to Central Power Purchasing Agency (Guarantee) Limited (CPPA-G). In view of the foregoing, the Authority considers that the observations of AKLA and IDGoS stand suitably addressed.

(vi). In consideration of the above and having addressed the abovementioned comments/objections, the Authority considered it appropriate to proceed further in the matter of application of GHPCL for the consideration of grant of generation licence as stipulated in the Licensing Regulations and the Generation Rules.

(D). Evaluation/Findings

(i). The Authority has examined the submissions of GHPCL including the information provided in its application for the grant of generation licence. The Authority has duly considered the FS of the project, interconnection &

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

dispersal arrangement studies, provisions of the Punjab Power Policy, the relevant rules & regulations.

(ii). The Authority has observed that Sambu Construction Company Limited of Korea ("Sambu") and Multiline Enterprise ("Multiline") are the main sponsors of the project. In this regard, the Authority has noted that Sambu has vast experience in constructing dams, hydropower projects, ports, harbors, highways, bridges, tunnels, subways and railroads. It has constructed the first hydropower project (84 MW New Bong Escape hydropower project) in private sector in Pakistan. Sambu has also its presence in Pakistan and is currently involved in construction of lowari tunnel. In addition, Sambu is constructing 106 MW Golan Gol hydropower project in Chitral area of Khyber Pakhtunkhwa province. Likewise, Multiline, the minority partner of the project, is an engineering company engaged in supply of heavy construction machines, welding solutions, their consumables and spares along with after sales services. The said company had supplied electrical & mechanical equipment and allied parts to different hydropower projects including Allai Khwar (121 MW), Duber Khwar (130 MW) and Satpara Dam project (17.3 MW). The financial worth of the sponsors is more than Rs. 321 million. In view of the said, the Authority is satisfied that the sponsors have the financial and technical capability to implement the projects.

(iii). The Authority has observed that GHPCL is a private limited company incorporated on December 11, 2015 under Section-32 of the Companies Ordinance, 1984 (XLVII of 1984) having Corporate Identification No. 0096649. The registered/business office of the company is located at 64-Ahmed Block, New Garden Town, Lahore. The memorandum of association of the company, *inter alia*, includes the business of power generation as one of its business objects.

(iv). The Authority has observed that GHPCL carried out detailed feasibility study of the project through Technical, Engineering and Management Consultants Pakistan (TEAM). The scope of the feasibility study included the site investigations, infrastructure requirements, detailed design of power house, load flow & stability studies, Initial Environmental Examination, tariff calculation

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(including economic/financial analysis), term of financing and project cost etc. PPDB through its PoEs approved the same with revised capacity of 3.60 MW.

(v). The Authority has noted that the GHPCL plans setting up a hydel based generation facility/Hydel Power Plant at Upper Gugera Branch Canal at RD 214+500 near Nankana Sahib, district Nankana Sahib in the province of Punjab. The said branch canal is off-taking from Lower Chenab Canal which is emanating from left bank of Khanki headworks on river Chenab. The total installed capacity of the proposed hydropower plant will be 3.60 MW, consisting of three (03) Kaplan horizontal type turbines (of 1.2 MW each). The said hydropower plant will be run of canal, having very low head with maximum design discharge of 142 m^3/s at variable head of up to 3 meters due to deviation of water flow in Kharif and Rabi season. The project will result in mean annual energy of 20.80 GWh at plant factor of 67%. The total cost of project will be around USD 17.62 million with a debt equity ratio of 80% and 20% of the project cost.

(vi). The Authority has observed that GHPCL carried out the required interconnection and system stability study for dispersal of electric power from the proposed generation facility/Hydel Power Plant. According to the said study, the dispersal of electric power will be made at 11 KV voltage level. The dispersal/interconnection arrangement will be consisting of an 11 KV Double Circuit (D/C) feeders [measuring about seven (07) Kilometer on ACSR Osprey conductor] connecting the generation facility/Hydel Power Plant to 132/11 KV Walgan Sohail grid station of LESCO. It is pertinent to mention that LESCO has already approved the said dispersal/interconnection arrangement of the generation facility/Hydel Power Plant.

(vii). The Authority is encouraged that the proposed generation facility/Hydel Power Plant of GHPCL will be utilizing water which is RE source. However, the Authority has observed that the construction and operation of the proposed generation facility/Hydel Power Plant may cause some environmental concerns including soil pollution, water pollution and noise pollution. The Authority has observed that GHPCL carried out the required Initial Environment Examination Study and submitted the same for the consideration and approval of Environmental Protection Department, Government of Punjab (EPDGoPb).

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

In this regard, the Authority is satisfied that EPDGoPb has issued a NOC for the construction of the project.

(viii). 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), Rule-3(5) and Rule-3(6) of the Generation Rules. In this particular case, the Authority has observed that conditions of Rule-3(2) and Rule-3(3) stands satisfied as GHPCL 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/Hydel Power Plant. The 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/Hydel 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 also stipulates the conditions pertaining to least cost option criteria which include (a). sustainable development or optimum utilization of the renewable 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/Hydel Power Plant against the preferences indicated by the Authority; (d). the costs and rights-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/Hydel 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/Hydel 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(ix). In consideration of the above, the Authority clarifies that the project will be utilizing clean and cheap resource (i.e. water) for power generation. The proposed generation facility/Hydel Power Plant is being developed in terms of the upfront tariff for small hydropower projects. Further, PPDB has made it obligatory for GHPCL to opt for upfront tariff determined by the Authority. It is pertinent to mention that the Authority through its determination No. NEPRA/UTH-01/4744-4746 dated April 02, 2015 announced a levelized upfront tariff for the future small hydropower projects of up to 25 MW. The said tariff works out to be Pak. Rs. 9.9960/kWh and Rs. 7.6177/kWh based on 100% local and foreign financing respectively which is very competitive considering the fact that not only cheap electric power will be generated but it will utilize the indigenous hydel potential.

(x). As explained at Para-D(vi) above, the sponsors of the project carried out the grid interconnection study which concludes 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 costs and right-of-way issues for the provision of transmission and interconnection facilities. It is pertinent to mention that LESCO has included the project in its mid and long-term forecasts for additional capacity requirements. In view of the clarification and justifications given above, the Authority is of the considered view that the project of GHPCL fulfills 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). 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. The costs of producing energy vary between different energy sources and technologies. A competitive energy mix will keep overall costs as low as possible given the available resources.

(ii). The existing energy mix of the country is heavily skewed towards thermal power plants, mainly operating on imported fossil fuel. In this regard,

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

the Authority is of considered opinion that use of imported fossil fuel for power generation is not only an environmental concern but also creates pressure on the precious foreign exchange reserves of the country. Therefore, the Authority considers that in order to achieve sustainable development, it is imperative that all indigenous RE resources including Hydel, Wind, Solar and other RE resources are given priority for power generation and their development is encouraged.

(iii). The Authority considers that the proposed project of GHPCL is consistent with the provisions of Energy Security Action Plan 2005 which not only emphasizes the use of indigenous resources for power generation but also considers that RE resources are given priority in this regard. In consideration of the said, the Authority considers that the project will help in diversifying the energy portfolio of the country. Further, it will not only enhance the energy security of the country by reducing the dependence on imported fuel but it will also help in reducing carbon emissions by generating clean electricity, thus improving the environment.

(iv). As explained at Para-D(viii) above, GHPCL 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/Hydel Power Plant. In this regard, the Authority has observed that sponsors of the project will be utilizing around six hundred and seventeen (617) Kanals of land for setting up the generation facility/Hydel Power Plant. In this regard, the Authority directs GHPCL that the same shall be exclusively used for the proposed generation facility/Hydel Power Plant and any other generation activity cannot be carried out on this land except with the prior approval of the Authority.

(v). The term of a generation licence under Rule-5(1) of the Generation Rules is to be commensurate with the maximum expected useful life of the units comprised in a generating facility. According to the information provided, the generation facility/Hydel Power Plant of GHPCL will achieve Commercial Operation Date (COD) on December 31, 2020 and will have a useful life of more than thirty (30) years from its COD. The applicant/GHPCL has requested that the term of the proposed generation licence may be fixed to

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

thirty (30) years, in consistent with the term of the proposed Energy Purchase Agreement (EPA) to be signed with the power purchaser. The Authority considers that information provided by GHPCL about the useful life of generation facility/Hydel Power Plant and the subsequent request to fix the term of the generation licence is consistent with international benchmarks. Foregoing in view, the Authority fixes the term of the generation licence to thirty (30) years from its COD.

(vi). Regarding the tariff, the Authority hereby clarifies that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is its sole prerogative. In this regard, a specific article (i.e. Article-6) has been included in the generation licence. The Authority through Article-6 of the generation licence directs GHPCL to charge the power purchaser only such tariff which has been determined, approved or specified by it. Further, the Authority directs GHPCL to adhere to the Article-6 of the generation licence in letter and spirit without any exception.

(vii). As explained at Para-D(vii) above, GHPCL has already obtained NOC from EPDGoPb. Further, the Authority directs GHPCL to ensure that its project complies with the environmental standards during the term of the generation licence. In view of the said, the Authority has included a separate article (i.e. Article-10) in the generation licence along with other terms and conditions. Further, the Authority directs GHPCL to submit a report on a bi-annual basis, confirming that operation of its project is compliant with required environmental standards as prescribed by the concerned environmental protection agency.

(viii). The Authority observes that the proposed generation facility/Hydel Power Plant of GHPCL will be using RE resource for generation of electric power. Therefore, the project may qualify for the carbon credits under the Kyoto Protocol. Under the said protocol, projects coming into operation up to the year 2020 can qualify for the carbon credits. GHPCL has informed that the project will achieve COD by December 31, 2020 which is within the deadline of the Kyoto Protocol. In view thereof, an article (i.e. Article-14) for carbon credits and its sharing with the power purchaser has been included in the generation licence. In view of the said, the Authority directs

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

GHPCL to initiate the process in this regard at the earliest so that proceeds for the carbon credits are materialized. GHPCL shall be required to share the proceeds of the carbon credits with the power purchaser as stipulated in Article-14 of the generation licence.

(ix). In view of the above, the Authority hereby approves the grant of generation licence to GHPCL 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:

Maj. (R) Haroon Rashid
(Member)

Syed Masood-ul-Hassan Naqvi
(Member)

Himayat Ullah Khan
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

27.7.2017

Tariq Saddozai
(Chairman)

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

31.07.17

National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. IGSPL/87/2017

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 a Generation Licence to:

Gugera Hydro Power Company (Private) Limited

Incorporated under Section-32 of the Companies Ordinance, 1984 (XLVII of 1984) having Corporate Universal Identification No. 0096649, dated December 11, 2015

for its Hydel Based Generation Facility Located on Upper Gugera Branch Canal at RD 214+500 Near Nankana Sahib, District Nankana Sahib in the Province of Punjab

(Installed Capacity: 3.60 MW Gross ISO)

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

Given under my hand this 31st day of July Two Thousand & Seventeen and expires on 30th day of December Two Thousand & Fifty.

31.07.17

Registrar

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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). "AEDB" means the Alternative Energy Development Board or any other entity created for the like purpose established by the GoP to facilitate, promote and encourage development of renewable energy in the country;

(c). "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;

(d). "Applicable Law" means all the Applicable Documents;

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

(f). "Bus Bar" means a system of conductors in the generation facility/Hydel Power Plant of the Licensee on which the electric power from all the generators is collected for supplying to the Power Purchaser;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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

(h). "Commercial Operations Date (COD)" means the day immediately following the date on which the generation facility/Hydel Power Plant of the Licensee is commissioned;

(i). "Commissioned" means the successful completion of Commissioning of the generation facility/Hydel Power Plant for continuous operation and despatch as stipulated in the EPA;

(j). "Commissioning" means the undertaking of the Commissioning Tests of the generation facility/Hydel Power Plant as stipulated in the EPA;

(k). "Commissioning Tests" means the tests to be carried out pursuant to provisions of EPA;

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

(m). "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;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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

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

(p). "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;

(q). "GoP" means the Government of Pakistan acting through the AEDB 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/Hydel Power Plant;

(r). "GoPb" means the Government of the Province of Punjab acting through the PPDB which has issued letter of intent for the design, engineering, construction, insuring, commissioning, operation and maintenance of the generation facility/Hydel Power Plant;

(s). "Hydel Power Plant" means a generation facility using water flows of canal or rivers for generation of electric power;

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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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

(v). "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/Hydel Power Plant, as may be amended from time to time;

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

(x). "LESCO" means Lahore Electric Supply Company Limited or its successors or permitted assigns;

(y). "Licensee" means **Gugera Hydro Power Company (Private) Limited** or its successors or permitted assigns;

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

(aa). "Net Delivered Energy" means the net electric energy expressed in kWh generated by the generation facility/Hydel Power Plant of the Licensee at its outgoing Bus Bar and delivered to the Power Purchaser;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

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

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

(dd). "Punjab Power Policy" means the Punjab Power Generation Policy, 2006 of GoPb as amended from time to time;

(ee). "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 EPA for procurement of electric power;

(ff). "PPDB" means the Punjab Power Development Board or any other entity created for the like purpose established by the GoPb to facilitate, promote and encourage development of private sector participation for development of projects for electric power in the Province of Punjab;

(gg). "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;

(hh). "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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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/Hydel Power Plant of the Licensee are set out in Schedule-I of this licence.

3.2 The net capacity/Net Delivered Energy of the generation facility/Hydel 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/Hydel 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/Hydel 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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 (Generation) Rules 2009 as amended from time to time.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Article-10
Compliance with Environmental & Safety Standards

10.1 The generation facility/Hydel 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/Hydel 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/Hydel 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/Hydel 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/Hydel Power Plant to the control room of the Power Purchaser.

Article-13
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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

Article-14
Emissions Trading/Carbon Credits

The Licensee shall process and obtain expeditiously the Carbon Credits admissible to the generation facility/Hydel Power Plant. The Licensee shall share the said proceeds with the Power Purchaser as per the Policy.

Article-15
Design & Manufacturing Standards

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

Article-16
Power Curve

The Power Purchaser shall verify the power curve of the generation facility/Hydel Power Plant of the Licensee, as part of the Commissioning Tests according to the latest IEC or IEEE or any other equivalent standard and shall be used to measure its performance.

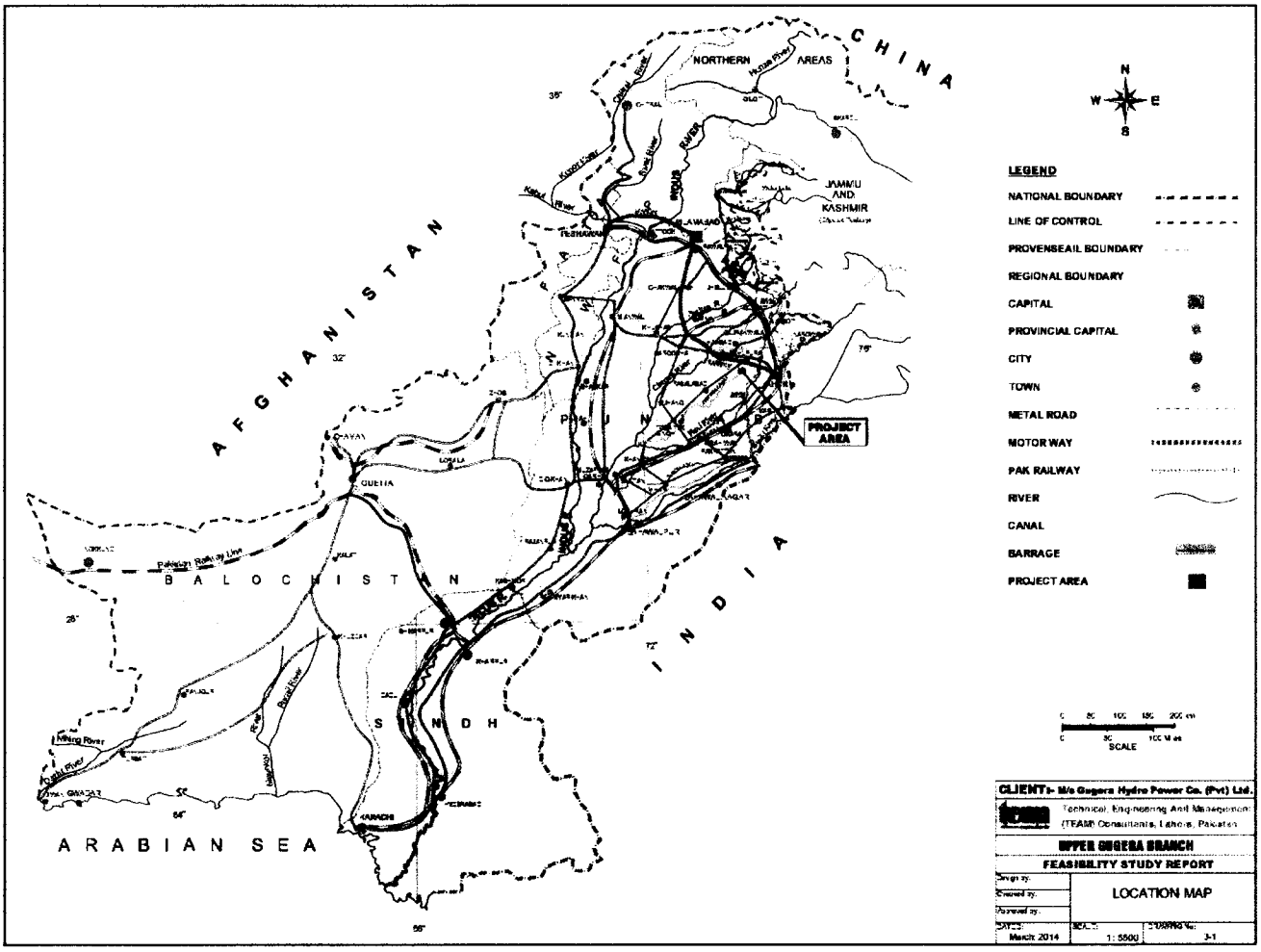
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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.

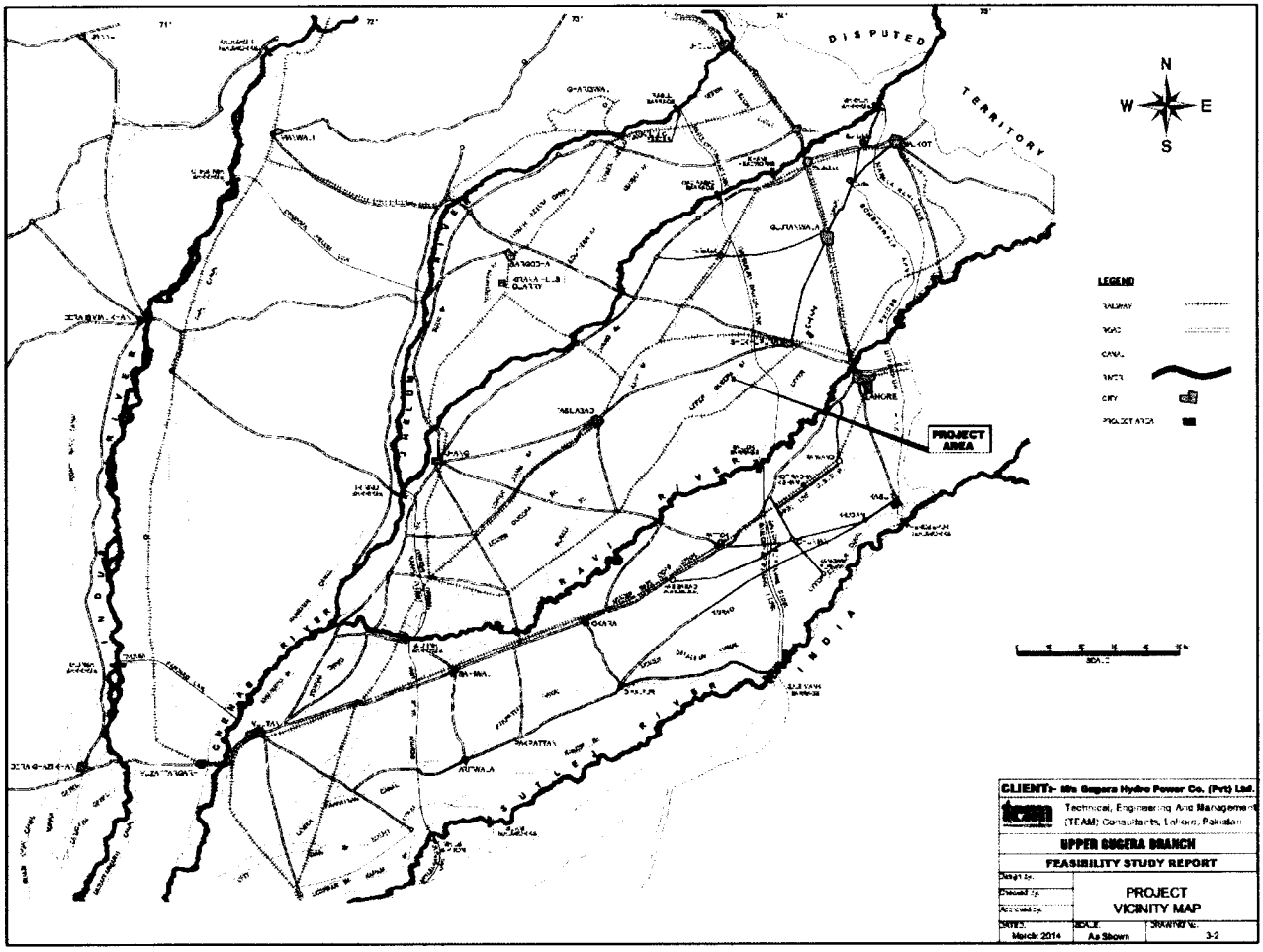
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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



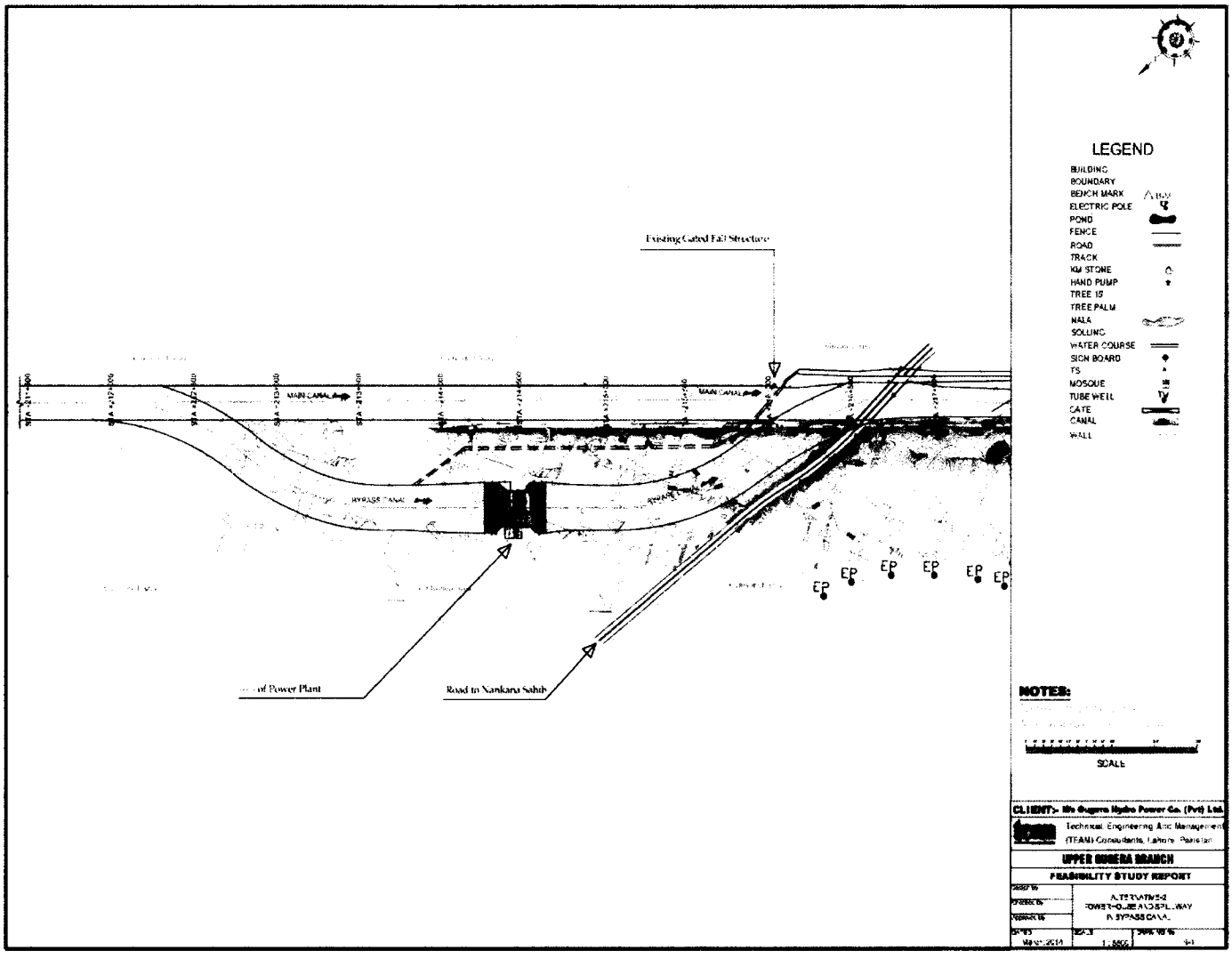
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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

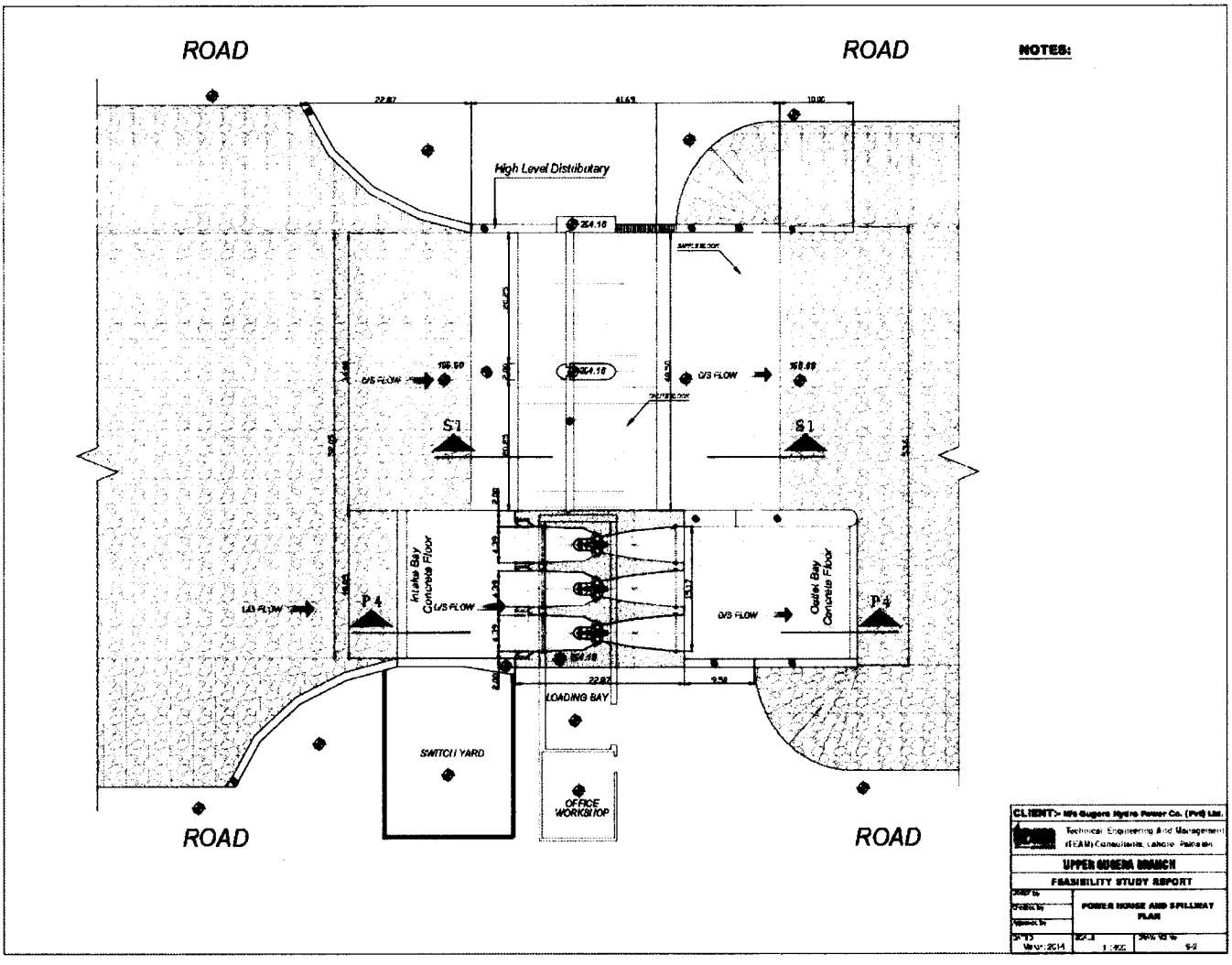


NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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

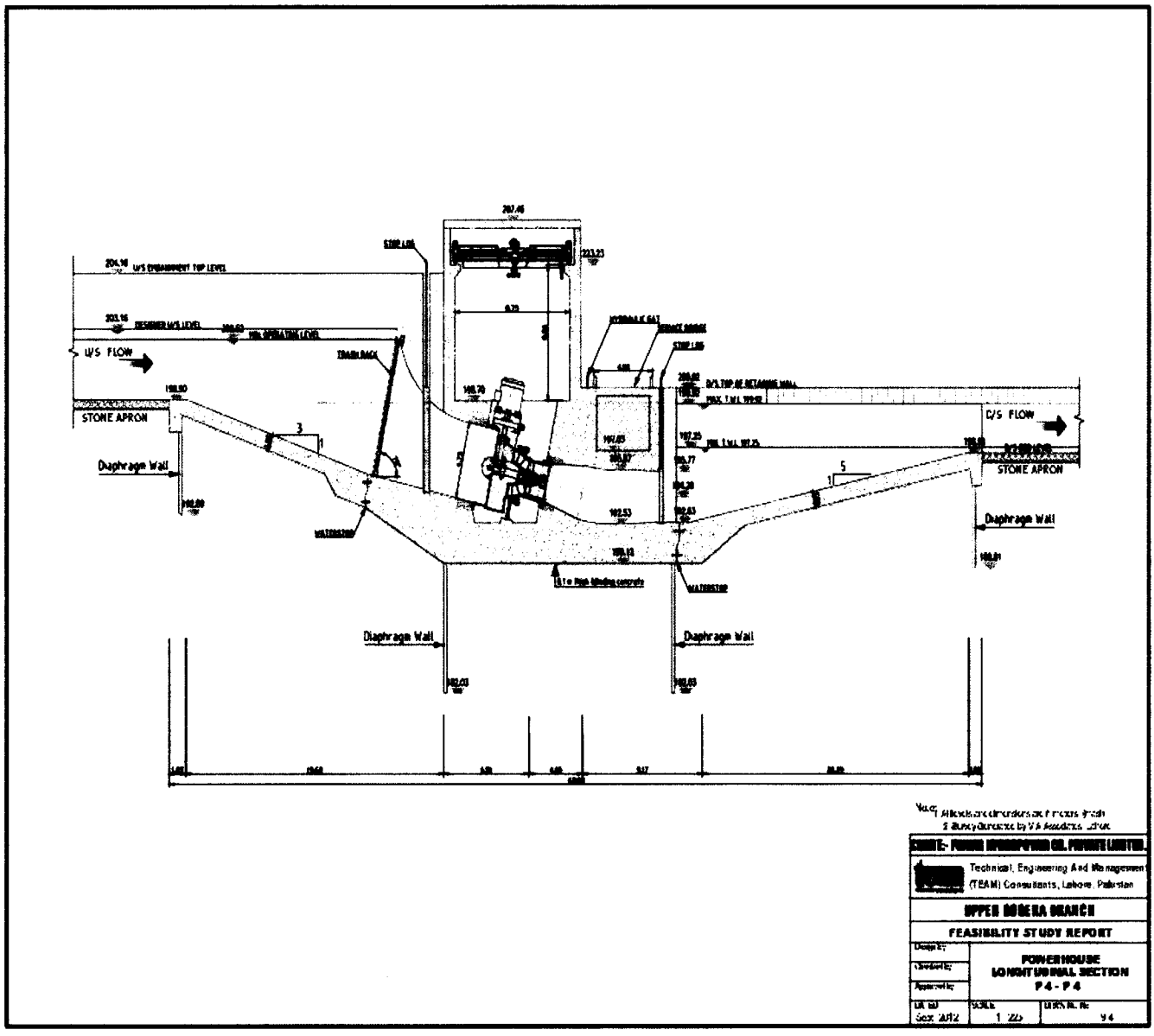


Combined Powerhouse & Spillway Layout of the Generation Facility/Hydel Power Plant of the Licensee

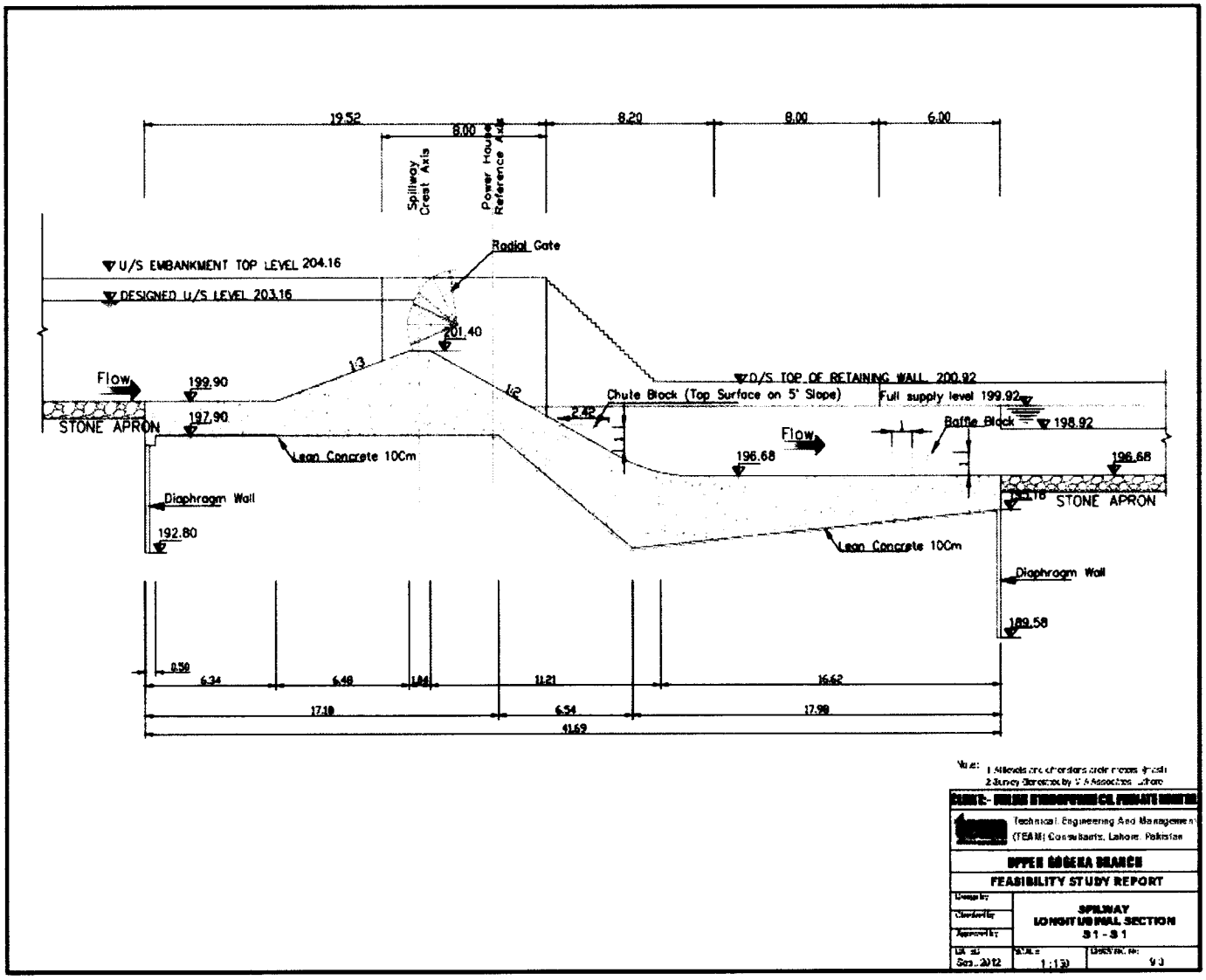


NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

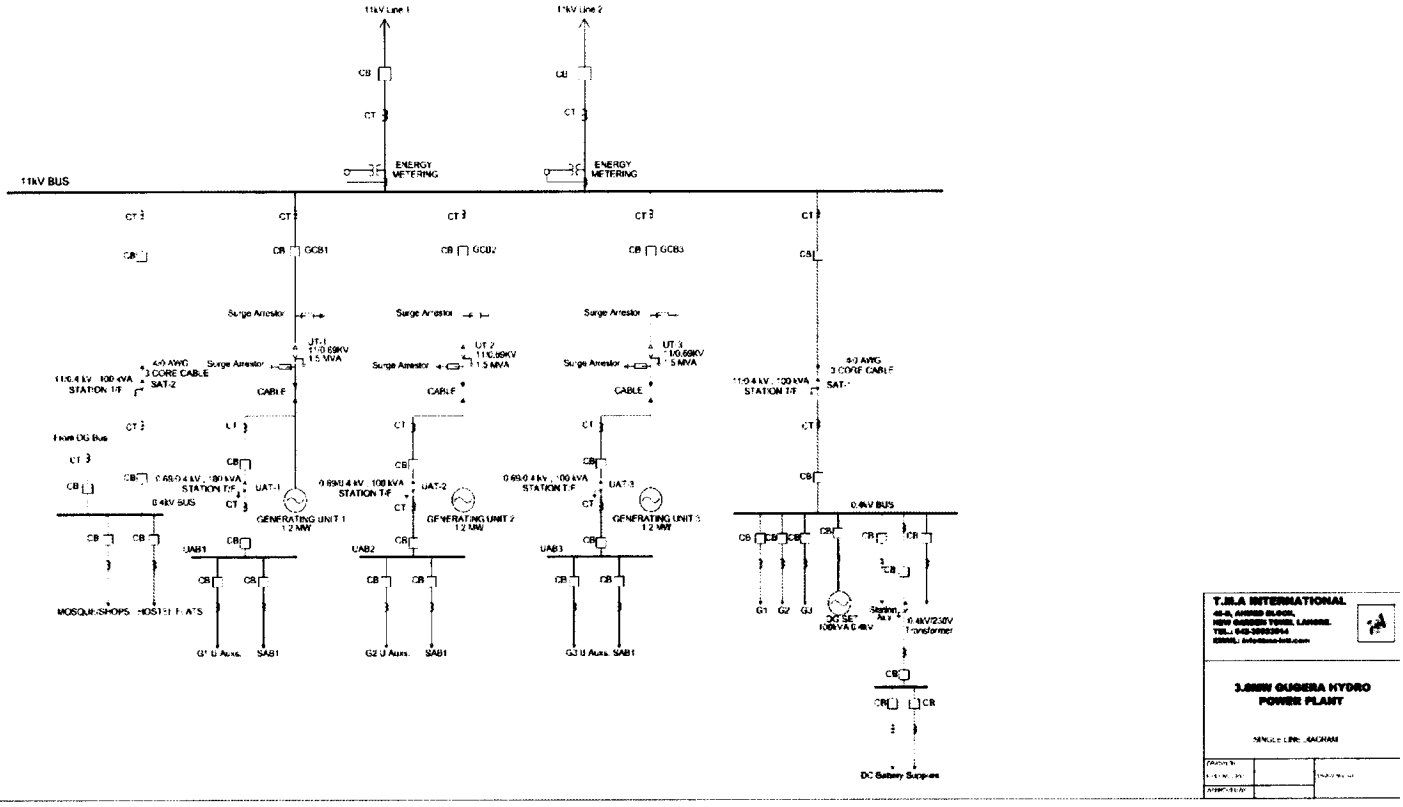
Longitudinal Section of Powerhouse of the Generation Facility/Hydel Power Plant of the Licensee



Longitudinal Section of the Spillway of the Generation Facility/Hydel Power Plant of the Licensee



Single line Diagram of the Generation Facility/Hydel Power Plant of the Licensee



Interconnection Arrangement/Transmission Facilities for Dispersal of Power from Generation Facility/Hydel Power Plant of the Licensee

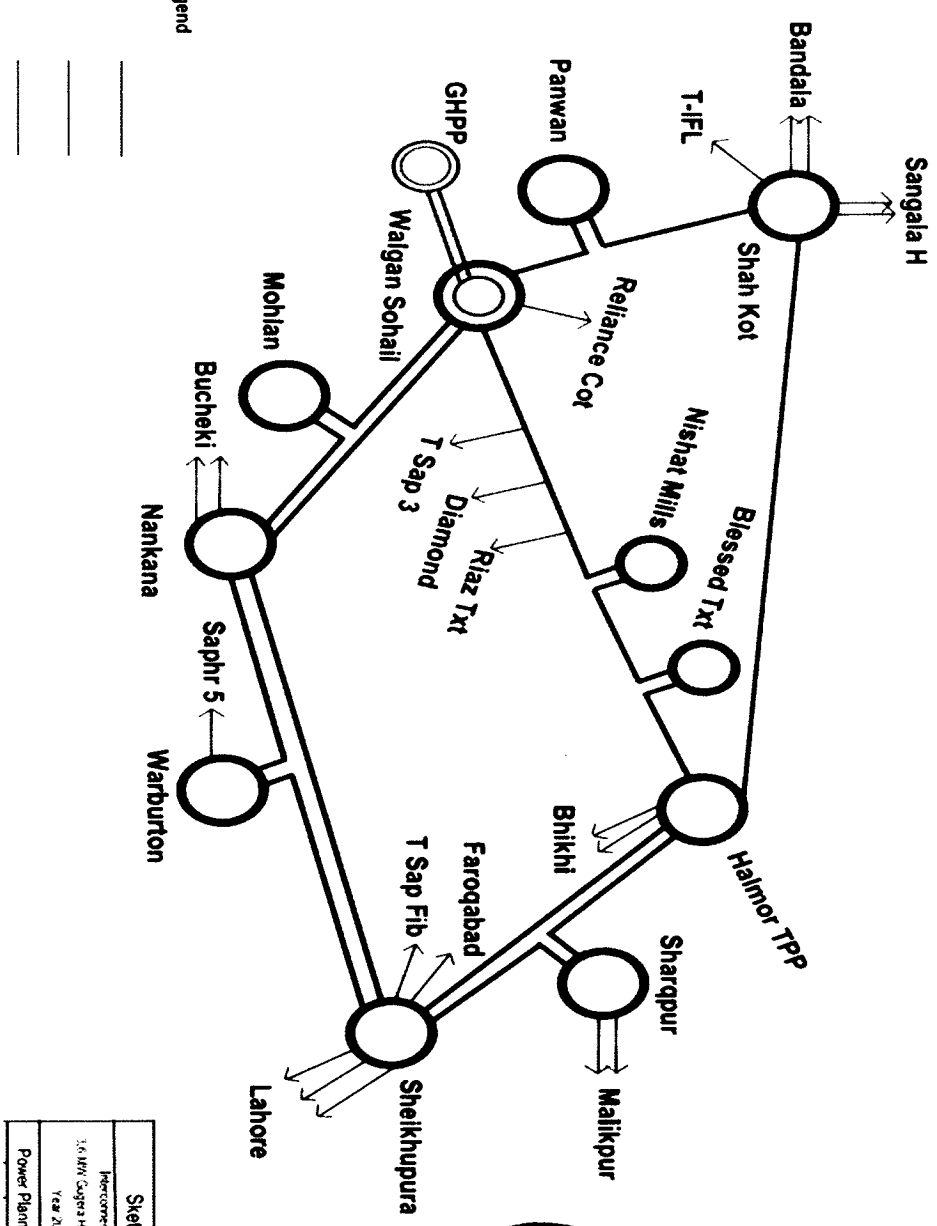
The power generated by the generation facility/Hydel Power Plant of Gugera Hydro Power Company (Private) Limited (GHPCL) will be dispersed to the load center of Lahore Electric Supply Company Limited (LESCO) at 11 kV voltage level.

(2). The proposed interconnection arrangement/transmission facilities for dispersal of electric power will be consisting of a Double Circuit (D/C) 11 kV feeders [measuring about seven (07) km in length using ACSR Osprey conductor] connecting the generation facility/Hydel Power Plant of GHPCL to Walgan Sohail 132/11 kV grid station of LESCO.

(3). Any change in the final interconnection arrangement and transmission facilities, for the dispersal of power other than the above, as agreed by the Licensee, Power Purchaser and LESCO shall be communicated to the Authority in due course of time.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Schematic Diagram for Interconnection/Transmission Arrangement for Dispersal of Power from Generation Facility/Hydel Power Plant of the Licensee



NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Details of Generation Facility/Hydel Power Plant of the Licensee

(A). General Information

(i).	Name of the Company/ Licensee	Gugera Hydro Power Company (Private) Limited
(ii).	Registered/Business Office of the Company/Licensee	64 - Ahmed Block, New Garden Town, Lahore
(iii).	Location of the Generation Facility	Upper Gugera Branch Canal at RD 214+500, District Nankana Sahib in the Province of Punjab
(iv).	Type of Generation Facility	Hydropower Plant

(B). Plant Configuration

(i).	Size/Installed Capacity (Gross) of the Generation Facility	3.60 MW
(ii).	Type of Storage etc.	Run of Canal Hydropower Plant
(iii).	Water Source	Upper Gugera Branch Canal at RD 214+500
(iv).	Type of Technology	Three (03) Horizontal Kaplan Turbines
(v).	Number of Units & Size(MW)	3 x 1.2 MW
(vi).	Turbine Make & Model*	Andritz Hydro, Mavel, HP or Equivalent
(vii).	Expected COD of the Generation Facility	December 31, 2020
(viii).	Expected Life of the Generation Facility from COD	Thirty (30) Years

* Hydro turbines are designed and manufactured to meet the specific requirements of each site and not available Off the Shelf as per standard models.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(C). Main Design Features

(i).	Rated Discharge Q	142 m^3/s
(ii).	Gross Head	03 meters
(iii).	Loss Head	0.2 meters
(iv).	Net Head	2.8 meters
(v).	Plant Factor	67%
(vi).	Mean Annual Energy	20.8 GWh

(D). Head Race Canal

(i).	Water level at start of Headrace	203.16 m.a.s.l.
(ii).	Water depth	1.51 meters
(iii).	Bed Width	30 meters
(iv).	Bed Slope	0.12%
(v).	Side Slopes	2:1
(vi).	Length	762 meters

(E). Trash Racks

(i).	No. of Trash racks	Three (03), one for each turbine

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(ii).	Width	8.5 meters
(iii).	Height	5.14 meters
(iv).	Inclination	78°

(F). Stop Logs

a)	**Intake**	
(i)	No. of stop logs for intake	05 or 06
(ii).	Type of stop log	Sliding
(iii).	No. of intakes	04
(iv).	Width	4.86 meters
(v).	Height of each stop slog element	Approx. 2.0 meters
b)	**Turbine Outlet**	
(i).	No. of stop logs for Turbine Outlet	04
(ii).	Type of stop log	Sliding
(iii).	No. of turbine outlets	04
(iv).	Width	4.86 meters
(v).	Height of each stop slog element	Approx. 2.4 meters

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(G). Powerhouse

(i).	Powerhouse level	203.16 m.a.s.l.
(ii).	Machine Hall Width	17.2 meters
(iii).	Machine Hall Length	23 meters
(iv).	Machine Hall Height	8.5 meters

(H). Tailrace Canal

(i).	Tail water level at rated discharge	192.92 m.a.s.l.
(ii).	Bed Width	29 meters
(iii).	Side Slopes	2:1
(iv).	Length	770 meters

(I). Spillway

(i).	Type of Spillway	Concrete slabs bounded by concrete cantilever retaining walls
(ii).	Spill way location	at RD 214+500
(iii).	Spillway Starting level	199.90 m.a.s.l.
(iv).	Spillway Ending level	192.80 m.a.s.l.
(v).	Width	18.0 meters

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(J). Electrical & Mechanical Specifications

a)	**Turbine**	
(i).	Turbine Speed	214.3 r.p.m
(ii).	Turbine Runner Diameter	2.10 meters
(iii).	No. of Runner blades	04
(iv).	Rated Flow for each unit	47.33 m^3/s
b)	**Generator**	
(i).	Type	Synchronous Generator
(ii).	Nominal Speed	750 r.p.m
(iii).	No. of Units	03
(iv).	Capacity	1.5 MVA
(v).	Power factor	0.85 lagging-0.90 leading
(vi).	Frequency	50 Hz
(vii).	Nominal Voltage	0.69 kV
(viii).	Insulation class	F
(ix).	Ambient temperature	40°C
(x).	Connection	Y, Resistance Grounded

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(xi).	Protection Class	IP 44
c) Transformer		
(i).	No. of Transformers	03
(ii).	Capacity	1.5 MVA each
(iii).	Low Voltage (Primary)	0.69 kV
(iv).	High voltage (secondary)	11 kV
(v).	Frequency	50 Hz
(vi).	Type of Tap Changer	On Load
(vii).	Cooling	ONAN/ONAF

(K). Plant Characteristics

(i).	Generation Voltage	11 KV
(ii).	Frequency	50 Hz
(iii).	Power Factor	Leading 0.95 and Lagging 0.85
(iv).	Automatic Generation Control	Yes
(v).	Ramping Rate	To be provided later
(vi).	Time required to Synchronize to Grid and loading the Complex to full load.	To be provided later

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

SCHEDULE-II

The Total Installed Gross Capacity (MW), De-Rated Capacity at Reference Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity at Reference Site Conditions (MW) of the Generation Facility of Licensee are given in this Schedule

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

SCHEDULE-II

(1).	Total Installed Gross Capacity of the Generation Facility (3 x 1.2 MW Kaplan Turbines)	3.60 MW
(2).	De-Rated Capacity of the Generation Facility at Reference Site Conditions	3.60 MW
(3).	Total Auxiliary Consumption of the Generation Facility	0.036 MW
(4).	Net Capacity of the Generation Facility at Reference Site Conditions	3.564 MW

Note

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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA