National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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Registrar

No. NEPRA/R/DL/LAG-410/2662-69 February 19, 2018

Mr. Amar Khalid,
Director,
Blue Star Energy (Private) Limited,
36 – B, Askari 10,
Lahore Cantt.

Subject: **Generation Licence No. IGSPL/98/2018**
Licence Application No. LAG-410
Blue Star Energy (Private) Limited (BSEPL)

Reference: *BSEPL's application vide letter dated September 06, 2017 (received on September 11, 2017)*

Enclosed please find herewith Generation Licence No. IGSPL/98/2018 granted by National Electric Power Regulatory Authority (NEPRA) to Blue Star Energy (Private) Limited (BSEPL), 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/98/2018)

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

19-02-18

(Syed Safeer Hussain)

Copy to:

1. Managing Director, NTDC, 414-WAPDA House, Lahore.
2. Chief Executive Officer, CPPA-G, ENERCON Building, Sector G-5/2, Islamabad.
3. Chief Executive Officer, Gujranwala Electric Power Company (GEPCO) 565/A, Model Town, G.T Road, Gujranwala
4. Managing Director, Private Power and Infrastructure Board (PPIB), 50-Nazimuddin Road, Sector F-7/4, Islamabad.
5. Managing Director, Punjab Power Development Board (PPDB), Energy Department, 1st Floor, Irrigation Secretariat, Old Anarkali, Lahore
6. Director General, Environment Protection Department, Government of Punjab, National Hockey Stadium, Ferozpur 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 Blue Star Energy (Private) Limited for the Grant of Generation Licence

February 19, 2018
Case No. LAG-410

(A). Background

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

(ii). In order to tap the various available resources in the province for power generation, the Government of Punjab (GoPb) has formulated a policy titled "Punjab Power Generation Policy 2006" amended in 2009 (the "Punjab Power Policy"). Further, to attract private entrepreneurs in the power sector of the province, the GoPb has set up Punjab Power Development Board (PPDB) which acts as a one window facilitator. In this regard, PPDB has issued Letter of Intent (LoI) to different project developers for setting up different projects based on various resources including hydel, solar and biomass etc. One such LoI has been issued to Blue Star Energy (Private) Limited (BSEPL) (the "sponsor") for development of an approximately 3.0 MW Hydel Power Plant on Gujrat Branch Canal near Khokhra village, district Gujrat, in the province of Punjab.

(iii). According to the terms and conditions of the above LoI, the company carried out a detailed feasibility study of the project including technical study, Grid Interconnection Study (GIS), environmental study, financial study etc. After approval of the same, BSEPL decided to approach the Authority for the grant of generation licence.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(B). Filing of Application

(i). BSEPL submitted an application on September 11, 2017 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 observed that the application lacked some of the required information/documentation. Accordingly, BSEPL was directed for submitting the missing information/documentation and the same were submitted on September 18, 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 October 03, 2017 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 October 05, 2017 respectively.

(iii). In addition to the above, the Authority approved a list of stakeholders for seeking their comments for its assistance 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 October 05, 2017, soliciting their comments for assistance of the Authority.

(C). Comments of Stakeholders

(i). In response to the above, the Authority received comments from four (04) stakeholders. These included Gujrat Chamber of Commerce & Industry (GCCI), Indus River System Authority (IRSA), Alternative Energy Development Board (AEDB) and Punjab Power Development Board (PPDB). The salient points of the comments offered by the said stakeholders are summarized below:

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(a). GCCI commented that it must be guaranteed that the professionals working in the proposed hydropower project must have relevant experience. Further, it may be ensured that the firm developing the project is reliable and credible and history of Nandipur project must not be repeated;

(b). IRSA in its comments stated that the company may be directed to approach it for NOC for the project;

(c). AEDB supported the grant of generation licence to BSEPL for its proposed 2.80 MW hydel project; and

(d). PPDB confirmed giving approval of feasibility study of BSEPL by its Panel of Experts therefore, supported the grant of generation licence to the same.

(ii). The Authority examined the comments of the stakeholders and found the same supportive except to the observations of GCCI and IRSA. In view of the said, the Authority decided seeking the perspective of BSEPL on the observations of the said stakeholders. On the observations of GCCI, the company confirmed that the highly professional and experienced engineers and technical team will be hired for the project. Further, BSEPL also holds a valid generation license for its 3 MW Hydel Power Plant in district Mardan, in the province of Khyber Pakhtunkhwa. On the comments of IRSA, the company was directed to approach the same. Accordingly, BSEPL approached IRSA and obtained the required NOC for its proposed generation facility/Hydel Power Plant.

(iii). The Authority considered the above submissions of BSEPL on the observations of GCCI and IRSA and decided to proceed further in the matter as stipulated in the NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules") and the Licensing Regulations.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(D). Evaluation/Findings

(i). The Authority has considered the submissions of BSEPL including the information provided in its application for the grant of generation licence. The Authority has also considered the feasibility study of the project, the GIS, provisions of the Punjab Power Policy, the relevant rules & regulations.

(ii). In consideration of the above, the Authority has observed that BSEPL is the main sponsor of the project. Currently, BSEPL owns and operates 3.021 MW Hydel Power Plant located in district Mardan, in the province of KPK for which the Authority granted a generation licence (No. SGC/36/2008 dated August 08, 2008). The said generation facility is already operational and supplying 1 MW of electric power to national grid. Further, the sponsors of BSEPL incorporated Special Purpose Vehicles (SPVs) in the name of Blue Star Hydel (Private) Limited (BSHPL) and Blue Star Electric (Private) Limited (BSELTPL) for setting up power plants using renewable energy resources. Both of the SPVs have set up Solar based generation facility of 1.0 MW each in the province of Punjab for which the Authority has already granted generation licences. Further to the said, the Authority has also reviewed the balance sheet of BSEPL which revealed that it has total assets of Rs. 187 million. In consideration of the above, the Authority is of the considered opinion that the sponsors have reasonable financial and technical capability to develop the proposed generation facility/Hydel Power Plant.

(iii). The Authority has observed that BSEPL is a private limited company incorporated on March 24, 2004 under Section-32 of the Companies Ordinance, 1984 (XLVII of 1984) having Company Registration No. 13370/20040302. The registered/business office of the company is located at 36-B, Street No. 1, Askari-10, Lahore Cantt., Lahore. The memorandum of association of the company, inter alia, includes the business of power generation as one of its business objects.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(iv). The Authority has observed that BSEPL carried out detailed feasibility study of the project through a consortium of Pakistan Engineering Services (Pvt.) Ltd. and BARQAAB Consulting Services (Pvt.) Ltd. 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 (including economic/financial analysis), term of financing and project cost etc. PPDB through its Panel of Experts approved the same with revised capacity of 2.80 MW.

(v). The Authority has observed that BSEPL plans setting up a hydel based generation facility/Hydel Power Plant on Upper Jhelum Canal at RD 255+080 near Khokhra village, 05 KM from Rasul town, district Gujrat, in the province of Punjab. The said canal is emanating from river Jhelum at Mangla. The total installed capacity of the proposed hydropower plant will be 2.80 MW consisting of two (02) 'S' Type Horizontal Kaplan turbines (of 1.40 MW each). The said hydropower plant will be run of canal, having very low head with a maximum design discharge of 43.522 m^3/s at variable head of up to 9.80 meters. The project will result in mean annual energy of 16.488 GWh at plant factor of 67%. The total cost of project will be around US$ 11.815 million with a debt to equity ratio of 75% and 25% of the project cost.

(vi). The Authority has duly considered the GIS 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 sixteen (16) kilometer on ACSR Osprey conductor] connecting the generation facility/Hydel Power Plant to 132/11 kV Dinga grid station of Gujranwala Electric Power Company Limited (GEPCO). It is pertinent to mention that GEPCO has already approved the said dispersal/interconnection arrangement of the generation facility/Hydel Power Plant.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(vii). The Authority is encouraged that the proposed generation facility/Hydel Power Plant of BSEPL 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 BSEPL 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). In this regard, the Authority is satisfied that EPDGoPb has issued a No Objection Certificate (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. In the particular case under consideration, the Authority has observed that BSEPL 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 satisfying the provisions of Rule-3(2) and Rule-3(3).

(ix). The Rule-3(5) of the Generation Rules stipulates the least cost option criteria necessary for the grant of generation licence which includes (a). sustainable development or optimum utilization of the RE or non-RE resources proposed for generation of electric power; (b). the availability of indigenous fuel and other resources; (c). the comparative costs of the construction, operation and maintenance of the proposed generation facility/Hydel 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/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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

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.

(x). In consideration of the above, the Authority considers that the proposed project will result in optimum utilization of the RE which was earlier untapped, resulting in pollution free electric power. The proposed generation facility/Hydel Power Plant is being developed in terms of the upfront tariff for small hydropower projects which the Authority announced 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 25.00 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 which is very competitive considering the fact that not only cheap electric power will be generated but it will utilize the indigenous hydel potential.

(xi). As explained in the preceding paragraphs above, the sponsors of the project carried out the GIS 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 cost and right-of-way issue for the provision of transmission and interconnection facilities. The Authority has observed that GEPCO 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 BSEPL 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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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, 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 BSEPL 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 in the preceding paragraphs, the Authority considers that BSEPL 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. Further, the Authority has observed that sponsors of the project will be utilizing around seventy (70) acres of land for setting up the generation facility/Hydel Power Plant. In this regard, the Authority directs BSEPL that the aforementioned land 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(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 BSEPL will achieve Commercial Operation Date (COD) on July 01, 2020 and will have a useful life of more than thirty (30) years from its COD. The applicant/BSEPL 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 Energy Purchase Agreement (EPA) to be signed with the power purchaser. The Authority considers that information provided by BSEPL 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 BSEPL to charge the power purchaser only such tariff which has been determined, approved or specified by it. Further, the Authority directs BSEPL to adhere to the Article-6 of the generation licence in letter and spirit without any exception.

(vii). As explained in the preceding paragraphs, BSEPL has already obtained NOC from EPDGoPb. Further, the Authority directs BSEPL 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 BSEPL 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(viii). The Authority has observed that the proposed generation facility/Hydel Power Plant will be using RE resource for generation of electric power and may earn carbon credits. In this regard, it is pertinent to mention that the existing Kyoto Protocol governing the carbon credits cater projects coming on line by end of 2020. The project of BSEPL is expected to achieve COD by July 01, 2020 which is within the deadline of the Kyoto Protocol. In view thereof, the Authority has decided to include an article (i.e. Article-14) for carbon credits and its sharing with the power purchaser in the generation licence. The Authority directs BSEPL to adhere to the Article-14 of the generation licence in letter and spirit without any exception.

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

15.2.2018

Tariq Saddozai
(Chairman)

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

19.02.18

National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. IGSPL/98/2018

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 a Generation Licence to:

Blue Star Energy (Private) Limited

Incorporated under Section-32 of the Companies Ordinance, 1984 (XL VII of 1984) having Company Registration No. 13370/20040302, dated March 24, 2004

for its Hydel Based Generation Facility Located on Upper Jhelum Canal at RD 255+080 near Khokhra village, Tehsil Kharian, District Gujrat in the Province of Punjab

(Installed Capacity: 2.80 MW Gross ISO)

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

Given under my hand this 19th day of February Two Thousand & Eighteen and expires on 30th day of June Two Thousand & Fifty.

19-2-18

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 Alternate 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 the Act, relevant rules and regulations made there under and 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;

(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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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). "GEPCO" means Gujranwala Electric Power Company Limited or its successors or permitted assigns;

(q). "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;

(r). "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;

(s). "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;

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

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

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

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(w). "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;

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

(y). "Licensee" means **Blue Star Energy (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;

(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 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;

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

(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.

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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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.

Article-6
Tariff

The Licensee shall charge the 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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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.

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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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.

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.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

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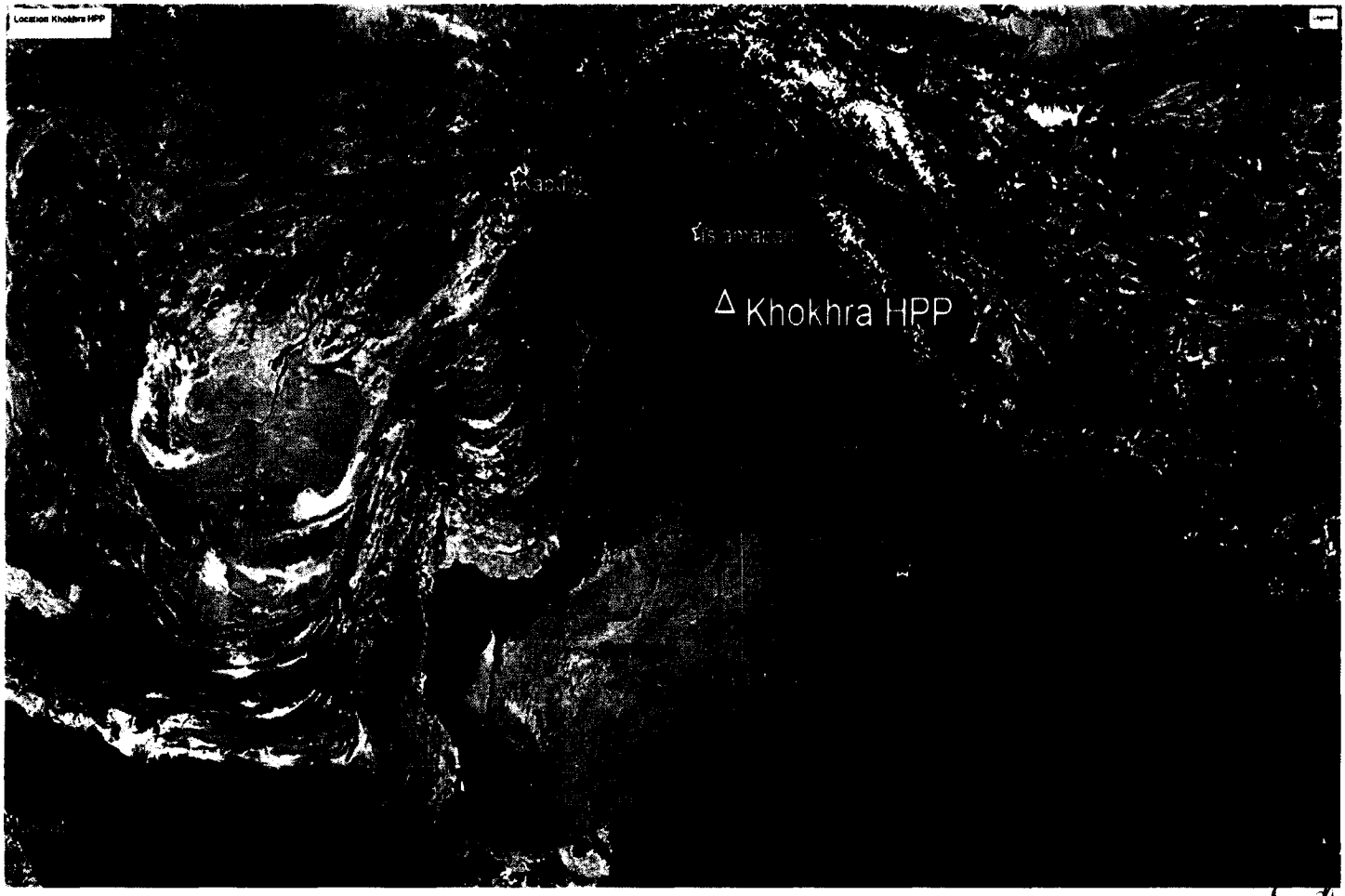
Location of the Generation Facility/Hydel Power Plant of the Licensee



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

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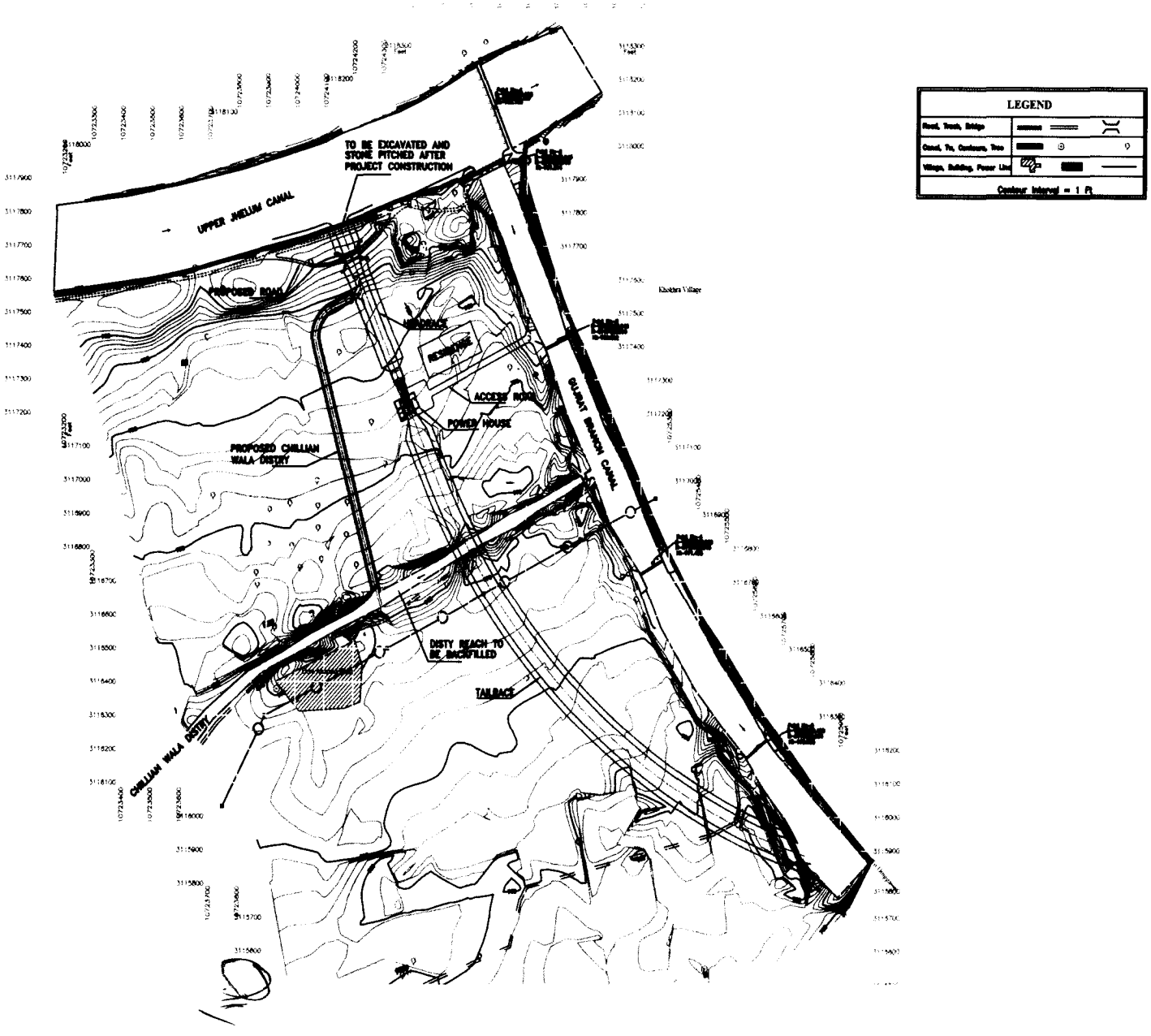
Layout of the Generation Facility/Hydel Power Plant of the Licensee



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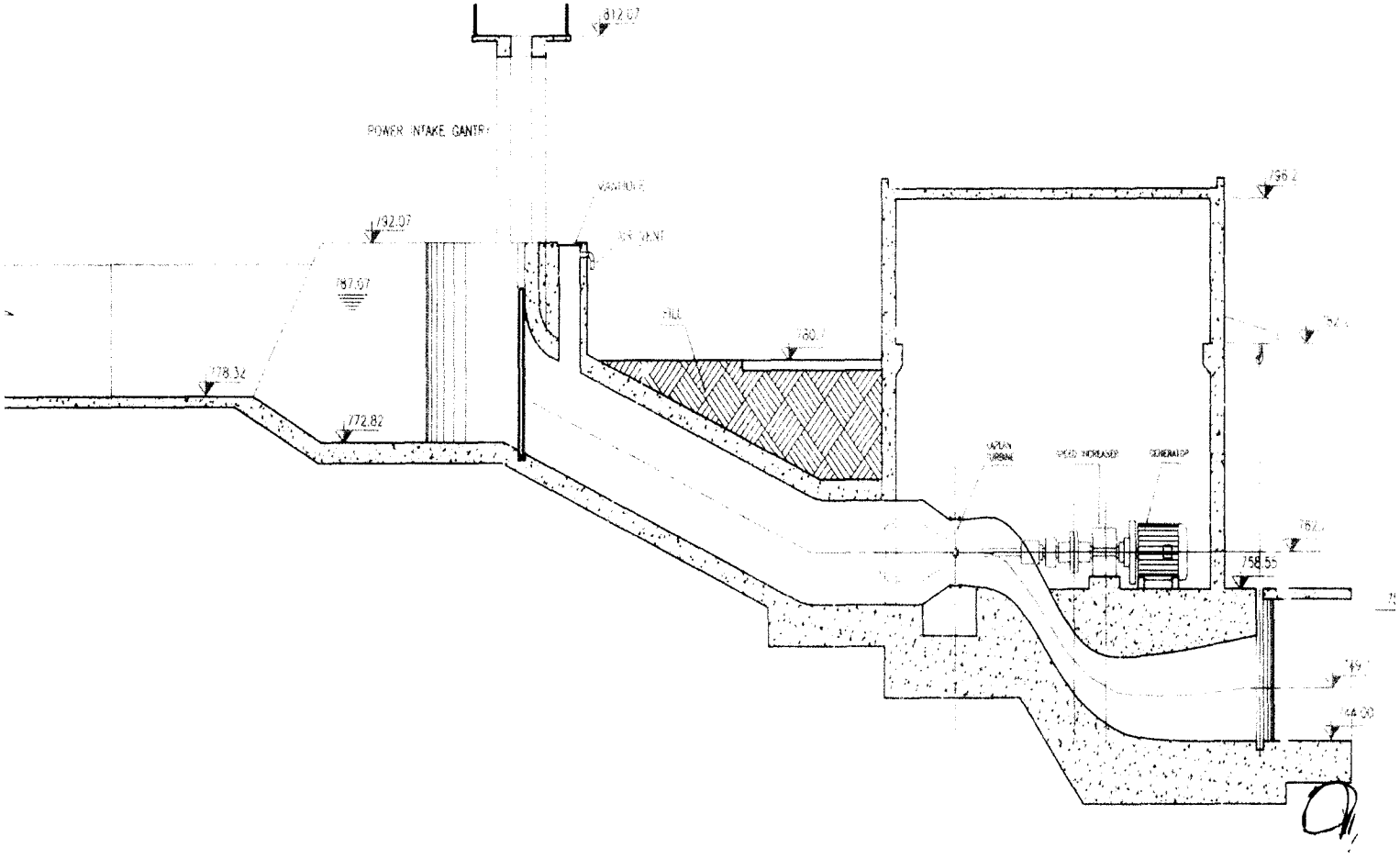
Powerhouse Layout of the Generation Facility/Hydel Power Plant of the Licensee



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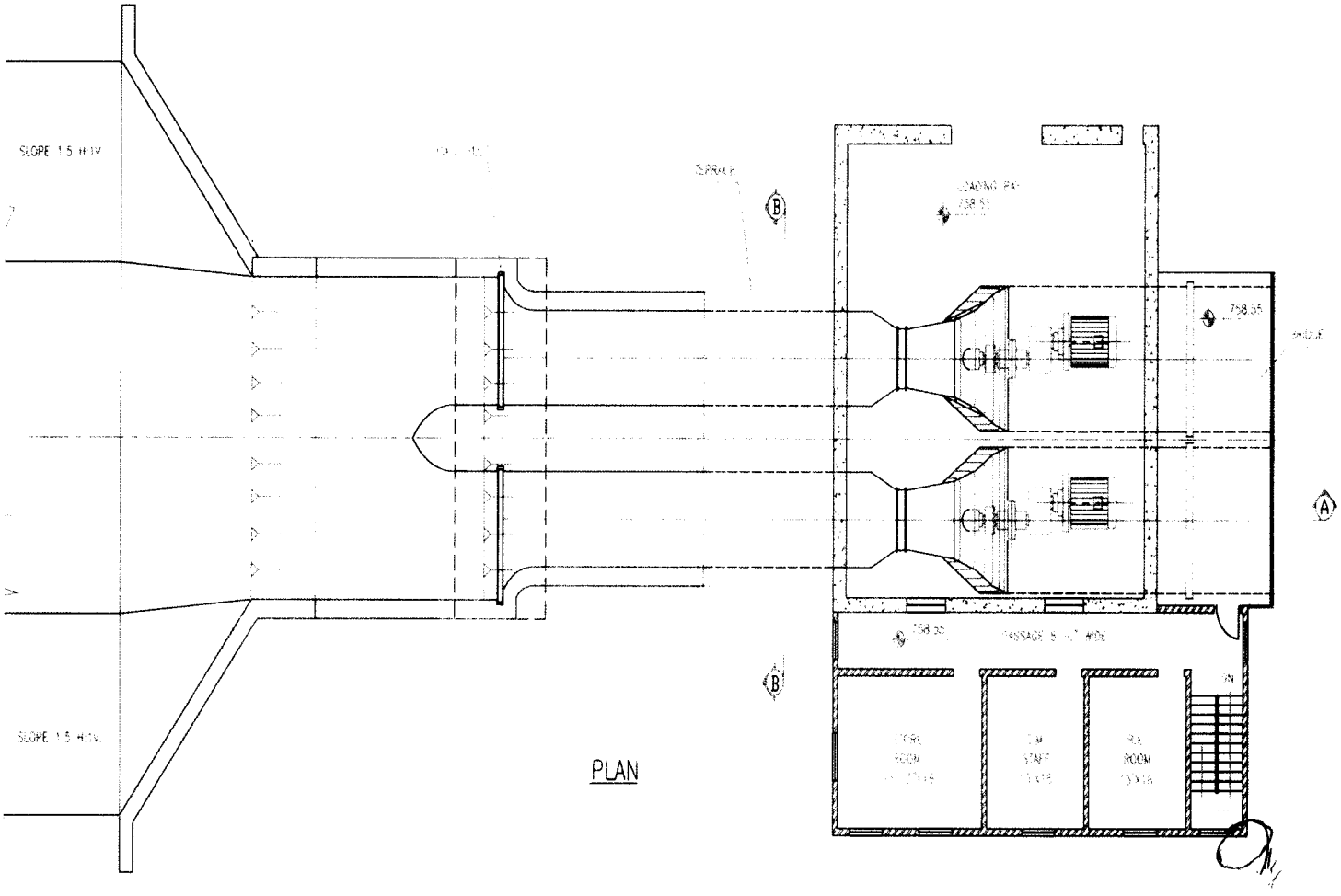
Longitudinal Section of Powerhouse of the Generation Facility/Hydel Power Plant of the Licensee



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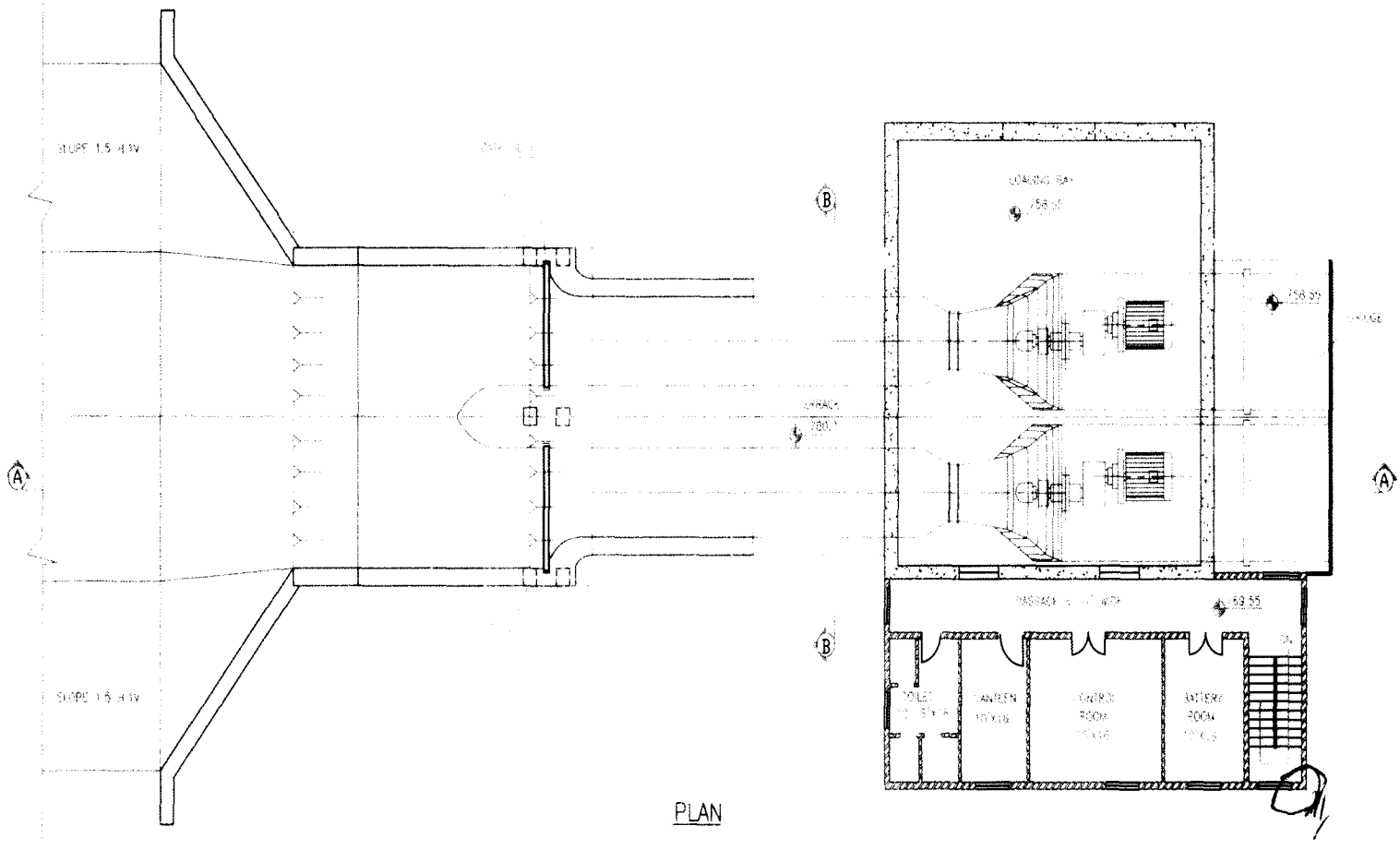
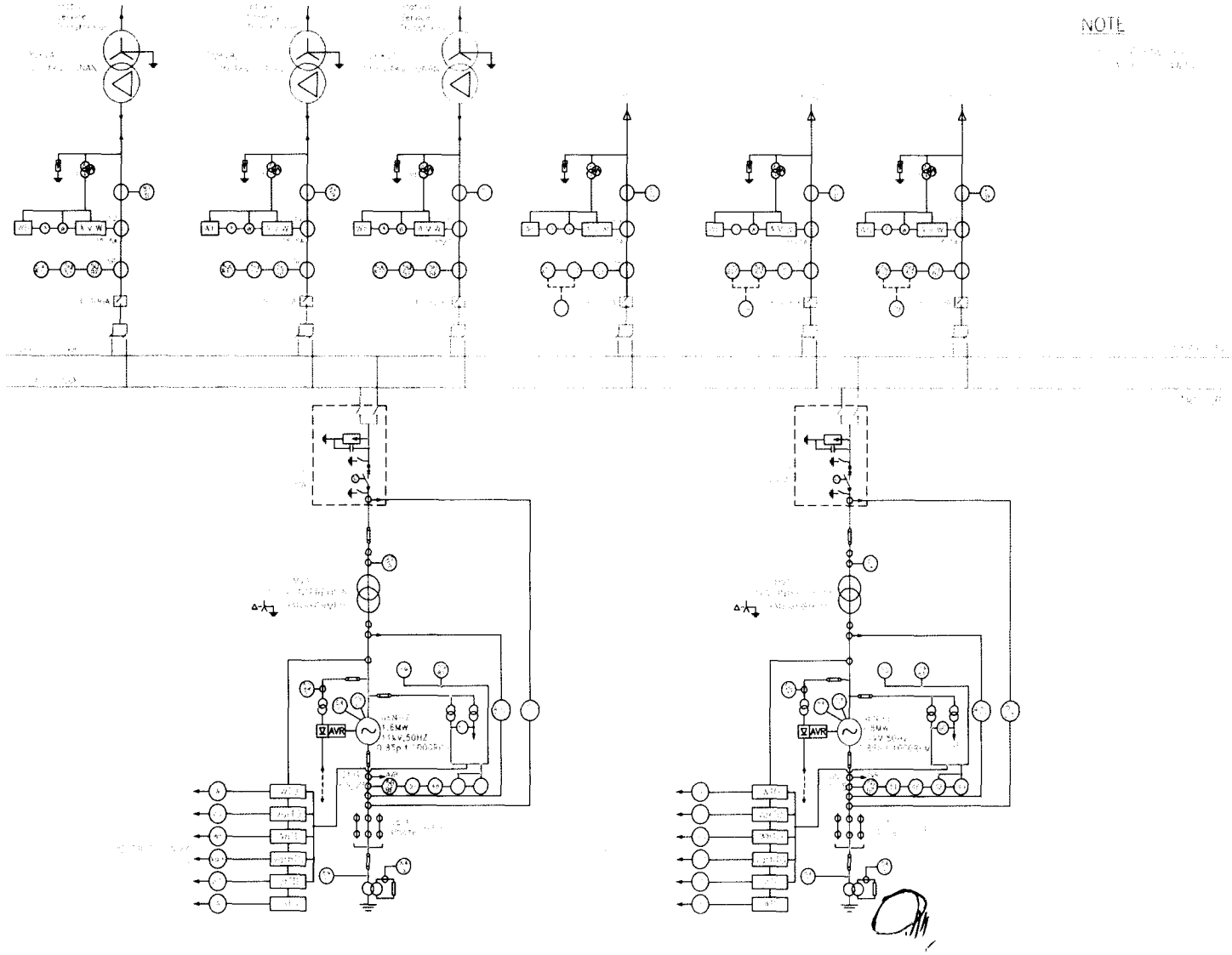
Longitudinal Section of Powerhouse of the Generation Facility/Hydel Power Plant of the Licensee



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



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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 Blue Star Energy (Private) Limited (BSEPL) will be dispersed to the load center of Gujranwala Electric Power Company Limited (GEPCO) 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 transmission line [measuring about sixteen (16) km in length using Osprey conductor] for connecting the generation facility/Hydel Power Plant to 132/11 kV Dinga grid station of GEPCO.

(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 GEPCO shall be communicated to the Authority in due course of time.

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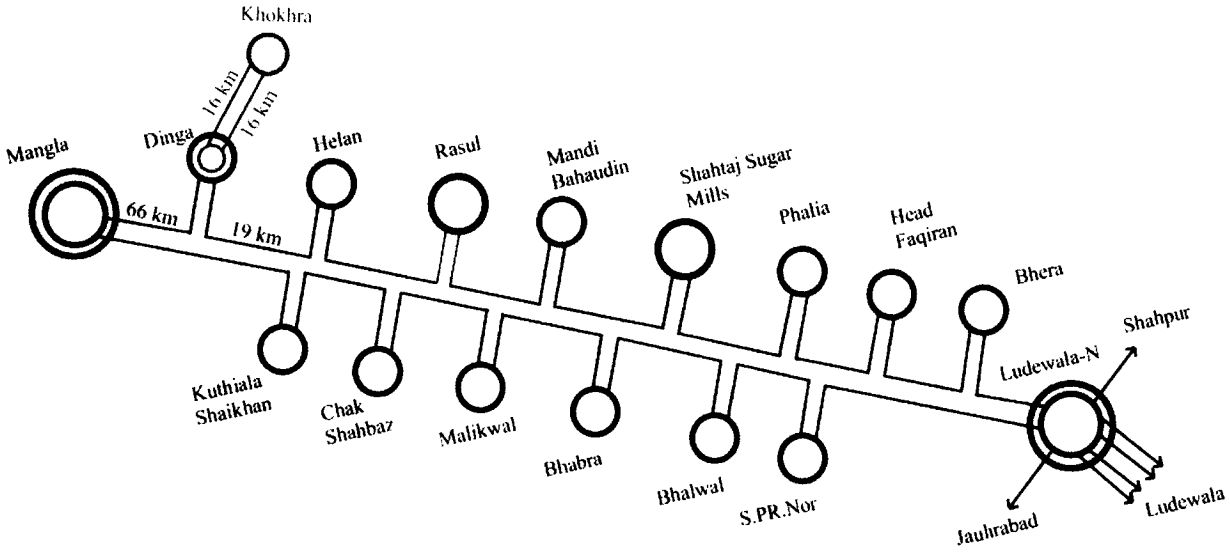
Schematic Diagram for Interconnection/Transmission Arrangement for Dispersal of Power from Generation Facility/Hydel Power Plant of the Licensee

132 kV Network Near Mandi Bahauddin With Khokhra Hydro Power Plant, September 2020



Legend

220 kV ——————
132 kV ——————
11 kV ——————
Proposed 11 kV ——————

Sketch - 2

INTERCONNECTION STUDY OF
KHOKHRA HYDRO POWER PLANT, SEPTEMBER 2020

FIG - 002

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Details of Generation Facility/Hydel Power Plant of the Licensee

(A). General Information

(i).	Name of the Company/ Licensee	Blue Star Energy (Private) Limited
(ii).	Registered/Business Office of the Company/Licensee	36-B, Askari 10, Lahore Cantt, Punjab
(iii).	Location of the Generation Facility	Upper Jhelum Canal at RD 255+080, near village Khokhra, Tehsil Kharian, District Gujrat, in the Province of Punjab
(iv).	Type of Generation Facility	Hydel Power Plant

(B). Plant Configuration

(i).	Size/Installed Capacity (Gross) of the Generation Facility	2.80 MW
(ii).	Type of Storage etc.	Run of Canal Hydropower Plant
(iii).	Water Source	Upper Jhelum Canal at RD 255+080
(iv).	Type of Technology	Two (02) 'S' type Horizontal Kaplan Turbines
(v).	Number of Units & Size (MW)	2 x 1.40 MW
(vi).	Turbine Make & Model*	Andritz Hydro, Mavel, Global Hydro, Vaptech, HP or Equivalent
(vii).	Expected COD of the Generation Facility	July 01, 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 are not available off the Shelf as per standard models.

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(C). Discharge

(i).	Mean Monthly Discharge(Maximum in June)	38.40 m^3/s
(ii).	Net Design Discharge	40.60 m^3/s
(iii).	Mean Annual Energy	16,488,042 kWh
(iv).	Plant Factor	67%

(D). Main Structure

(i).	Design Discharge	40.60 m^3/s (Through Powerhouse)
(ii).	Maximum Discharge	43.522 m^3/s

(E). Pen Stocks

(i).	No. of Units	02
(ii).	Internal Operating Pressure	13 psi
(iii).	Diameter	10 ft.
(iv).	Length	55 ft.

(F). Headrace Channel

(i).	Design Discharge	1537 Cusecs

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(ii).	Length	304 ft.
(iii)	Bed width	37 ft.
(iv).	Bed Slope	1 : 10,000
(v).	Side Slopes	1.5 H : 1 V

(G). Power House

(i).	Machine Hall Length	50 ft.
(ii).	Machine Hall Width	51.25 ft.
(iii).	Machine Hall Height	37.50 ft.

(H). Tailrace Channel

(i).	Maximum Discharge	1433 Cusecs
(ii).	Bed Width	60 ft.
(iii).	Bed Slope	1:5000

(I). Net Head

(i).	Maximum Net Head	32.23 ft.
(ii).	Minimum Net Head	23.85 ft.

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(iii).	Head Loss	8.38 ft.

(J). Hydro-mechanical Equipment

(i).	Type of Turbine	Horizontal Shaft Kaplan
(ii).	No. of Units	02
(iii).	Rated Flow for each Unit	20.3 m^3/s
(iv).	Capacity	1.40 MW
(v).	Rotational Speed	214.3 rpm
(vi).	Design Head	8.15 meters

(K). Electrical Equipment Generator

(i).	Type of Generator	Synchronous Type
(ii).	No. of Units	02
(iii).	Capacity	1.40 MW
(iv).	Power factor	0.80 lagging-0.90 leading
(v).	Frequency	50 Hz
(vi).	Nominal Voltage	6.3 kV
(vii).	Nominal Speed	250 rpm

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(L). Transformer

(i).	No. of Transformers	02
(ii).	Capacity	2.2 MVA each
(iii).	Low Voltage (Primary)	6.3 kV
(iv).	High Voltage (Secondary)	11 kV
(v).	Frequency	50 Hz
(vi).	Cooling	ONAN

(M). Plant Characteristics

(i).	Generation Voltage	6.3 kV
(ii).	Frequency	50 Hz
(iii).	Power Factor	Leading 0.90 and Lagging 0.80
(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

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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.

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SCHEDULE-II

(1).	Total Installed Gross Capacity of the Generation Facility (4 x 2.6225 MW Kaplan Turbines)	2.80 MW
(2).	De-Rated Capacity of the Generation Facility at Reference Site Conditions	2.80 MW
(3).	Total Auxiliary Consumption of Generation Facility	0.028 MW
(4).	Net Capacity of Generation Facility at Reference Site Conditions	2.772 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 Energy Purchase Agreement or any other Applicable Document(s).

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