National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

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No. NEPRA/R/ADG(L)/LAG-474/3653-37 October 16, 2020

The Project Director,
Koto Hydel Power Plant,
Pakhtunkhwa Energy Development Organization,
Government of Khyber Pakhtunkhwa
221-PEDO House, Plot # 38, Sector B/2, Phase-V, Hayatabad, Peshawar
Ph: 091-9217446

Subject: **Grant of Generation Licence No. GL(Hydel)/16/2020**
Licence Application No. LAG-474
Pakhtunkhwa Energy Development Organization (PEDO)
(Koto Hydel Power Plant)

Reference: PEDO's application vide letter No. 1639/PEDO/PD/KOTO HPP dated 27-11-2019.

Enclosed please find herewith Generation Licence No. GL(Hydel)/16/2020 granted by National Electric Power Regulatory Authority (NEPRA) to Pakhtunkhwa Energy Development Organization (PEDO) for its 40.80 MW Koto Hydel Power Plant located on River Panjkora at 7 - Km downstream of Town Timergara Near the Village Koto, Tehsil Timergara, District Lower Dir, in the Province of Khyber Pakhtunkhwa, pursuant to Section I4B of the NEPRA Act. 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: As Above

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(Syed Safeer Hussain)

Copy to:

1. Secretary, Ministry of Energy (Power Division), A Block, Pak Secretariat. Islamabad.
2. Managing Director, NTDC, 414-WAPDA House, Lahore.
3. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad.
4. Chief Executive Officer, Peshawar Electric Supply Company Limited, WAPDA House, Shami Road, Sakhi Chashma, Peshawar.
5. Director General, Environment Protection Department, Government of KPK, 3rd Floor, Old Courts Building, Khyber Road, Peshawar Cantt.
6. Secretary, Energy and Power Department, Government of Khyber Pakhtunkhwa, 1st Floor, A-Block, Abdul-Wali Khan Multiplex, Civil Secretariat, Peshawar.

National Electric Power Regulatory Authority (NEPRA)

Determination of the Authority in the Matter of Application of Pakhtunkhwa Energy Development Organization for the grant of Generation Licence for its Koto Hydel Power Plant

~~September~~ Oct 16, 2020
Case No. LAG-474

(A). Background

(i). The province of Khyber Pakhtunkhwa is blessed with huge hydropower potential. In order to harness hydropower potential in the province, the Government of Khyber Pakhtunkhwa has set up Pakhtunkhwa Energy Development Organization (PEDO).

(ii). PEDO has identified around 6000 MW hydropower potential at various sites all over the province. The identified/selected sites are at different stages of implementation. One of such site in the province is at village Koto, tehsil Timergara, district Lower Dir.

(B). Filing of Application

(i). PEDO submitted an application on December 04, 2019 for the grant of generation licence in terms of Section-14B of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the "NEPRA Act") read with the relevant provisions of the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 (the "Licensing Regulations").

(ii). The Registrar examined the submitted application to confirm its compliance with the Licensing Regulations and observed that the application lacked some of the required information/documentation. In view of the said, the Registrar directed PEDO for submitting the missing information/documentation and the same was received on December 20, 2019. Accordingly, the Registrar submitted the application for the consideration of the Authority to decide the admission of the same 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 January 28, 2020

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for consideration of the grant of the generation licence as stipulated in Regulation-7 of the Licensing Regulations. The Authority also approved a notice of admission to be published in the press for inviting comments of general public, interested and affected persons in the matter as stipulated in Regulation-8 of the Licensing Regulations. Accordingly, the said notices were published in one (01) Urdu and one (01) English newspaper on February 03, 2020.

(iii). In addition to the above, the Authority also 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 the approved list on February 04, 2020, soliciting their comments for assistance of the Authority.

(C). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from two (02) stakeholders including Indus River System Authority (IRSA) and Central Power Purchasing Agency (Guarantee) Limited (CPPA-G). The salient points of the comments offered by the above stakeholders are summarized below:-

(a). IRSA submitted that the Authority may ask the sponsors to provide it a copy of PC-1, along with feasibility report, of the project and also apply for No objection Certificate (NOC);

(b). CPPA-G submitted that the regulatory requirements for issuance of generation licence are envisaged in the NEPRA Licensing (Generation) Rules, 2000 (the "Generation Rules"). In this regard, Rule-3(5) of the Generation Rules stipulates that the project must satisfy the 'least cost option criteria' including, *inter alia*, there exists a demand for the proposed facility in view of the forecasts and requirements for additional capacity. Further, the proposed facility should result in optimal utilization of the available resources. Further, Regulation-5 of the Licensing Regulations provide the eligibility criteria for the grant of generation licence. The said criteria include the provision related to fulfilment of the requirement by the applicant regarding existence of demand for the proposed facility. PPIB has devised a mechanism for development of hydel projects initiated by the provinces and

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according to it, the future projects are to be entertained in accordance with the IGCEP. In this regard, the project of Koto is not included in the lists of projects notified by PPIB. It is pertinent to mention that NTDC is required to prepare a ten year Indicative Generation Capacity Expansion Plan-IGCEP as provided in the relevant provisions of Grid Code which has not been approved. Further to the above, Cabinet Committee on Energy (CCoE) had decided that all future RE projects will be developed pursuant to the new RE policy for which Council of Common Interest (CCI) has given in-principle approval. It is submitted that CPPA-G has neither issued any consent for purchase of power from the Project nor has it been issued power evacuation certificate which is mandatory in terms of provisions of Power Generation Policy 2015. It is pertinent to mention that CPPA-G informed PEDO that procurement of power from the project of Koto will be considered after the approval of IGCEP and Transmission Expansion Plan (TSEP). In this regard, NTDC vide its letter dated February 21, 2019, has pointed out that integrated system study needs to be carried out for evacuation of power from hydel projects in Khyber-Pakhtunkhwa which has not been carried out. In view of the above, CPPA-G requests that application of PEDO for its Koto hydel project may be rejected as the project does not adhere to the applicable legal, regulatory and policy framework. Further, CPPA-G submitted that a hearing in the matter may be held for providing detailed submissions as well as a session with the technical team of the Authority prior to hearing.

(ii). The Authority reviewed the above comments of stakeholders and considered it appropriate seeking perspective of PEDO on the observations of IRSA and CPPA-G. On the comments of IRSA, it was submitted that the project is being developed on the river of Panjkora as a Run of River scheme. The water diverted from the river will be released back to the main river not causing any impact on the flow of the river. In consideration of the said, all the necessary documentation desired by IRSA has been provided and detailed presentation has also been given. Later on, PEDO submitted the required NOC from IRSA.

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(iii). On the observations of the CPPA-G, it was submitted that PEDO has been entrusted under its Act approved by the provincial assembly of Khyber Pakhtunkhwa, *inter alia*, to develop the available hydel potential of the province for power generation which is one of the most economic source of energy and also environment friendly. PEDO confirmed that the relevant consent and approvals required for consideration of the generation licence have been obtained and submitted along with its application. PEDO clarified that its project of Koto has already been mentioned in "Committed Project" of the draft IGCEP prepared by NTDC and submitted to the Authority for its approval with date of commissioning in June 2020. PEDO is fully aware of its responsibility to develop the project on least cost basis and the same is evident that the appointment of Management Consultant (MC) as well selection of EPC Contractor has been made through Competitive Bidding under PEC and PPRA rules which are designed to yield the least possible cost for a given service. It was also clarified that the project of Koto was initiated in 2016 whereas, minutes of meeting of PPIB regarding processing of small hydel projects were issued in 2019 therefore, the same are not applicable to the Koto project retrospectively.

(iv). The Authority considered the above submissions of PEDO and considered it appropriate to proceed further in the matter as stipulated in the Licensing Regulations and the Generation Rules.

(D). Evaluation/Findings

(i). The Authority reviewed the submissions of PEDO including the information provided in its application for the grant of generation licence, comments of the stakeholders and the rejoinder in the matter. Further to the said, the Authority has also considered the feasibility study of the project, interconnection & dispersal arrangement studies, Initial Environmental Examination (IEE) of the project and the relevant rules & regulations.

(ii). The Authority has observed that PEDO is an autonomous organization governed by its Board of Directors and is under the administrative control of Irrigation and Power Department of Khyber Pakhtunkhwa. It is pertinent to mention that under Section-24 of the NEPRA Act, the licensees are required to be companies registered under the Companies Ordinance, 1984 (XLVII of 1984) except WAPDA and PEDO. In view of provisions of the NEPRA Act, PEDO fulfills the said basic criteria for the consideration for the grant of a licence. PEDO has successfully completed eight (08)

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small and medium sized hydel power projects. These include (a). 81.00 MW Malakand-III; (b). 18.00 MW Pehur; (c). 1.80 MW Shishi; (d). 4.20 MW Reshun; (e). 2.40 MW Machai; (f). 17.00 MW Ranolia; (g). 36.60 MW Daral Khwar; and (h). 11.80 MW Karora Projects.

(iii). The Authority has considered the submission and has observed that currently, PEDO is working on a number of hydropower projects which are at different stages of implementation. These hydropower potential sites are mainly located in the Northern districts of Khyber Pakhtunkhwa i.e. Chitral, Dir, Swat, Mansehra and Kohistan. The major source of funding for financing these projects had been the Hydel Development Fund and the Annual Development Program of Govt. of Khyber Pakhtunkhwa. In view of the above, it is clear that PEDO has the required financial and technical capability to implement hydel power projects;

(iv). The Authority reviewed the feasibility study of the project and observed that the project of Koto Hydel Power Plant was initially conceived by GTZ/SHYDO/PEDO during 1992-98 and the initial potential was estimated as 18.00 MW. The work of carrying out the detailed feasibility study was awarded to Associated Consulting Engineers – ACE (Pvt.) Limited in September 2008 and was completed in September 2011 which identified the potential of the site to 31.17 MW. Accordingly, ECNEC approved a PC-I of the project on August 28, 2013 with a total cost of approximately Rs. 8814.63 million.

(v). Later on, PEDO signed a Consultancy Agreement with a joint venture of Electra Consultants and Integration, environment & energy, Germany on October 28, 2013 to provide Management Consultancy services for Design, Construction and Supervision of 31.17 MW Koto Hydel Power Project. Accordingly, a detailed review feasibility of the project was carried out suggesting changes in some of the design parameters resulting in enhancement of the capacity of the project to 40.80 MW. Later on, ECNEC on July 10, 2017 approved a revised PC-1 of the project with a total outlay Rs. 13.998 Billion. After going through an open competitive process, the EPC contract was awarded on December 10, 2014 to a JV of Sichuan, Sarwar & Co., Silian and Chongqing Luyang with the Contract Price of approximately Rs. 12.599 billion and Notice to proceed was issued on February 02, 2015.

(vi). As explained above, PEDO has submitted the current application for the grant of generation licence for its project of Koto which is a 40.80 MW Run of

River Project proposed to be developed at village Koto, tehsil Timergara, district Lower Dir in the province of Khyber Pakhtunkhwa. The proposed Koto hydropower project is located approximately 7-km upstream of Timergara Town in Lower Dir, at 34°- 36' north latitude and 73° -15' east longitude. The river of Panjkora flows through the area and has sufficient flow throughout the year. Kunai Khwar joins Panjkora River few kilometers downstream of the project area weir axis downstream of powerhouse. The scheme falls into the lower section of Panjkora River at Koto, where the Panjkora river changes its directions from E-W to S-W.

(vii). The Authority has observed that the total installed capacity of the generation facility/Hydel Power Plant is 40.80 MW consisting of three (03) Vertical Francis type turbines (3 x 13.60 MW). The said capacity of the project has been optimized keeping in view the design discharge of 126 m^3/s (4,448 Cusecs). The Koto Hydel Power Plant is a medium head (gross head of 47.13 m and net head 38.63 meter) run of river project with mean annual energy of approximately 205.00 GWh at plant factor of 58%. The project is in advanced stage and is expected to be completed by December 31, 2020.

(v). PEDO through its consultant(s) has carried out the required GIS to determine the arrangement for dispersal of electric power from the proposed generation facility/Hydel Power Plant. According to the said study, there will be interim as well as permanent interconnection. The interim interconnection for the project will be a 132 kV D/C transmission line (measuring approx. 1.00 km long on ACSR Rail Conductor) for making an In-Out of one circuit of 132 kV SDT Transmission Line between Timmergarah-Warai grid stations connecting the proposed generation facility/Hydel Power Plant with system of PESCO.

(vi). Whereas , the permanent interconnection for the project will be at 132 kV D/C transmission line (measuring approx. 11.00 km long on ACSR LYNX Conductor) for making an In-Out of one circuit of 132 kV D/C Transmission Line between Khar Bajwar-Timmergarah grid stations connecting the proposed generation facility/Hydel Power Plant with system of PESCO. In this regard, PESCO as well NTDC have vetted/approved the above mentioned GIS, confirming that all the relevant parameters are within permissible limits of the Grid Code.

(vii). The Authority has observed that the proposed project, for which generation licence is being sought, is based on RE source and does not cause

pollution as in the case of conventional power plants. However, the operation of the generation facility/Hydel Power Plant may cause soil pollution, water pollution and noise pollution during construction and operation. In this regard, the Authority has observed that PEDO carried out the Initial Environment Examination (IEE) study for the project and submitted the same for the consideration and approval of Environmental Protection Agency, Government of Khyber Pakhtunkhwa (EPAGoKPK). In this regard, EPAGoKPK had already issued a NOC to PEDO 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(4) and Rule-3(5) of the Generation Rules. In the particular case under consideration, the Authority considers that conditions of Rule-3(2) and Rule-3(3) stand satisfied as PEDO 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 provision of Rule-3(4) of the Generation Rules regarding holding a public hearing is not applicable as there was no issue which required this exercise.

(ix). 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 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 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 and the costs of the transmission system expansion required to remove such constraints; (f). the short-term and the long-term forecasts for additional

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capacity requirements; (g). the tariff resulting or likely to result from the construction or operation of the proposed generation facility; 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. In consideration of the above, the Authority considers that the proposed project will result in optimum utilization of the RE of the province of Khyber Pakhtunkhwa which is untapped, resulting in pollution free electric power.

(x). As explained in the preceding paragraphs, the sponsor 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 thin population of the area, the project will not result in cost and right-of-way issues for the provision of transmission and interconnection facilities. In view of the said, the Authority is of considered opinion that the project of PEDO fulfills the eligibility criteria for grant of generation licence as stipulated in the NEPRA Act, rules, 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. In view of the said reasons, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources including RE must be developed on priority basis.

(ii). The existing energy mix of the country is heavily skewed towards thermal power plants, mainly operating on imported fossil fuel. The continuous import of fossil fuel not only creates pressure on the precious foreign exchange reserves of the country but is also an environmental concern. Therefore, in order to achieve sustainable development, it is imperative that indigenous RE resources are given priority for electric power generation and their development is encouraged. In view of the said, the Authority is of the considered opinion that there is a worldwide trend to increase the share of RE in the energy mix of any country and it is very likely that the Govt. of Pakistan will also be considering to increase the share of RE substantially in the coming years.

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(iii). The Authority has noted that PEDO is setting up a hydel based generation facility/Hydel Power Plant as Run-of-River scheme on Panjkora River located at village Koto, tehsil Timergara, district Lower Dir, in the province of Khyber Pakhtunkhwa having an installed capacity of 40.80 MW. As explained in the preceding paragraphs, PEDO 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.

(iv). In view of the said, the Authority considers that proposed project fulfils the eligibility criteria for the grant of generation licence as envisaged in the existing regulatory regime. Further, the proposed project of PEDO will help in diversifying the energy portfolio as well increasing share of RE in the country. It will not only enhance the energy security of the country by reducing the dependence on imported fuel but will also help in reducing carbon emissions by generating clean electricity, thus improving the environment.

(v). The Rule-5(1) of the Generation Rules stipulates that the term of a generation licence is to be consistent with the maximum expected useful life of the units comprised in a generating facility, except where an applicant consents to a shorter term. According to the information provided by PEDO, its generation facility/Hydel Power Plant will achieve Commercial Operation Date (COD) by December 31, 2020 and will have a useful life of more than thirty (30) years from its COD. In this regard, PEDO has requested that the term of the proposed generation licence may be fixed as thirty (30) years. The Authority considers that said submission of PEDO about the useful life of the generation facility/Hydel Power Plant and the subsequent request to fix the term of the generation licence is consistent with international benchmarks therefore, the Authority fixes the term of the generation licence as thirty (30) years from COD of the project subject the Section 14-B of the NEPRA Act.

(vi). Regarding the tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. In this regard, PEDO in terms of the relevant provisions of the relevant rules has already filed a petition for determination of tariff of the project. The Authority has admitted the said petition and the same is in advance stage of processing. In view of the said, the Authority considers it appropriate to direct PEDO to charge the power

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purchaser only such tariff which has been determined, approved or specified by it. Accordingly, the Authority decides to include a specific article in the generation licence. Further, the Authority directs PEDO to adhere to the said in letter and spirit without any exception.

(vii). About the compliance with the environmental standards, as discussed in the preceding paragraphs, the Authority has observed that PEDO has provided the NOC from EPAGoKPK and has confirmed that the project will comply with the required standards during the term of the generation licence. In view of the importance of the issue, the Authority has decided to include a specific article in the generation licence along with other terms and conditions making it obligatory for PEDO to comply with relevant environmental standards at all times. Further, the Authority directs PEDO to submit a report on a bi-annual basis, confirming that operation of its generation facility/Hydel Power Plant is in compliance with the required environmental standards as prescribed by the concerned environmental protection agency.

(viii). As the proposed generation facility/Hydel Power Plant of PEDO will be using RE Resource for Generation of Power, therefore the project may qualify for the Carbon Credit under the Kyoto Protocol. Under the said protocol, projects coming into operation up to the year 2020 may qualify for carbon credits. PEDO has informed that the project will have COD on December 31, 2020 which is within the deadline of the Kyoto Protocol. In view of this, a specific article for Carbon Credits and its sharing with the Power Purchaser has been included in the generation licence for which PEDO must take the appropriate actions at the suitable earliest time so that proceeds for the Carbon Credits are materialized. PEDO shall be required to share the proceeds of the Carbon Credits with the Power Purchaser as stipulated in the generation licence.

(ix). Further to the above, the Authority has observed that CPPA-G in its comments raised observations pertaining to: (a). fulfilment of least cost option criteria as stipulated in Rule-3 of the Generation Rules; (b). consideration of demand-supply situation, availability of surplus before the grant of generation licence; (c). non-inclusion of the project in list of PPIB and future projects in accordance with IGCEP; (e). development of future RE projects in light of RE policy; (f). non-issuance of consent of power purchaser; and (g). integrated system studies to be carried out by NTDC for hydel projects in Chitral corridor.

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(x). In consideration of the above, the Authority will like to clarify that while approving the grant of generation licence it invariably considers the least cost option criteria as stipulated in the relevant regulations. In the particular case of Koto, this criteria has again been deliberated and findings of the Authority are explained at Para-D(ix) confirming that the project comply with the above criteria. Regarding availability of surplus and demand-supply situation, the Authority considers that the same is an issue requiring more vigorous analysis in the matter to justify this aspect. In this regard, the Authority will like to highlight that similar concerns have been raised by CPPA-G in applications/cases referring to State of Industry Report for the year 2017. In consideration of the said, the Authority reiterates its earlier findings given in the cases of Enertech Bostan Solar (Private) Limited, P&G Energy (Private) Limited, Kulachi Solar Power (Private) Limited and Modification-I of ICI Pakistan Limited wherein it has been established that a number of projects are facing delay for one reason or the other and there may not be surplus available as being projected by CPPA-G.

(xi). About the non-inclusion of Koto project in list of future hydel projects by PPIB, the Authority has reviewed the same and observed that the said list indicates projects proposed to be developed by private sector companies whereas, project of Koto is being developed as public sector project therefore the same cannot be included in the list. Regarding the implementation of projects in light of new RE policy, the Authority clarifies that the same is applicable to all RE projects except hydel. The Authority has observed that the draft IGCEP which was submitted to Authority for its consideration and approval duly considers the Koto project as "Committed Project" in the year 2020. About consent of power purchaser, the Authority considers there is no requirement of obtaining consent of power purchaser for the grant of generation licence. Regarding integrated system studies for evacuation of power from Chitral corridor, the Authority understands that PEDO is already in process of hiring consultant for the same however, for the particular project PEDO carried out the required GIS and NTDC has already approved GIS/interconnection & dispersal arrangement therefore, the said observation does not merit consideration. In view of the said, the Authority considers that the observations of CPPA-G stand addressed.

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

Authority:

Engr. Rafique Ahmed Shaikh
(Member)

Engr. Rehmatullah Baloch
(Member)

Engr. Bahadur Shah
(Member)

Saif Ullah Chattha
(Member/Vice Chairman)

Engr. Tauseef H. Farooqi
(Chairman)

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National Electric Power Regulatory Authority (NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. GL(Hydel)/16/2020

In exercise of the powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-14B of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997/Amendment Act, 2018, the Authority hereby grants a Generation Licence to:

Pakhtunkhwa Energy Development Organization/PEDO
Set up under the PEDO Act of 2014 of Government of Khyber Pakhtunkhwa (KPK)

for its Hydel Based Generation Facility Located on River Panjkora at 7-Km downstream of Town of Timergara Near the Village Koto, Tehsil Timergara, District Lower Dir in the Province of Khyber Pakhtunkhwa

(Total Installed Capacity: 40.80 MW Gross)

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

Given under my hand this on 16th day of ~~September~~ Oct Two Thousand & Twenty and expires on 30th day of December Two Thousand & Fifty.

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Registrar

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Article-1
Definitions

1.1 In this licence

(a). "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 as amended or replaced from time to time;

(b). "Applicable Documents" mean the Act, the rules and regulations framed by the Authority under the Act, any documents or instruments issued or determinations made by the Authority under any of the foregoing or pursuant to the exercise of its powers under the Act, the Grid Code, the applicable Distribution Code, the Commercial Code if any, or the documents or instruments made by the Licensee pursuant to its generation licence, in each case of a binding nature applicable to the Licensee or, where applicable, to its affiliates and to which the Licensee or any of its affiliates may be subject;

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

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

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

(f). "Carbon Credits" mean the amount of Carbon Dioxide (CO_2) and other greenhouse gases not produced as a result of generation of electric 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

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generation of electric 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;

(g). "Commercial Code" means the National Electric Power Regulatory Authority (Market Operator, Registration, Standards and Procedure) Rules, 2015 as amended or replaced from time to time;

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

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

(k). "Distribution Code" means the distribution code prepared by the concerned XW-DISCO and approved by the Authority, as may be revised from time to time with necessary approval of the Authority;

(l). "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;

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

(n). "Grid Code" means the grid code prepared and revised from time to time by NTDC with necessary approval of the Authority;

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(o). "Hydel Power Plant " means a generation facility for production of electric power using water as source;

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

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

(r). "Licensee" means **Pakhtunkhwa Energy Development Organization (PEDO)** or its successors or permitted assigns;

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

(t). "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;

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

(v). "PESCO" means Peshawar Electric Supply Company Limited or its successors or permitted assigns;

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

(x). "Power Purchaser" means CPPA-G which will be purchasing electric energy from the Licensee either on behalf of all XW-DISCOs

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or any single XW-DISCO, pursuant to an EPA for procurement of electric energy;

(y). "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;

(z). "XW-DISCO" means an Ex-WAPDA distribution company engaged in the distribution of electric power.

1.2 The words and expressions used but not defined herein bear the meaning given thereto in the Act or Generation Rules and Licensing 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 of this licence. 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.

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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 subject to Section 14-B of the Act.

4.2 Unless suspended or revoked earlier or Licence ceases to have effect, 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 only such tariff from the Power Purchaser 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.

7.2 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.

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7.3 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-8
Maintenance of Records

For the purpose of sub-rule(1) of Rule-19 of the Generation Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

Article-9
Compliance with Performance Standards

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

Article-10
Compliance with Environmental & Safety Standards

10.1 The generation facility/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.

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Article-11
Power off take Point and Voltage

The Licensee shall deliver the electric energy 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 properly calibrated automatic computerized recording device(s) for measuring flow of water at its generation facility/Hydel Power Plant for recording of data.

12.2 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.

12.3 The Licensee shall transmit the data for flows of water and power output 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.

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Article-15
Design & Manufacturing Standards

The photovoltaic cells and other associated equipment of the generation facility/Hydel Power Plant shall be designed, manufactured and tested according to the latest IEC, IEEE standards or any other equivalent standard in the matter. All the plant and equipment of 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 of the Licensee, as part of the Commissioning tests according to the latest IEC/IEEE standards and shall be used to measure its performance.

Article-17
Compliance with Applicable Law

The Licensee shall comply with the provisions of the Applicable Law, guidelines, directions and prohibitory orders of the Authority as issued from time to time.

Article-18
Corporate Social Responsibility

The Licensee shall provide the descriptive as well as monetary disclosure of its activities pertaining to Corporate Social Responsibility (CSR) on an annual basis.

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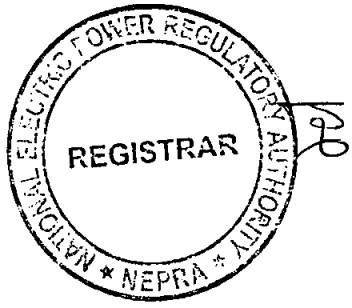
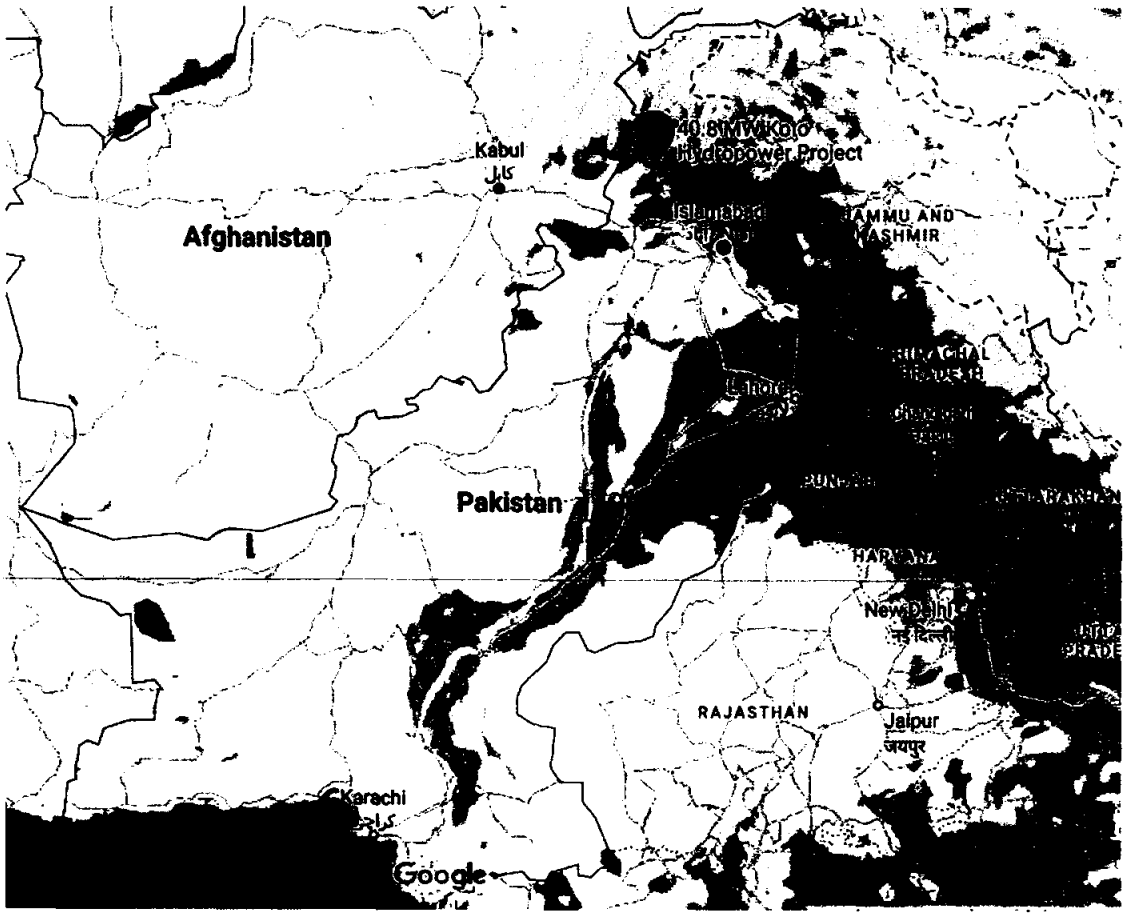
SCHEDULE-I

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.



Location of the Generation Facility/Hydel Power Plant of the Licensee on Map of Pakistan



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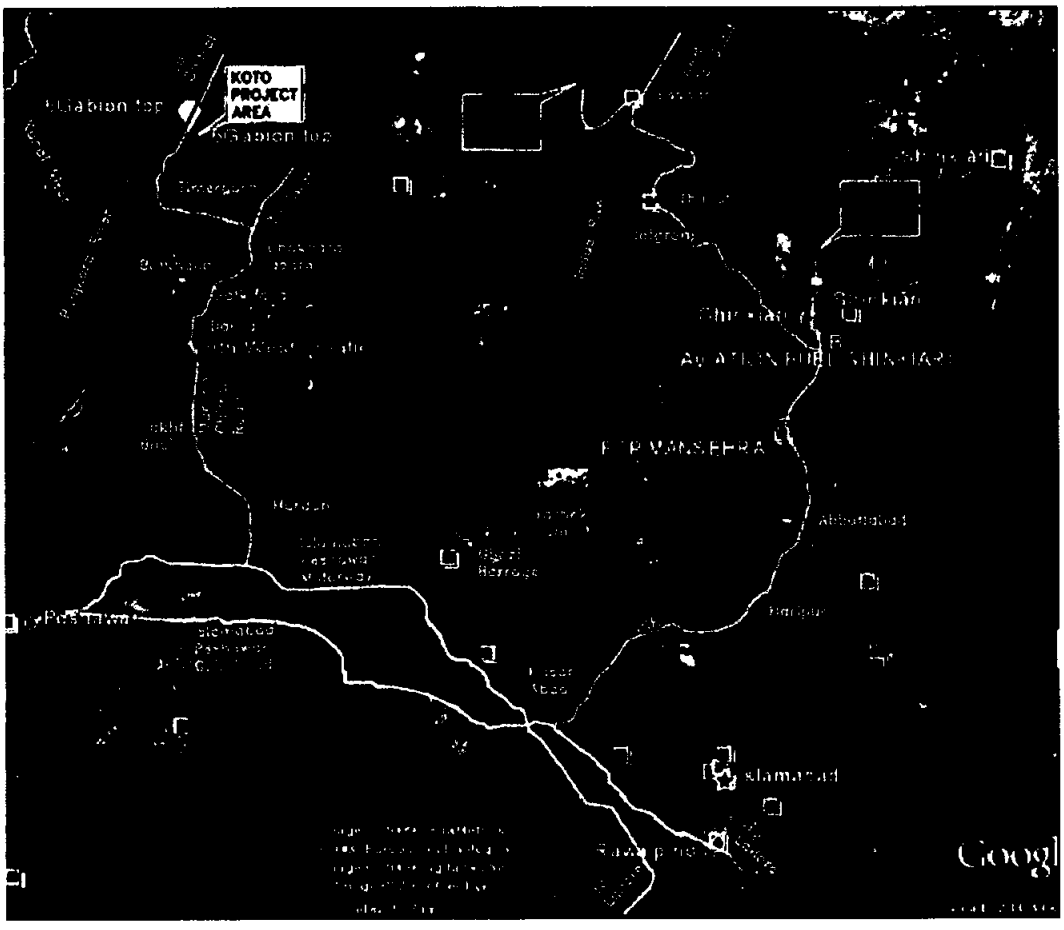
Location of the Generation Facility/Hydel Power Plant of the Licensee on Map of Pakistan Map of the Province of KPK



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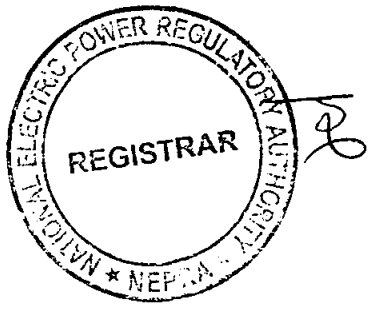
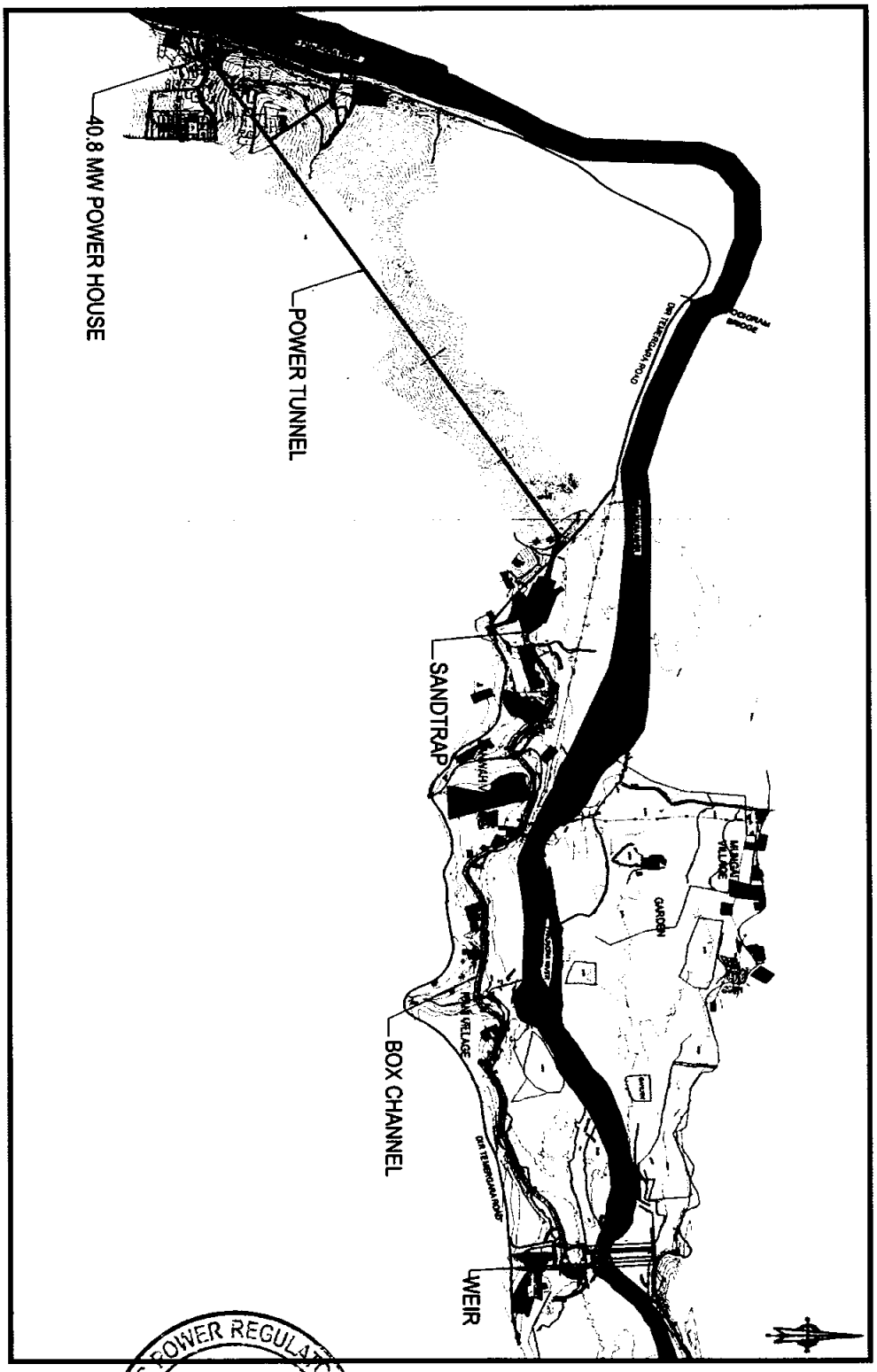
Land Coordinates of the Generation Facility/Hydel Power Plant of the Licensee

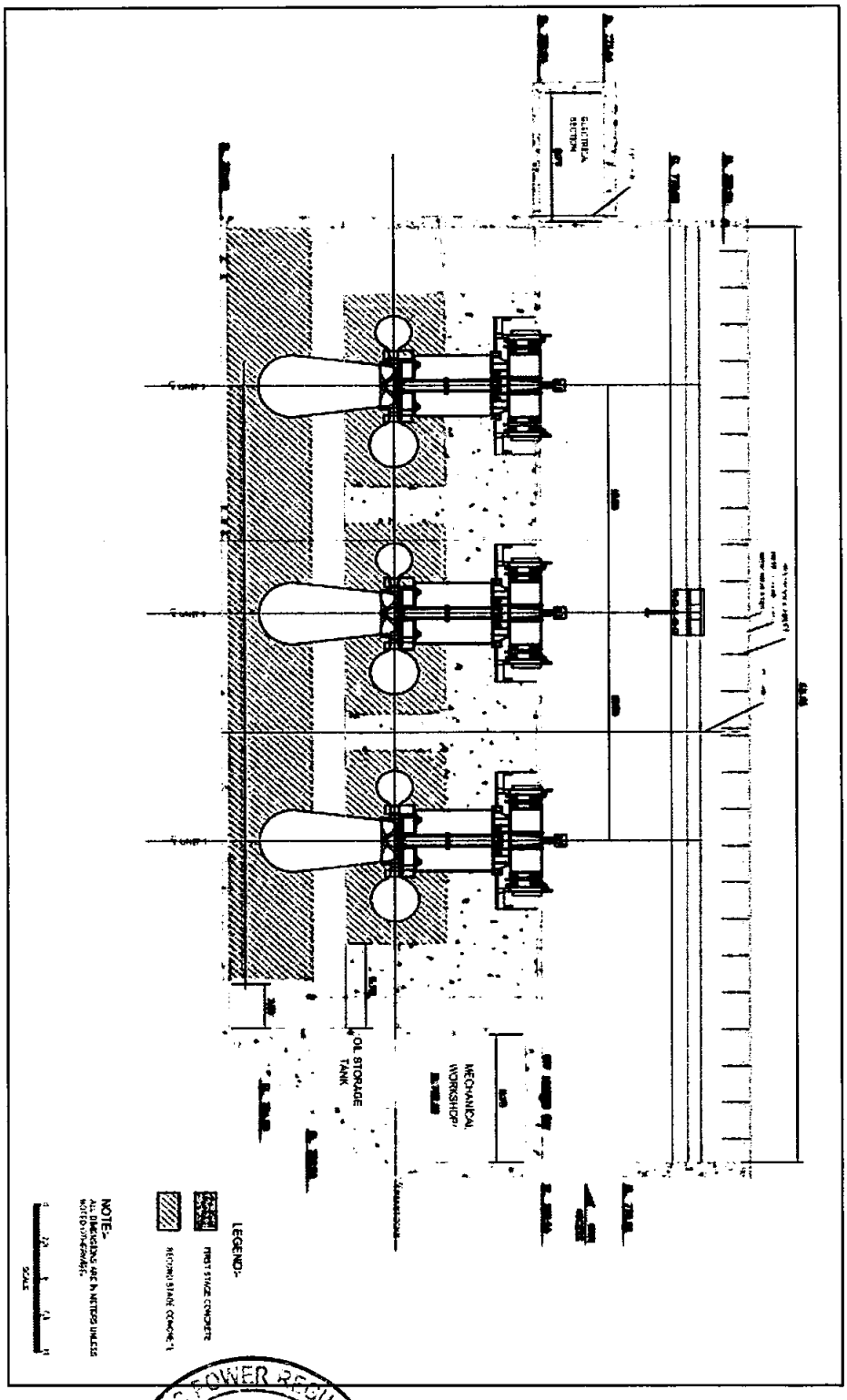
Site	WGS 84 Coordinates
Weir Intake	N 1182723, E 3101099
Powerhouse	N 1181876, E 3096792



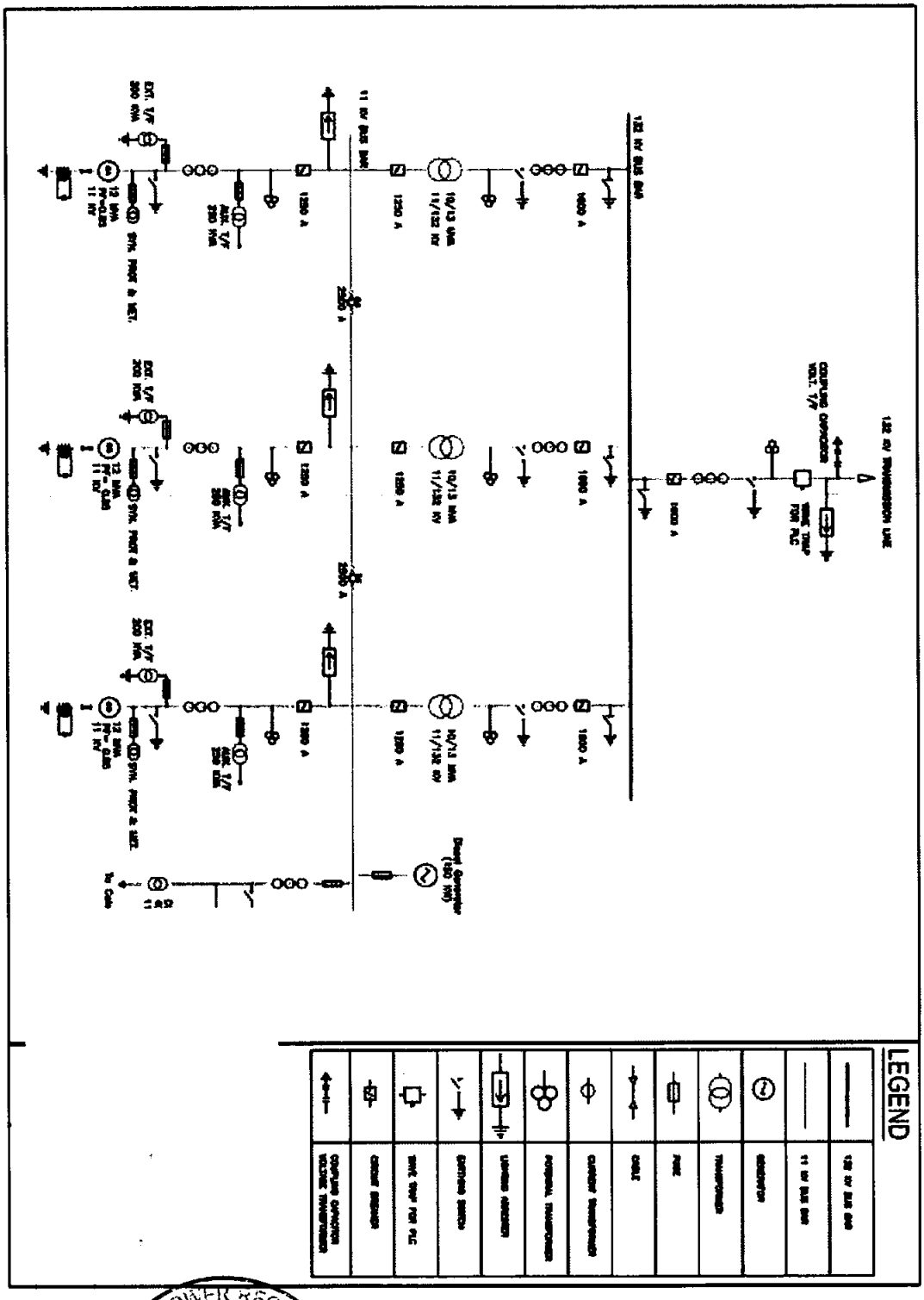
Lay-out of the Generation Facility/Hydel Power Plant of the Licensee



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



Single line Diagram (Electrical) of the Generation Facility/Hydel Power Plant Of the Licensee



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Interconnection Arrangement for Dispersal of Electric Energy/Power from the Generation Facility/Hydel Power Plant of the Licensee

The electric power generated from the generation facility/Hydel Power Plant of the Licensee of the Licensee/ Pakhtunkhwa Energy Development Organization/PEDO shall be dispersed to the load centre of PESCO.

(2). The proposed Interconnection Arrangements/Transmission Facilities for dispersal of power from generation facility/Hydel Power Plant of the Licensee/PEDO will consist of the following: -

(a). The interim interconnection for the project will be a 132 kV D/C transmission line (measuring approx. 1.00 km long on ACSR Rail Conductor) for making an In-Out of one circuit of 132 kV SDT Transmission Line between Timmergarah-Warai grid stations connecting the proposed generation facility/Hydel Power Plant with system of PESCO;

(b). The permanent interconnection for the project will be a 132 kV D/C transmission line (measuring approx. 11.00 km long on ACSR LYNX Conductor) for making an In-Out of one circuit of 132 kV D/C Transmission Line between Khar Bajwar-Timmergarah grid stations connecting the proposed generation facility/Hydel Power Plant with system of PESCO.

(3). Any change in the above Interconnection Arrangement/Transmission Facility duly agreed by Licensee/PEDO and PESCO, shall be communicated to the Authority in due course of time.

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Schematic Diagram for Dispersal of Electric Energy/Power from Generation Facility/Hydel Power Plant of the Licensee

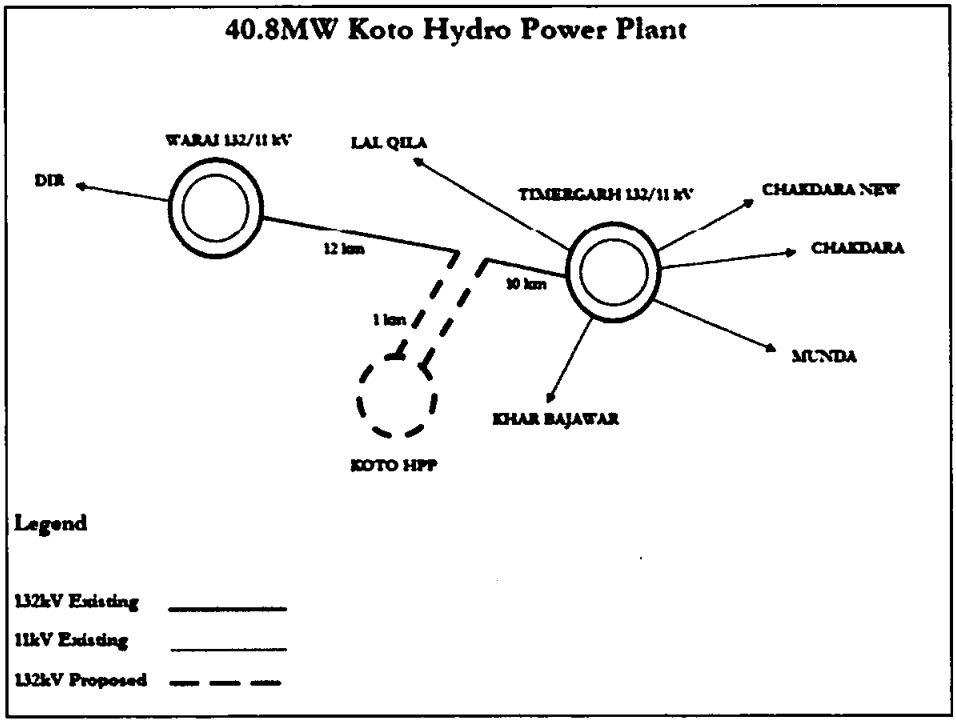

Figure-1:- Interim Interconnection Arrangement

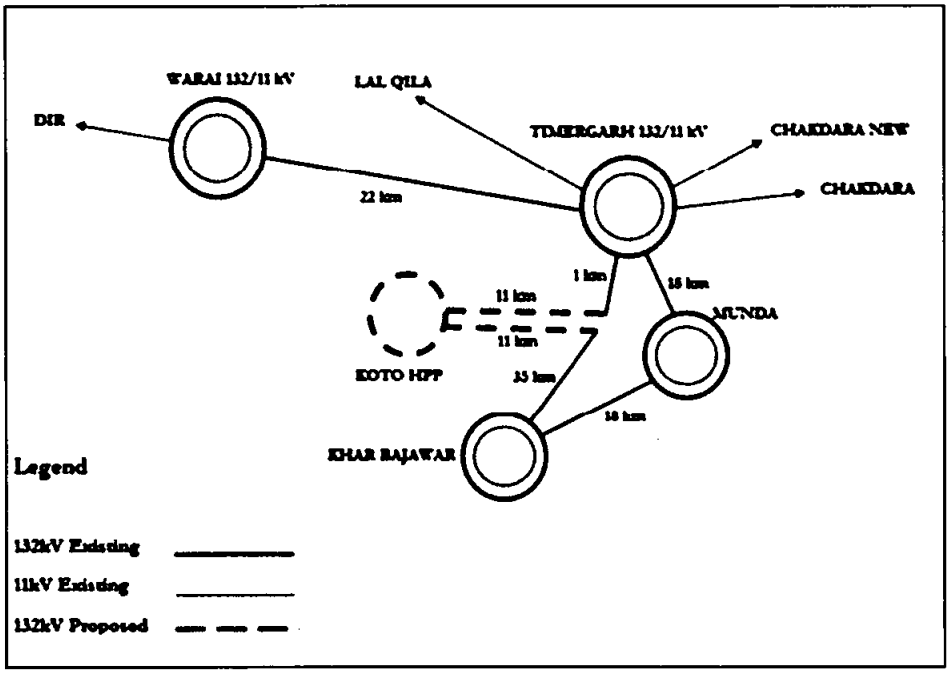

Figure-2:- Permanent Interconnection Arrangement

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Detail of Generation Facility/Hydel Power Plant of the Licensee

(A). General Information

(i).	Name of the Licensee/ Company	Pakhtunkhwa Energy Development Organization (PEDO)
(ii).	Registered/Business Office of the Licensee/ Company	PEDO House, 38-B2, Phase-V, Hayatabad, Peshawar
(iii).	Location of the Generation Facility	Village Koto, Tehsil Timergara, District Dir Lower in the Province of Khyber Pakhtunkhwa
(iv).	Type of Generation Facility	Run of River Hydel Power Plant

(B). Hydrology

(i).	Name of River	Panjkora
(ii).	Catchment area	3,977 km^2
(iii).	Full Reservoir Level (FRL)	807.00 m.a.s.l.
(iv).	Mean Monthly Flows	38.66 m^3/s to 180.34 m^3/s
(v).	Design Flow (Q_{30})	126 m^3/s for power yield
(vi).	Flood Discharge (Q_{100} year)	2558 m^3/s
(vii).	Peak Flood Discharge	4217 m^3/s
(viii).	Design Flood Discharge (Q_{1000} years)	4470 m^3/s

(C). Diversion Dam

(i).	Type	Low height concrete diversion weir Ogee, Overflow weir
(ii).	Design Flood Elevation	812 m.a.s.l.

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(iii).	Ogee Crest Elevation	807 m.a.s.l.
(iv).	Total Height of Weir	12.5 m
(v).	Length of overflow section	174.10 m
(vi).	Height of overflow section	5 m
(vii).	Size of Stilling Basin	36.8 m X 203.10 m
(viii).	Design flood (Q_{1000} years)	4470 m^3/s
(ix).	Bridge Length	29 m
(x).	Access Road Length	270 m

(D). Gated Section

(i).	No. of Under Sluices	4Nos.
(ii).	Size of each Under Sluice	4.5 m x3 m
(iii).	Nos. Of piers	5

(E). Intake

(i).	Type	Side intake – Gate controlled
(ii).	Gate size	6 m x 2.5 m
(iii).	Nos. of gates	4

(F). Box Channel

(i).	Conduit Length	2400 m
(ii).	No. of Conduits	4 Nos.
(iii).	Conduit Size	3.20 m x 3.50 m (Rectangular)

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(iv).	Slope	1:500

(G). Sand Trap

(i).	Size of Sand Trap	202 m x 67 m
(ii).	Nos. of chambers	6 Nos.
(iii).	Particle size to be settled	0.2 mm

(H). Pressure Conduit

(i).	Conduit Length	65 m
(ii).	Nos. of Conduits	3 Nos.

(I). Power Tunnel

(i).	Length	1883 m
(ii).	Type	Horseshoe, Reinforced concrete lined
(iii).	Diameter (equivalent)	7 m (area = 40.24 m^2)
(iv).	Tunnel slope	1:500
(v).	Tunnel invert level	784.58 m.a.s.l.
(vi).	Adit Length	272 m

(J). Surge Shaft

(i).	Height	39 m
(ii).	Type	Circular, Reinforced concrete lined
(iii).	Diameter	28 m
(iv).	Access Road Length	921 m

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(K). Pressure Shaft

(i).	Type	Steel Lined
(ii).	Length	102 m
(iii).	Diameter	6.2 m
(iv).	Thickness	16 to 25 mm

(L). Penstock

(i).	Type	Steel
(ii).	Length (4.8 m Dia)	29.41 m
(iii).	Length (3.6 m Dia) – 3 Nos.	210 m
(iv).	Thickness	12 mm

(M). Tailrace

(i).	Type	Rectangular concrete channel
(ii).	Length	57 m

(N). Power Facilities

(i).	Powerhouse	Surface powerhouse
(ii).	Dimensions	68.75 m x 31 m x 31.2m (L x W x H)
(iii).	Gross Head	47.73 m
(iv).	Net Head	38.63 m
(v).	Installed capacity	40.80 MW
(vi).	No. of units	3 Nos.

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(vi).	Type of Turbine	Vertical Francis
(vii).	Turbine Capacity (each)	13.60 MW (42 m^3/sec)
(viii).	No. of Generators	3 No.
(ix).	Generator Capacity (each)	16.00 MVA
(x).	Power factor	0.85
(xi).	Average annual energy	205.00 GWh
(xii).	Plant Factor	58.0 %

(O). Other Information

(i).	COD of the Generation Facility/Hydel Power Plant	December 31, 2020 (Anticipated)
(ii).	Expected Minimum Useful Life of the Generation Facility from COD	30 Years

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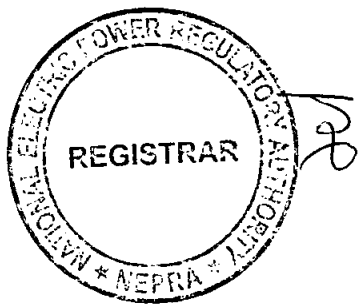
SCHEDULE-II

The Total Installed Gross ISO 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/Hydro Power Plant of Licensee is given in this Schedule



SCHEDULE-II

(1).	Total Installed Gross Capacity of the Generation Facility/Hydel Power Plant (3 x 13.60 MW Francis Turbines)	40.800 MW
(2).	Total De-Rated Capacity of the Generation Facility/Hydel Power Plant at Mean Site Conditions (3 x 13.60 MW Francis Turbines)	40.800 MW
(3).	Auxiliary Consumption of the Generation Facility/Hydel Power Plant (3 x 0.408 MW Francis Turbines)	01.224 MW
(4).	Net Capacity of the Generation Facility/Hydel Power Plant at Mean Site Conditions Condition (3 x 13.192 MW Francis Turbines)	39.576 MW

Note

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

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