National Electric Power Regulatory Authority Islamic Republic of Pakistan



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

No. NEPRA/R/LAG-495/ 37730 - 38

November 30, 2023

Project Director Gabral Kalam Hydel Power Pakhtunkhwa Energy Development Organization PEDO House, 38/B-2, Room No. 105, Phase-V Hayatabad, Peshawar Ph: 91-9217329

Subject: Grant of Generation Licence No. GL (Hydel)/20/2023 Licence Application No. LAG-495 Pakhtunkhwa Energy Development Organization (PEDO)

Reference: PEDO letter No. 101/GK/NEPRA/Gen License/2020 dated 13.10.2020.

Enclosed please find herewith Determination of the Authority, in the matter of application of Pakhtunkhwa Energy Development Organization (PEDO) for the grant of generation licence along with Generation Licence No. GL (Hydel)/20/2023 annexed to this determination granted by the National Electric Power Regulatory Authority (NEPRA) to PEDO for its 88.0 MW Hydel based generation facility / Gabral Kalam Hydel Power Plant located on River Gabral, District Swat in the Province of Khyber Pakhtunkhwa., pursuant to Section-14B of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997/(NEPRA Amended Act 2018).

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

Enclosure: As Above

(Engr. Mazhar'Iqbal Ranjha)

Copy to:

- 1. Secretary, Power Division, Ministry of Energy, 'A' Block, Pak Secretariat, Islamabad
- 2. Secretary, Energy & Power Department, Government of Khyber Pakhtunkhwa, 1st Floor, A-Block, Abdul-Wali Khan Multiplex, Civil Secretariat, Peshawar.
- 3. Managing Director, National Transmission & Despatch Company (NTDC), 414 WAPDA House, Lahore
- 4. Chief Executive Officer, CPPA(G), 73 West, Shaheen Plaza, A.K. Fazl-ul-Haq Rd, Blue Area, Islamabad
- 5. Chief Executive Officer, Peshawar Electric Supply Company, 166 WAPDA House, Shami Road, Peshawar
- 6. Director General, Environmental Protection Agency (EPA), 3rd Floor, Old Courts Building, Khyber Road, Peshawar
- Managing Director, Private Power & Infrastructure Board (PPIB), Ground & 2nd Floors, Emigration Tower, Plot No. 10, Mauve Area, Sector G-8/1, Islamabad
- 8. Chief Executive Officer, Pakhtunkhwa Energy Development Organization, PEDO House, 38/B-2, Phase-V, Hayatabad, Peshawar

National Electric Power Regulatory Authority (NEPRA)

<u>Determination of the Authority</u> in the Matter of Application of Pakhtunkhwa Energy Development Organization for the Grant of Generation Licence

<u>November 30, 2023</u> <u>Case No. LAG-495</u>

(A). <u>Background</u>

(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 sites in the province is on Gabral river, Kalam, district Swat.

(B). Filing of Application

(i). PEDO submitted an application on October 15, 2020 for the grant of generation licence in terms of Section-14B of the 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 is in substantial compliance with Regulation-3 of the Licensing Regulations. Accordingly, the Registrar submitted the application for 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 Licensing Regulations are application in substantial compliance with Regulation-3 of the Licensing Regulations.



Page 1 of 13

Les A

November 19, 2020 for consideration of the grant of the generation licence as stipulated in Regulation-7 of the Licensing Regulations. In this regard, a notice of admission for inviting comments of general public, interested and affected persons in the matter as stipulated in Regulation-8 of the Licensing Regulations was published in one (01) Urdu and one (01) English newspaper on January 01, 2021.

(iii). In addition to the above, the Registrar sent letters on January 07, 2021 to different stakeholders including Govt. Ministries, their attached departments and different representative organizations, soliciting/seeking their views and comments for the assistance of the Authority in the matter, in terms of Regulation-9(2) of the Licensing Regulations.

(C). <u>Comments of Stakeholders</u>

Test

(i). In reply to the above, the Authority received comments from five (05) stakeholders. These included Ministry of Planning, Development & Special Initiatives (MoPD&SI), Central Power Purchasing Agency (Guaranteed) Limited (CPPA-G), National Transmission and Despatch Company Limited (NTDC), Energy Department of Govt. of Punjab (EDGoPb) and Indus River System Authority (IRSA). The salient points of the comments offered by the said stakeholders are summarized below:-

- (a). MoPD&SI submitted that as the proposed power project is source of clean energy therefore, it supports the grant of generation licence subject to fulfilment of all technical/codal formalities and concurrence of CPPA-G and NTDC;
- (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'. In this regard, the company has not submitted approval of the Grid Interconnection Study (GIS) from NTDC and Peshawar Electric Supply Company (PESCO). Rule 3(2) of the Generation Rules requires an entity filing an application for grant of Generation License to satisfy the Authority that the proposed generation facility has interconnection



Page 2 of 13

arrangement in place and that it meets the technical limits/specifications with respect thereto. It states that: "The location. size, technoloav. interconnection arrangements. technical limits, technical functional specifications and other details specific to the generation facilities of the licensee shall be set out in a schedule to the generation licence". The significance of interconnection arrangement is also evident from Rule 3(5)(e) of the Generation Rules and various previous decisions of the Authority stating that approval of GIS and issuance of Power Evacuation Certificates by NTDC/PESCO are necessary for processing and implementing the projects, specifically the renewable projects, so that the stability of the National Grid is ensured, and the provisions of the Grid Code are strictly followed. In this regard, PEDO approached NTDC for provision of Consent for Power Evacuation without any Interconnection Study with assurance that PEDO will execute the GIS in future. However, as per record of CPPA-G, PEDO has not yet executed the GIS of project under consideration. Further, with reference to minutes of meeting held between representatives of PEDO and NTDC on November 15, 2019, it was proposed that a comprehensive Integrated Evacuation Study should be conducted in four corridors of Khyber Pakhtunkhwa namely Swat, Chitral, Kohistan and Mansehra to assess the true potential of these localities. However, NTDC opined that such integrated study should only be conducted after the approval of Indicative Generation Capacity Expansion Plan (IGCEP) to ensure its effectiveness. CPPA-G submitted that the formulation of IGCEP is still in process and its approval from the Authority is awaited. Further, Regulation-5(2) of the Licensing Regulations stipulates that the Authority may decline to issue a licence if it determines in writing that the investments associated with the facility or system are not justifiable in view of needs of the electric power industry or where the applicant has failed to demonstrate, in the opinion of the Authority the existence of the demand for the proposed facility or system. In consideration of the said, the project has failed to satisfy regarding the existence of



TO .

Page 3 of 13

demand for the proposed facility in the application. It is pertinent to note that the project intends to sell power to the National Grid, whereas, the company has neither obtained a consent nor Power Acquisition Request (PAR) from power purchaser. It may also be noted that neither CPPA-G nor any other entity has issued any consent for purchase of power from the project nor a power evacuation certificate has been issued with respect to the Project. In addition to the said, with reference to the Minutes of Meeting held on July 04, 2018 in Ministry of Energy (Power Division) regarding the resolution of outstanding issues pertaining to hydel projects in Khyber Pakhtunkhwa, it was decided that for all future projects (excluding the Pehur, Machai, Ranolia and Daral Khwar hydropower projects), PEDO will engage consultant for conducting integrated power evacuation study in the available corridors in Swat and Chitral, thus enabling the NTDC to consider the same in the formulation of Demand forecasting. It was also decided that PEDO will not initiate any future project (excluding the Pehur, Machai, Ranolia and Daral Khwar hydropower projects), without following due legal and regulatory framework and necessary consents of the relevant stakeholders. PEDO has started the construction of the power project without obtaining the required consents/approvals from the relevant stakeholders;

(c). NTDC commented that it is in the process of revision of IGCEP. The selection and timelines of the future power plants including the Gabral Kalam Hydel Power Project (HPP) shall be decided on the basis of least cost generation analysis in IGCEP. Further, the proposed interconnection scheme for the said HPP as mentioned in Schedule-III in the application is not based on any grid interconnection studies. In fact, an integrated interconnection study along with transmission corridor assessment study is required to propose realistic interconnection schemes for power evacuation of all the HPPs in Khyber Pakhtunkhwa including the Gabral Kalam HPP; and



Page 4 of 13

the state

- (d). EDGoPb raised certain observation which include: (i). whether the project qualify under Rule-3(5) of the Generation Rules regarding least cost option criteria or otherwise; (ii). no information is given in the application about approval of GIS from PESCO and NTDC; (iii). it is not mentioned that project will sell electric power to PESCO or CPPA-G and whether it has obtained consent for acquisition of power from the same or not; and (iv). has the Authority approved Power Acquisition Request (PAR) in terms of NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005? and
- (e). 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).

(ii). The Authority examined the above comments of stakeholders and in view of the observations, considered it appropriate to seek the perspective of PEDO. On the said, PEDO submitted that Gabral Kalam HPP is included in the list of committed projects in the approved IGCEP 2021-30. Further, ECNEC approved PC-I of the project on October 01, 2020 with certain milestones requiring sponsor to obtain feasibility stage tariff after six months of the said approval.

(iii). Regarding comments of stakeholders, PEDO opined that the comments of stakeholders mostly pertains to (a). power evacuation certificate from NTDC/CPPA-G; (b). Approval of Grid Interconnection Study; (c). NOC(s) from IRSA and Environment Protection Agency (EPA), Govt. of Khyber Pakhtunkhwa. Regarding GIS of the project, it was informed that PEDO has hired a consultant for carrying out an integrated GIS of all projects in district Swat which is still under process. About NOC from IRSA and EPA, Govt. of Khyber Pakhtunkhwa, it was stated that the matter has been taken up at relevant forums. Later on, PEDO submitted the required documents/approvals for consideration of the Authority.

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

34



Page 5 of 13

(D). Evaluation/Findings

(i). The Authority has reviewed the submissions of PEDO including the information provided in its application for the grant of generation licence, comments of stakeholders and rejoinder in the matter. Further to the said, the Authority has also considered the feasibility study of the project, interconnection & dispersal arrangement and Environmental Impact Assessment (EIA) 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 of a licence. PEDO has successfully completed seven (07) 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). 10.20 MW Jabori Projects.

(iii). 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 (HDF) and the Annual Development Program (ADF) of Govt. of Khyber Pakhtunkhwa. PEDO is developing Gabral Kalam HPP with financial assistance from the World Bank, under the 'Pakhtunkhwa Hydropower and Renewable Energy Development Program'. According to the submitted information, the total outlay of the project will be approximately USD 249.25 million which will be financed through an 80% (USD 199.40 million) contribution of the World Bank and 20% (USD 49.85 million) from ADF/HDF of Govt. Khyber Pakhtunkhwa. In view of the above, the Authority considers that PEDO has the required financial and technical capability to implement hydel power projects.



Page 6 of 13

(iv). The Authority has reviewed the feasibility study of the project and observed that the project of Gabral Kalam HPP was conceived as a run of the river scheme with storage for peaking during the study conducted for Swat Valley (Region-4) under the Hydropower Development Master Plan for the Northern Areas of the Khyber Pakhtunkhwa. The study was jointly carried out by the Sarhad Hydel Development Organization (SHYDO) in collaboration with the German Agency for Technical Cooperation (GTZ) during 1990-1995. Later on, PEDO assigned the consultancy services, for conducting the feasibility study, detailed engineering design and preparation of PC-1, to a consortium of national and international firms [including Fida Hussain Chaudhry (FHC), Consulting Engineers Pakistan, Technical Engineering and Management Consultants (TEAM), Hydro Consult Engineering (Nepal), DOLSAR Engineering Inc. Co. Turkey] led by AGES Consultants, Peshawar, Pakistan. The consultancy agreement was signed on November 20, 2017 for two years' contract period, commencing December 11, 2017. The contract period was later on extended till the end of March 2020 due to adverse weather conditions in the project area and enhancement of the scope of services to fulfil the World Bank's Guidelines. ECNEC approved a PC-I of the project on October 01, 2020 with a projected cost of Rs36.430 billion and Foreign Exchange Component (FEC) of Rs 8.815 billion.

(v). As explained above, PEDO has submitted the current application for the grant of generation licence for its project of Gabral Kalam HPP which is an 88.0 MW Run of River project proposed to be developed on the lower stretch of Gabral River between village Kanai and Kalam town, district Swat in the province of Khyber Pakhtunkhwa. The proposed weir site is located about 09 km upstream of Kalam town and the powerhouse at about 1.5 km upstream of the main road bridge north of Kalam. Gabral River is a right tributary of the Swat River in northern end of Swat district, having its confluence with Ushu River near village Kalam, at point where both the Gabral and Ushu Rivers converge to form Swat River.

(vi). According to the feasibility study of the project, concrete gravity weir has been proposed that will retain the river flows and develop a pond upstream to about 700 metres with a maximum of 21 m water depth. The crest level of the overflow spillway has been set at 2161 masl and that of the non-overflow section at 2168 m asl. To control floods in the reservoir, overflow spillway with five bays, each 12.0 m

mat



Page 7 of 13

long, are provided along with four undersluices (5.0 m x 5.0 m) in the weir body. In addition to flood routing, the undersluices will be used for flushing sediments deposited in the pond and to prevent chocking of the intake area by sediment deposition. For diversion of flow from the reservoir for power generation, four gated intakes (4.5 m x 5.0 m) are provided. The entire waterway alignment is along the right bank of Gabral River.

(vii). Further, each of the four intake gates is connected to a 202 m long connecting channel (5.2 m x 5.0 m) which conveys the flows into the sandtrap. The sandtrap has two chambers each 14.75 m wide and 165 m long. The sandtrap will trap sediments above the desired size (0.2 mm) and will provide relatively clean water downstream into the conveyance system. The conveyance system downstream comprises a 4.7 km long headrace tunnel (5.8 m modified horseshoe shaped), surge shaft (12.6 m dia), pressure shaft (4 m dia), pressure tunnel (4 m dia), penstock (4 m dia) and manifold with branches (2.3 m and 1.54 m dia). The headrace tunnel is to be fully concrete lined to convey the design discharge of 65 m³/s with head losses. The pressure shaft and pressure tunnel will be steel lined. A surface powerhouse has been proposed which will accommodate three generation units comprising vertical Francis turbines, with tail water outflowing into Gabral River.

(viii). The Authority has observed that the total installed capacity of the HPP is 88.0 MW consisting of three (03) Vertical axis Francis turbines (2x37.5 MW + 1x13 MW). The said capacity of the project has been optimized keeping in view the design discharge of 65 m³/s. The Gabral Kalam HPP is a medium head (gross head of 161.0 m and net head 153.0 m) run of river project with mean annual energy of approximately 339 GWh at a plant factor of 44.70%. The project is expected to be completed by November, 2027. It is pertinent to mention that Gabral Kalam HPP is already included in IGCEP in the list of committed project having expected commissioning date of October 2027.

(ix). Regarding GIS of the project, the Authority has noted that PEDO through its consultant Power Planners International has carried out Integrated GIS for evacuation of power from hydropower projects in Swat valley. According to the said study, the interconnection arrangement will consist of: (a). electric power generated from 83 MW Gabral Utror and 36 MW Bankhwar HPP will be accumulated

1



Page 8 of 13

at Gabral Kalam HPP; and (b). Gabral Kalam HPP will be connected through 10 km long 132 KV Double Circuit (D/C) on twin bundled Rail conductor by making In-Out of 27 km long 132 KV D/C transmission line on twin bundled Rail conductor from Gorkin Matiltan HPP to the switchyard of 220/132 KV Kalam Asrit grid station. In this regard, PEDO submitted the said study to NTDC for approval which has already approved the said dispersal/interconnection arrangement of the generation facility/HPP.

(x). The Authority has observed that the proposed project, for which generation licence is being sought, is based on clean water source and does not cause pollution as in the case of conventional power plants. However, the operation of the generation facility/HPP 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 EIA for the project and submitted the same for the consideration and approval of EPA, Govt. of Khyber Pakhtunkhwa. In this regard, EPA, Govt. of Khyber Pakhtunkhwa has already issued a NOC to PEDO for construction of the project.

(**xi**). 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/HPP. The provision of Rule-3(4) of the Generation Rules regarding holding a public hearing is not applicable as there was no issue that required this exercise.

(xii). 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

1



Page 9 of 13

include (a). sustainable development or optimum utilization of the renewable or nonrenewable 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 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.

(xiii). 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. Further, the project is included in the list of committed projects in IGCEP. As explained in the preceding paragraphs, the sponsor of the project carried out the integrated GIS which concludes that the project will not face any constraints in the transmission system. Further, being located at reasonable distance from the thin population of the area, the project will not likely result in cost and right-of-way issues for the provision of transmission and interconnection facilities. In view of the said, the Authority considers that the project of PEDO fulfills the eligibility criteria for the grant of generation licence as stipulated in the NEPRA Act, rules, regulations and other applicable documents.



Page 10 of 13

ne

(E). Grant of Generation Licence

(i). The sustainable and affordable energy/electricity is a key prerequisite for socio-economic development of any country. 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 hydel must be developed on priority basis.

(ii). In order to achieve sustainable development, it is imperative that indigenous resources are given priority for power generation and their development be encouraged. The Authority considers that the proposed project of PEDO will not only help in diversifying the energy portfolio of the country but it will also enhance the energy security of the country by reducing the dependence on imported furnace oil and will also help in reduction of carbon emission by generating clean electricity, thus improving the environment.

(iii). The Authority has noted that PEDO is setting up a hydel based generation facility/HPP on River Gabral between village Kanai and Kalam town, district Swat, in the province of Khyber Pakhtunkhwa having an installed capacity of 88.0 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/HPP.

(iv). In view of the above, the Authority considers that the 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 the carbon emissions by generating clean electricity, thus improving the environment.



Page 11 of 13

-

(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, the expected Commercial Operation Date (COD) of the generation facility/HPP is November 30, 2027 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 years. In consideration of the said, it is clarified that the submissions of PEDO are in line with the industry standards and norms. In view of the said and considering the fact that PEDO has consented for a shorter term of thirty (30) years, the Authority fixes the term of the generation licence as thirty (30) years from COD of the project, subject to the Section 14B of the NEPRA Act.

(vi). Regarding the tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rates and charges etc. is the sole prerogative of the Authority. In view of the said, the Authority considers it appropriate to direct PEDO to charge the power purchaser/CPPA-G 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 and 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, PEDO has provided the NOC from EPA, Govt. of Khyber Pakhtunkhwa 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 is compliant with the required environmental standards as prescribed by the concerned environmental protection agency. As the proposed generation facility/HPP of PEDO will be using hydel source for generation of power, therefore the project may qualify for the Carbon Credits. In this regard, an article for carbon credits and sharing its proceeds with the power purchaser has been included in the generation licence.



Page 12 of 13

(viii). In view of the above, the Authority hereby approves the grant of Generation Licence to PEDO for its Gabral Kalam HPP 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

(Member)

(Member)

Engr. Maqsood Anwar Khan (Member)

Rafique Ahmed Shaikh

Mathar Niaz Rana (nsc)

G (

Amina Ahmed (Member)

Waseem Mukhtar (Chairman) NS~



Page 13 of 13

Train a

National Electric Power Regulatory Authority (NEPRA) Islamabad – Pakistan

GENERATION LICENCE

No. GL(Hydel)/20/2023

In exercise of the powers conferred upon 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

for its Hydel Based Generation Facility/Gabral Kalam Hydel Power Plant Located on River Gabral, District Swat, in the Province of Khyber Pakhtunkhwa

(Total Installed Capacity: 88.0 MW Gross)

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

Given under my hand this on $\underline{3o^{k}}$ day of <u>November Two</u> <u>Thousand & Twenty Three</u> and expires on <u>29th</u> day of <u>November Two Thousand & Fifty Seven</u>.

Registrar



KA

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 from time to time;
- (b). "Applicable Documents" means 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, 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" means the amount of Carbon Dioxide (CO₂) 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 generation of electric energy by the generation facility/Hydel Power



Page 2 of 9

Plant, which are available or can be obtained in relation to the generation facility/Hydel Power Plant after the COD;

- (g). "Commercial Code" or "Market Commercial Code" means the commercial code prepared and maintained by the market operator pursuant to sections 23A and 23B of the Act and approved by the Authority, 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 code prepared by the concerned Distribution Licensee and approved by the Authority, which defines the technical and operational standards and procedures for Distribution Licensees and all those connected to its system as may be revised from time to time with necessary approval of the Authority;
- (I). "Distribution Licensee" means the a person to whom a licence for distribution of electric power has been granted by the Authority under the Act;
- (m). "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;



Page 3 of 9

- (n). "Generation Rules" means the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 as amended or replaced from time to time;
- (o). "Grid Code" means the code prepared by the national grid company and approved by the Authority or, when a separate entity is licensed as system operator, prepared by the system operator licensee under sections 23H of the Act and approved by the Authority;
- (p). "Hydel Power Plant " means a generation facility for production of electric power using water as source;
- (q). "IEC" means "the International Electro-technical Commission or its successors or permitted assigns;
- (r). "IEEE" means the Institute of Electrical and Electronics Engineers or its successors or permitted assigns;
- (s). "Licensee" means <u>Pakhtunkhwa Energy Development</u> <u>Organization (PEDO)</u> or its successors or permitted assigns;
- (t). "Licensing Regulations" mean the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021 as amended or replaced from time to time;
- (u). "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;
- (v). "NTDC" means National Transmission and Despatch Company Limited or its successors or permitted assigns;



- (w). "PESCO" means Peshawar Electric Supply Company Limited or its successors or permitted assigns;
- (x). "Power Purchaser" means CPPA-G which will be purchasing electric energy from the Licensee either on behalf of all or any single Distribution Licensee, 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;

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.

<u>Article-2</u> Applicability of Law

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

<u>Article-3</u> 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.



Page 5 of 9

Vint

<u>Article-4</u> 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.

<u>Article-5</u> Licence fee

The Licensee shall pay to the Authority the licence fee as stipulated in the National Electric Power Regulatory Authority (Fees) Regulations, 2021 as amended or replaced from time to time.

<u>Article-6</u> <u>Tariff</u>

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.





Page 6 of 9

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.

<u>Article-8</u> <u>Maintenance of Records</u>

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.

<u>Article-9</u> <u>Compliance with Performance Standards</u>

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.

<u>Article-10</u> Compliance with Environmental & Safety Standards

10.1 The generation facility/Hydel Power Plant of the Licensee shall comply with the environmental and safety standards in accordance with the NEPRA Power Safety Code, 2021 and such other 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.



Page 7 of 9

AL.

<u>Article-11</u> 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.

<u>Article-12</u> 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 relevant policy.



Page 8 of 9

<u>Article-15</u> Design & Manufacturing Standards

The generation facility/Hydel Power Plant of the Licensee 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.

<u>Article-17</u> <u>Compliance with Applicable Law</u>

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.

<u>Article-18</u> <u>Corporate Social Responsibility</u>

The Licensee shall comply with the NEPRA Social Investment Guidelines, 2021, as may be amended from time to time and submit a report on its activities pertaining to Corporate Social Responsibility (CSR) on an annual basis.

<u>Article-19</u> Compliance with the Cyber Security Regulations

The Licensee shall comply with National Electric Power Regulatory Authority (Security of Information Technology and Operational Technology) Regulations, 2022 as amended from time to time.



Page 9 of 9

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.



Page 1 of 20 of Schedule -I







Page 2 of 20 of Schedule -I





the

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



time

ELEC

<u>Powerhouse of the</u> <u>Generation Facility/Hydel Power Plant of</u> <u>the Licensee</u>



DA



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/Pakhtunkhwa Energy Development Organization (PEDO) shall be dispersed to the national grid.

(2). Regarding the interconnection arrangement/transmission facilities of the project, the interconnection arrangement will consist of: (a). electric power generated from 83 MW Gabral Utror and 36 MW Bankhwar HPP will be accumulated at Gabral Kalam HPP; and (b). Gabral Kalam HPP will be connected through 10 km long 132 KV Double Circuit (D/C) on twin bundled Rail conductor by making In-Out of 27 km long 132 KV D/C transmission line on twin bundled Rail conductor from Gorkin Matiltan HPP to the switchyard of 220/132 KV Kalam Asrit grid station.

(3). Any change in the final Interconnection and Transmission Arrangement(s), for the dispersal of power other than the above, as agreed by the Licensee, NTDC and PESCO shall be communicated to the Authority in due course of time. \neg



Page 7 of 20 of Schedule -I

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



<u>Detail of</u> <u>Generation Facility/Hydel Power Plant</u> <u>of the Licensee</u>

(A). <u>General Information</u>

(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	Between village Kanai and Kalam, District Swat, Khyber Pakhtunkhwa
(iv).	Type of Generation Facility	Hydel Power Plant

(B). <u>Configuration etc.</u>

Vil

(i).	Size/ Installed Capacity of the Generation Facility (Gross)	88.00 MW
(ii).	Type of Storage etc.	Run of River based Hydel Power Plant
(iii).	Water Source	Gabral River
(iv).	Type of Technology	Three (03) Vertical Shaft Francis Turbines
(v).	Number of Units & Size (MW)	2 x 37.50 + 1 x 13 MW
(vi).	Turbine Make & Model	Vertical shaft Francis (HLA351e-LJ-220)
(vii).	COD of the Generation Facility	November 30, 2027
(viii).	Expected Life of the Generation Facility from COD	Thirty (30) Years



Page 9 of 20 of Schedule -I

(C). <u>Hydrology</u>

(i).	Catchment Area at Weir Site	957 Sq.km
(ii).	Catchment Area at Powerhouse Site	1212 Sq.km
(iii).	Design Flood (Q _{1,000})	1793 m³/sec
(iv).	Maximum Flood (Q _{10,000})	2273 m³/sec

(D). <u>Reservoir</u>

(i).	Normal Conservation Level	2161.0 m asl
(ii).	Flood Surcharge Level	2165.3 m asl
(iii).	Minimum Operating Level	2160.5 m asl
(iv).	Depth of Reservoir at Weir Site	21 m
(v).	Length of Reservoir	875 m
(vi).	Reservoir Capacity at NCL	1.08 MCM

(E). <u>Weir</u>

y

(i).	Weir Type	Concrete Gravity
(ii).	Weir Top Elevation	2168 m asl
DOWER REC		



Page 10 of 20 of Schedule -I

(iii).	Freeboard above Maximum Surcharge	1.45 m
(iv).	Slope: Upstream Face	1 in 0.75 m
(V).	Slope: Downstream Face	1 in 1 m
(vi).	Height of Weir above River Bed	28.0 m
(vii).	Maximum Height above Foundation	33.5 m
(viii).	Crest Length	149.5 m
(ix).	Crest Width	7.0 m

(F). Overflow Spillway

(i).	Туре	Overflow Ogee
(ii).	Crest Level	2161.0 m asl
(iii).	Length of Crest	67.5 m
(iv)	No. of Bays	5.0 m
(V).	Normal Design Flood (Q ₅₀)	1139 m³/sec
(vi).	Safety Design Flood (Q ₁₀₀)	1291 m³/sec
(vii)	Energy Dissipater	Hydraulic Jump, Stilling Basin



Page 11 of 20 of Schedule -I

(viii). Stilling Basin Level 2137.0 m asl

(G). <u>Under Sluices</u>

(i).	Туре	Orifice type with Ogee Crest
(ii).	Crest Level	2142.5 m asl
(iii).	Head on Crest at NCL	18.5 m
(iv).	No. and Type of Gates	4.0 No's Vertical lift
(V).	Gate Size	5x5 m
(vi).	Total Length of Waterway	26.0 m
(vii).	Maximum Capacity at NCL	1293 m³/sec
(viii).	Maximum Height above Foundation Level	6.5 m
(ix).	Energy Dissipater	Hydraulic Jump, Stilling Basin
(x).	Size of Stilling Basin (Combined)	105 m x 30 m

(H). <u>Power Intake</u>

V.

(i).	Туре	Horizontal Intake
(ii).	Invert Level of Power Intake	2155.0 m asl
Page 12 of 20 of Schedule -1 NEPRA AUTHORITY HTTO NEV * 1100		

(iii).	Working Head on Intake Crest	6.0 m
(iv).	No. and Type of Gates	4.0 No's Vertical Lift
(V).	Size of Gates	5 x 4.5m (H x W)
(vi).	Total Width of Intake Structure	22.5 m
(vii).	Width of Waterway	18.0m
(viii).	Design Discharge	65.0 m³/sec
(ix).	Discharge Capacity (Including Sediment Flushing Requirements)	78.0 m³/sec
(x).	Intake Crest Height above River Bed Level	15.0 m

(I). Fish Ladder / Fish Pass

6

(i).	Туре	Pool Pass Type
(ii).	Design Discharge	0.26 m³/sec
(iii).	No of Pools	109 No's
(iv).	Size of Pool	2.0m x 1.6m (L x W)
(v).	Size of Orifice	0.35m x 0.35m
(vi).	Minimum Water Depth	0.75m



Page 13 of 20 of Schedule -I

(vii).	Total Length of Fish Ladder	218.0 m
(viii).	Start Invert Level	2161.0 m asl
(ix).	End Invert Level	2139.0 m asl

(J). Connecting Channel

(i).	Туре	Rectangular Box
(ii).	Number of Conduit	2.0 No's
(iii).	Design Discharge	39.0 x 2 m³/sec
(iv).	Size	5.2m x 5.0m, (W x D)
(v).	Average Length of Conduit	202.75 m
(vi).	Average Flow Velocity	1.60 m/sec
(∨ii).	Bed Level at Start	2155.5 m asl
(viii).	Bed Level at End	2155.44 m asl

(K). <u>Sand Trap</u>

ter 1

(i).	Туре	Gravity Type	
(ii).	Particle Size to be Removed	0.2 mm	
	NUT	EPRA HORITY	Page 14 of 20 of Schedule -I

(iii).	Average Velocity in Chamber	0.181 m/sec
(iv).	Length of Chamber	165m
(v) .	Length of Upstream Transition	20.0 m
(vi).	Size of Sandtrap Chamber	14.75 x 13.5m
(vii).	Invert Level of Sandtrap at Start	2155.44 m asl
(viii).	Roof Top Level of Sandtrap	2162.50 m asl
(ix).	Outflow Crest Elevation from Sandtrap	2156.5 m asl
(x).	Nos. and Type of Outflow Control Gates	2.0 No's Vertical Lift
(xi).	Outflow Control Gates Size	4.5m x 5.0m, (H x W)
(xii).	Flushing Arrangement per Chamber	Gated Control Orifice Type
(xiii).	Flushing Discharge	13.0 m³/sec
(xiv).	Trap Efficiency	79.0 Percent

(L). <u>inlet Pond</u>

Eng

(i).	Туре	Concrete Lined Rectangular Section
(ii).	Invert Elevation at Start	2147.0 m asl
	C PO	NER REGUL



Page 15 of 20 of Schedule -I

(iii).	Size of Inlet Pond	35.0m x 27.5m
(iv).	Depth of Flow	14.0 m
(V).	Submergence to Headrace Tunnel	10.4m
(vi).	Elevation of Inlet Pond Top	2162.5 m asl
(vii).	Velocity at Design Discharge	0.5 m/sec

(M). <u>Headrace Tunnel</u>

(i).	Туре	Low Pressure Tunnel
(ii).	Shape	Modified Horse Shoe
(iii).	Invert Elevation of Tunnel	2147.5 m asl
(iv).	Flow Area	27.36 m ²
(v).	Average Flow Velocity	2.38 m
(vi).	Diameter of Tunnel	5.8 m
(vii).	Length of Tunnel upto Surge Shaft	4710 m
(viii).	Invert Level of Tunnel at Surge Shaft	2123.35 m asl
(ix).	Head Loss in Tunnel	3.67 m



Page 16 of 20 of Schedule -I

(N). Surge Shaft

(i).	Туре	Simple Restricted Orifice
(ii).	Geometry	Circular
(iii).	Maximum Surge Level	2184.9 m asi
(iv).	Minimum Surge Level	2137.86 m asl
(V).	Diameter of Surge Shaft	12.6 m
(vi).	Diameter of the Throat	4.0 m
(vii).	Full Operational Water Level	2156.83 m asl
(viii).	Top Level of Surge Shaft	2193.0 m asl
(ix).	Height of Surge Shaft	60 m

(O). Pressure Shaft / Pressure Tunnel

(i).	Туре	Pressurized Tunnel
(ii).	Geometry	Circular Section
(iii).	Pressure Shaft Centreline at Start	2126.25 m asl
(iv).	Diameter of Pressure Shaft and Tunnel	4.0 m
IFF R		



Page 17 of 20 of Schedule -I

(v) .	Flow Area	12.56 m²
(vi).	Length of Pressure Shaft	145.0 m
(vii).	Length of Pressure Tunnel	130.0 m
(viii).	Average Flow Velocity	5.17 m/sec
(ix).	Steel Lining Thickness	23 mm
(x).	Invert Level of Pressure Tunnel End	1990.1 m asl
(xi).	Head Losses in Pressure Shaft / Tunnel	1.45 m

(P). <u>Penstock</u>

(i).	Invert Level of Penstock	1990.1 m asl
(ii).	Length of Penstock	65.0 m
(iii).	Diameter of Penstock	4.0 m
(iv).	Thickness of Steel Lining	30.0 mm
(v).	Velocity in Penstock at Design Discharge	5.17 m/sec
(vi).	Net Head at Penstock	159.61 m
(vii).	Head Losses in Penstock	1.98 m



Page 18 of 20 of Schedule -I

(viii).	Invert Level of Penstock at Powerhouse	1991.23 m asl
---------	---	---------------

(Q). <u>Powerhouse</u>

(i).	Туре	Surface
(ii).	Size of Powerhouse	44 m x 16 m
(iii).	Turbine	Vertical Francis
(iv).	Generation Units	03 No's
(v).	Units Discharge	2 x 27.7 & 1 x 9.6 m³/sec
(vi).	Generator Type	Vertical Synchronous Type
(vii).	Power Transformers	Step up-11 kV 220 kV 3 Phase

(R). <u>Tailrace</u>

(i).	Туре	Concrete Lined
(ii).	Length of Tailrace	15.48 m



Page 19 of 20 of Schedule -I

(i).	Generating Voltage	11 KV
(ii).	Frequency	50 Hz
(iii).	Power Factor	Leading 0.90 & Lagging 0.85
(iv).	Automatic Generation Control	Νο
(V).	Ramping Rate	10 minutes
(vi).	Time Required to Synchronise to Grid	5 minutes

(S). Plant Characteristics

ale



Page 20 of 20 of Schedule -I

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



Page 1 of 2 of Schedule -II

The second

SCHEDULE-II

(1).	Total Installed Gross Capacity of the Generation Facility/Hydel Power Plant (2 x 37.5 MW + 1 x 13 MW Francis Turbines)	88.00 MW
(2).	Total De-Rated Capacity of the Generation Facility/Hydel Power Plant at Mean Site Conditions (2 x 37.5 MW + 1 x 13 MW Francis Turbines)	88.00 MW
(3).	Auxiliary Consumption of the Generation Facility/Hydel Power Plant (2 x 0.375 MW + 1 x 0.13 MW Francis Turbines)	0.88 MW
(4).	Net Capacity of the Generation Facility/Hydel Power Plant at Mean Site Conditions Condition (2 x 37.125 MW + 1 x 12.87 MW Francis Turbines)	87.12 MW
(5).	Mean Annual Energy of the Generation/Hydel Power Plant	339 GWh

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).



Page 2 of 2 of Schedule -II