

GOVERNMENT OF KHYBER PAKHTUNKHWA



**PAKHTUNKHWA ENERGY
DEVELOPMENT
ORGANIZATION (PEDO)**



Petition for Tariff Modification

by

Pakhtunkhwa Energy Development Organization

for

Machai Hydropower Project 2.6 MW

at

District Mardan, Khyber Pakhtunkhwa Province

Before

NEPRA

March 2021

PEDO House, Plot 38, Sector B2, Phase 5, Hayatabad, Peshawar



PEDO

PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION

Government of Khyber Pakhtunkhwa



No. 2354/PEDO/CEO/NEPRA

Dated, 10/3/2021

AUTHORITY LETTER

Subject: 2.6 MW Machai Hydro-Power Project- Tariff Modification Petition before NEPRA.

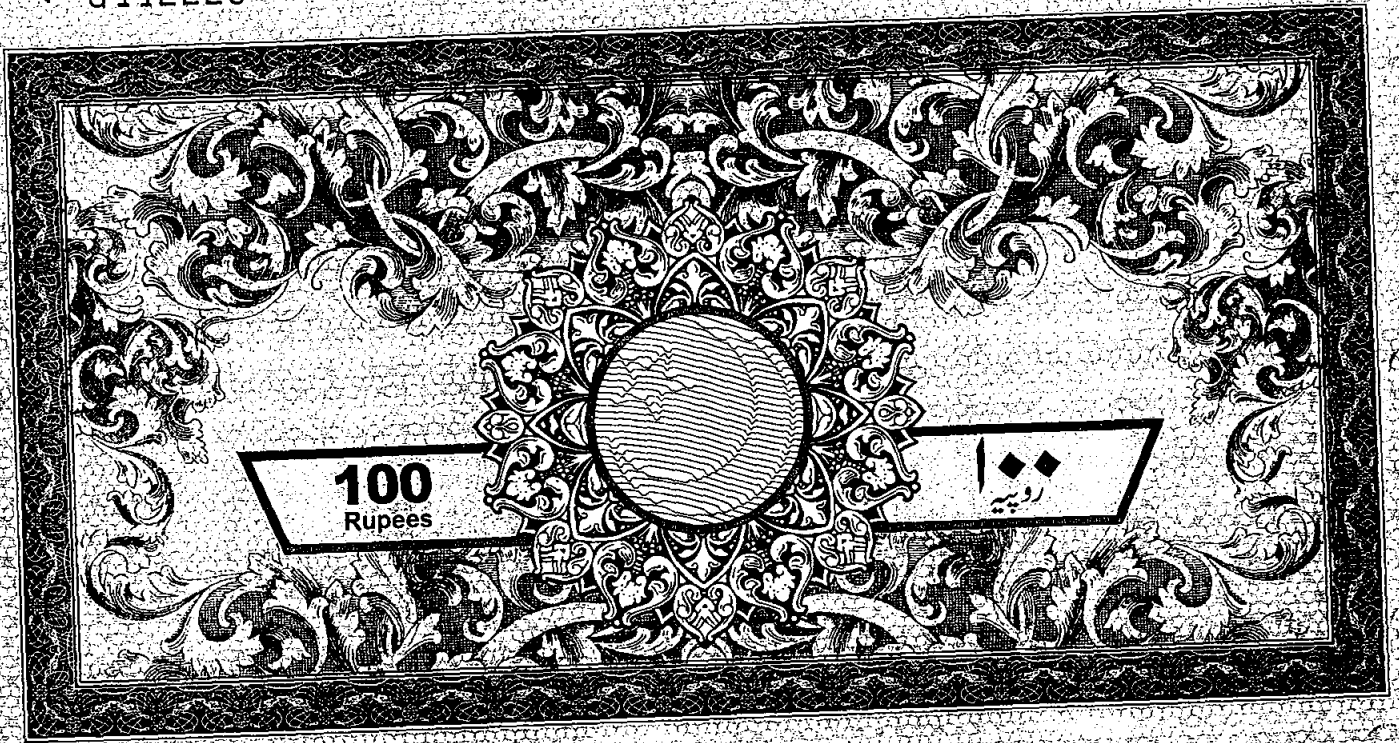
Mr. Saeed ul Haq, Resident Engineer Machai Hydro-Power Project, is hereby authorized representative of Pakhtunkhwa Energy Development Organization (PEDO) for the purposes of filling an application for tariff modification under Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, read with Rule 16(6) of the NEPRA (Tariff Standards and Procedure) Rules, 1998 and Regulation 3(2) of the NEPRA (Review Procedure) Regulations, 2009, each as amended, restated or modified from time to time, for 2.6 MW Machai HPP before NEPRA.

He is also authorized to attend any meeting(s) and discussion related to the Tariff Modification and to provide any information & documents in this regard.

[Handwritten signature]
10/03/2021

**CHIEF EXECUTIVE OFFICER,
PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION,
ENERGY & POWER DEPARTMENT,
GOVERNMENT OF KHYBER PAKHTUNKHWA.**

**Chief Executive Officer
PEDO**



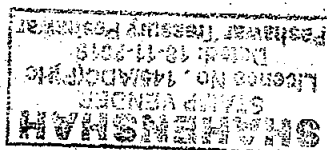
**BEFORE
THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**

**PAKHTUNKWA ENERGY DEVELOPMENT ORGANIZATION, PESHAWAR, PROVINCE OF KHYBER PAKHTUNKHWA,
PAKISTAN**

AFFIDAVIT

I, Saeed ul Haq, Resident Engineer 2.6 MW Machai Hydro-Power Project of Pakhtunkhwa Energy Development Organization, Plot # 38, Sect B-2, Phase 5 Hayatabad, Peshawar, Khyber Pakhtunkhwa, do hereby declare and affirm on oath as under:

1. That the accompanying Petition for tariff modification filed before the National Electric Power Regulatory Authority and the contents of the same may kindly be read as an integral part of this affidavit.
2. That the contents of the accompanying Tariff Modification are true and correct to the best of my knowledge and belief and nothing has been concealed or mis-



Before

National Electric Power Regulatory Authority

Petition for Tariff Modification

by

Pakhtunkhwa Energy Development Organization
for

Machai Hydropower Project 2.6 MW

at

District Mardan, Khyber Pakhtunkhwa Province

March 2021

Machai Hydropower Project
Pakhtunkhwa Energy Development Organization
Plot 38, Sector B-2, Phase-5 Hayatabad Peshawar.

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01 Petitioner's Information

1.1 Name and Address

Pakhtunkhwa Energy Development Organization
Plot 38, Sector B-2, Phase-5 Hayatabad Peshawar

Tel: + 92-91-9217422

Fax: + 92-91-9217331

Website: www.pedo.pk

Email: info@pedo.pk

1.2 Authorized Representative

Mr. Saeed ul Haq
Resident Engineer
Machai Hydropower Project
Pakhtunkhwa Energy Development Organization



02 Grounds for Tariff Modification

2.1 Summary and Background

Machai Hydropower Project (herein referred to as the "Project") is a low head run of the canal hydropower project of Pakhtunkhwa Energy Development Organization (herein referred to as "PEDO", or the "Petitioner"). The Project is located on fall structure of RD 68+798 of Machai Canal, Swat Canal System, District Mardan of Khyber Pakhtunkhwa Province.

PEDO filed application for generation license of the Project with NEPRA on 26th February 2013, on which NEPRA granted generation license to the Project on 17th November 2013. PEDO filed tariff petition to the Authority for determination of EPC Stage generation tariff of the Project on 2 April 2013, which was admitted by Authority in June 2013. Authority conducted a hearing for the Project in August 2013 and later determined EPC stage tariff of the Project at 5.7938 cents/kWh via its decision No. NEPRA/TRF-229/PHYDO-2013/2449, dated 14 March 2014 (the "Order" or "Tariff Determination").

This Modification Petition is being instituted under Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, read with Rule 3 of the NEPRA (Tariff Standards and Procedure) Rules, 1998 and all applicable provisions of other NEPRA laws for the modification Petition on the Authority's Tariff Determination dated 14th March 2014.

2.2 Basis for Motion for Tariff Modification

~~This Tariff Modification Petition is being filed to request the Authority to allow certain justified items to the Project. This Tariff Modification Petition provides justification for the necessity of these items for the Project. PEDO requests the Authority to re-consider its decision and grant leave on the matters summarized below:~~

- Pre COD Sale of Energy;
- Tariff on Take and Pay tariff basis of Take or Pay; and
- Debt Term of 30 years instead of 20 years

These items for Tariff Modification have been discussed in detail in next section

03 Issues for Tariff Modification

3.1 Pre-COD Sale of Electricity

This is to bring to the Authority's notice that the Project has been operational since November 2016 and is providing electricity to Peshawar Electric Supply Company (PESCO) through Katlang grid. However, Commercial Operation Date (COD) could not be declared due to non-formation of metering committees. These metering committees are to be formed after signing of Energy Purchase Agreement (EPA) with PESCO. PESCO intends to enter into an EPA with PEDO on take and pay basis and therefore requested PEDO through letter number 170-75 dated 8th April 2019 (Annexure 1) to obtain tariff on take and pay basis from NEPRA. Therefore, PEDO is unable to issue invoices for the electricity supplied to PESCO through Katlang grid, due to the fact that an EPA has not been entered into with PESCO.

Project has injected a total of 18,476,894 kWh to Katlang grid of PESCO till November 2020, out of which 13,959,986 kWh were exported before COD testing and installation of import/export meters by PESCO. COD testing and electricity import/export meters were installed from 13th to 20th May 2020. A total of 4,516,908 kWh were exported after COD testing and installation of import/export meters till 31st December 2020.

Table below provides summary of units supplied by the Project to PESCO through the Katlang grid:

Description	Unit (kWh)
Supply of electricity before COD testing and installation of import/export meters	13,959,986
Supply of electricity post installation of import/export meters	4,516,908
Total electricity injected to Grid	18,476,894

Table below provides detail of units injected to the grid before COD testing and installation of import/export meters at site:

Year/Month	2016	2017	2018	2019	2020	Total
January	-	-	8,624	70,840	64,636	144,100
February	-	-	105,996	-	-	105,996
March	-	-	360,580	95,524	33,000	489,104
April	-	-	643,279	783,508	375,100	1,801,887
May	-	20,988	1,057,585	1,033,602	471,786	2,583,961
June	-	150,260	1,166,000	1,014,288	-	2,330,548
July	-	42,944	778,405	912,340	-	1,733,689
August	-	46,332	740,301	53,988	-	840,621
September	-	484	940,412	407,660	-	1,348,556
October	-	403,260	-	540,452	-	943,712
November	168,828	341,220	-	271,304	-	781,352
December	72,556	294,316	175,648	313,940	-	856,460
Total	241,384	1,299,804	5,976,830	5,497,446	944,522	13,959,986

Table below provides detail of units injected to PESCO through the Katlang grid after COD testing and installation of import/export meters at site:

Year/Month	2020 (kWh)
May	427,812
June	1,024,716

July	1,147,344
August	602,316
September	508,112
October	500,324
November	163,240
December	143,044
Total	4,516,908

This is to highlight that due to non-formation of metering committee, COD is yet to be declared and further electricity is being injected to grid in addition to electricity mentioned above.

Since no provision about pre-COD sale of electricity have been captured in EPC stage tariff determination of the Project, therefore, the Project cannot realize any revenue occurring out of Pre-COD supply of electricity.

Authority in case of upfront tariffs for hydel, wind and bagasse power projects allowed Pre-COD sale of energy at the applicable tariff excluding principal repayment of debt component and interest component. Moreover, Pre-COD sale of energy is allowed to similar hydropower projects under cost plus regime. Furthermore, Authority has, in earlier comparable determinations, also allowed sale of electricity prior to COD pursuant to bilateral agreement on mutually agreed terms between the buyer and the seller. Moreover, Authority in case of similar hydropower project also allowed Pre-COD sale of energy.

Giving below are the precedents of allowance of Pre-COD sale of energy by NEPRA:

- a) In para 26 of NERPA's determination in the matter of Upfront Tariff for Small Hydro Power Generation Projects up to 25 MW Installed Capacity, Ref# NEPRA/UTH-01/4744-4746 dated 2nd April, 2015, the Authority allowed Pre-COD sale of Electricity. The relevant extract of para 26 is reproduced below;

"The Authority, in comparable upfront tariffs has allowed pre-COD sale of electricity to the power producers. Accordingly, the Authority has decided to allow pre COD sale of electricity to the power producers in this upfront tariff, subject to the terms and conditions of PPA, at the applicable tariff excluding principal repayment of debt component and interest component. However, Pre-COD sale will not alter the required commercial operations date stipulated by the PPA in any manner."

- b) In para 6 NERPA's decision on the motion for leave for review filed by PPDCL for its 2.82 MW Pak-Pattan Hydropower Project, Ref # NEPRA/TRF-259/PPDCL-2014/1930-1932 dated 8th February, 2016, the Authority allowed Pre-COD sale of Electricity. The relevant extract of Para 6 is reproduced below for the Authority's kind consideration;

"..... the Authority has noted that the construction of inter-connection and related works is the responsibility of the power purchaser, i.e., CPPA-G/ DISCO, and the power dispersal facility should be ready before COD of the project; otherwise, penalty, if any, may be imposed on the power purchaser as per the standard terms of PPA/EPA. Further, the Authority hereby directs that the initial expenditure incurred by the power producer, if any, in this regard may be reimbursed by the power purchaser as per the terms agreeable to the power producer. Moreover, Pre-COD sale of electricity is hereby allowed at the applicable tariff minus the repayment of debt and interest component, as allowed in the Upfront Tariff determinations of the Authority."

Authority is therefore requested to allow claim of compensation from the power purchaser i.e. PESCO for all electricity supplied into the grid system prior to achievement of COD at the tariff rate applicable for the first year of operations minus the debt servicing component of tariff.

3.2 Tariff on Take and Pay Basis instead of Take or Pay Basis

Authority determined the tariff of the Project on "take or pay" basis, whereby hydrological risk is to be borne by Power Purchaser. PEDO intends to enter into EPA with PESCO on "take and pay" basis, because of the fact that PEDO intends to incorporate an exit clause in the Energy Purchase Agreement (EPA), so that it can

enter into wheeling arrangement later on by exercising the exit clause. Under the EPA, PEDO can exercise exit clause and EPA may be suspended by the seller upon issuance of written notice to the Purchaser of not less than 30 days. PEDO therefore requests the Authority to modify the tariff from “take or pay basis” to “take and pay basis so that it can execute its Energy Purchase Agreement with PESCO.

Moreover, PESCO through its letter number 170-75 dated 8th April 2019 (Annexure 1), requested PEDO to modify tariff from “take or pay” basis, so that EPA for the Project can be signed between PEDO and PESCO.

It is also pertinent to mention that allowing tariff on “take and pay” basis will reduce the overall burden of capacity payment on consumers. NEPRA State of Industry Report also states that CPPAG’s obligation of capacity payments increased due to the ‘take or pay’ EPAs. Such types of EPAs require optimum utilization of available generation capacity to avoid the undue financial burden that emanates from capacity payments. The under-utilization of ‘take or pay’ power plants have increased capacity burden on consumers. Moreover, “take or pay” EPAs also resulted in accumulation of circular debt, which is a serious issue confronting the power sector and the country as a whole. Capacity payments also results in increased cost of electricity to end-consumers as well as results in piling of ever increasing circular debt of the country.

Tariff Determination of hydropower projects determines price on a two-component basis (Energy Charge & Capacity Charge), whereas the EPA determines price by using benchmark energy production based on plant capacity factor. Since the tariff of most projects is on ‘Take or Pay’ basis, therefore, on one hand these power plants are eligible for capacity payments irrespective of the fact whether electricity is purchased from these plants or not, while on the other hand, due to lower efficiencies, operation of these power plants is not feasible and adversely affecting the electricity power generation cost.

Moreover, Authority in case of similar hydropower project also allowed tariff of “take and pay basis”, whereby hydrological risk is to be borne by the Power Producer.

Keeping in view the above, Authority is kindly requested to modify the tariff on take and pay basis, so the PEDO can enter into Energy Purchase Agreement with PESCO.

3.3 Debt Term of 30 Years instead of 20 Years

Authority in its determination allowed tariff on 20 years debt term, whereby higher tariff is allowed in initial 20 years and a lower tariff in last 10 years. Authority is requested to allow a debt term of 30 years. If the debt term is changed to 30 years, then the levelized tariff drops from 5.7938 cents/kWh to 5.3462 cents/kWh.

Tariff tables below provide a comparison of levelized tariff at 20 years debt period as allowed by Authority and levelized tariff at 30 years debt period.

Tariff table at 20 years debt period as allowed in the tariff determination – levelized Tariff 5.7938 cents/kWh

Year	Variable O&M		Fixed O&M			Return on Equity	RODPR	Withholding Tax	Debt Service	Levelized Tariff	
	Foreign	Local	Local	Foreign	Insurance PKR/kWh					PKR/kWh	US\$/kWh
1	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
2	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
3	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
4	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
5	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
6	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
7	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
8	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
9	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
10	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
11	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
12	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
13	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
14	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104

15	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
16	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
17	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
18	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
19	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
20	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	2.1678	5.8301	6.0104
21	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
22	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
23	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
24	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
25	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
26	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
27	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
28	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
29	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
30	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	0.0000	3.6623	3.7756
Levelized Tariff										5.6200	5.7938

Tariff table at 30 years debt period as requested in the Tariff Modification - levelized Tariff 5.3462 cents/kWh

Year	Variable O&M		Fixed O&M		Insurance PKR/kWh	Return on Equity	ROFDC	Withholding Tax	Debt Service	TOTAL TARIFF	
	Foreign	Local	Local	Foreign						PKR/kWh	US c/kWh
1	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
2	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
3	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
4	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
5	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
6	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
7	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
8	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
9	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
10	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
11	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
12	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
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17	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
18	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
19	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
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24	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
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30	0.1197	0.1197	0.5746	0.1436	0.5452	1.6499	0.3589	0.1507	1.5235	5.1858	5.3462
Levelized Tariff										5.1858	5.3462

As evident from the above table, levelized tariff drops from 5.7938 cents/kWh to 5.3462 cents/kWh by changing debt term of 20 years to 30 years.

Moreover Authority in case of a similar hydropower project also allowed tariff on 30 year debt period.

Therefore, in order to bring tariff on a levelized basis, Authority is requested to allow a debt period of 30 years to the Project.



04 Prayer

In light of the foregoing, it is respectfully prayed that the Order/Tariff Determination may be reviewed and modified to permit pre COD sale of energy; to a tariff on 'Take and Pay' basis and the debt term of 30 years. Any other relief that the Petitioner may be entitled to, be allowed in the interest of justice.

The Petitioner requests that it be provided with an opportunity to present full supporting evidence and documents at a time directed by the Authority. The Petitioner reserves the right to take additional grounds as may be required.

Authority is requested to allow any other relief that the Petitioner may be entitled to be allowed in the interest of justice.

Respectfully submitted on the behalf of Petitioner.

Mr. Saeed ul Haq
Resident Engineer Machai Hydropower Project
Pakhtunkhwa Energy Development Organization
8th March, 2021