



Registrar

National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/R/ADG(TRF)/TRF-537/Shishi-2020/3242-3244
February 22, 2023

Subject: **Decision of the Authority in the matter of Motion for Leave for Review filed by Pakhtunkhwa Energy Development Organization (PEDO) for its 1.875 MW Shishi Hydropower Project (Case No. NEPRA/TRF-537/Shishi-2020)**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annex-I (06 Pages) in Case No. NEPRA/TRF-537/Shishi-2020.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 within 30 days from the intimation of this Decision. In the event the Federal Government fails to notify the subject tariff Decision or refer the matter to the Authority for reconsideration, within the time period specified in Section 31(7), then the Authority shall notify the same in the official Gazette pursuant to Section 31(7) of NEPRA Act.

3. The Order along with Reference Tariff Table (Annex-I) is to be notified in the official Gazette.

Enclosure: As above


(Engr. Mazhar Iqbal Ranjha)

Secretary
Ministry of Energy (Power Division)
'A' Block, Pak Secretariat
Islamabad

Copy to: (alongwith copy of subject Decision):

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.

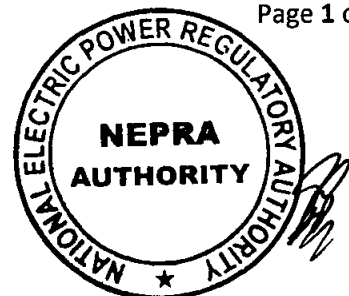


**DECISION OF THE AUTHORITY IN THE MATTER OF MOTION FOR LEAVE FOR
REVIEW FILED BY PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION
(PEDO) FOR ITS 1.875 MW SHISHI HYDROPOWER PROJECT.**

1. Pakhtunkhwa Energy Development Organization (hereinafter referred to as the "**Petitioner**" or "**PEDO**"), has developed a 1.875 MW Shishi Hydro Power Project (hereinafter referred to as the "**Project**") located at Darosh, Chitral, Khyber Pakhtunkhwa Province. The Petitioner filed a tariff petition for the Project, wherein a levelized tariff of Rs.4.723/kWh for a control period of 30 years was requested.
2. Accordingly, the Authority vide its determination No. NEPRA/R/ADG(TRF)/TRF-537/Shishi-2020/39590-39592 dated October 22, 2021 (hereinafter referred to as "**Impugned Decision**"), approved levelized tariff of Rs. 1.595/kWh for the control period of 18 years i.e. starting from notification of impugned determination till the time the generation license is valid i.e. 2039.
3. The Petitioner vide letter dated December 10, 2021, submitted a Motion for Leave for Review (hereinafter referred to as the "**MLR**") against the decision of the Authority dated October 22, 2021. The MLR was admitted by the Authority on February 15, 2022. A hearing of the stakeholder was scheduled for March 29, 2022, and separate hearing notices were sent to the relevant stakeholders on March 18, 2022. Accordingly, a hearing in the matter was held on March 29, 2022. No intervention request was received from the stakeholders.
4. The Petitioner submitted MLR on the following grounds:
 - i. **Annual Net Energy**
 - ii. **Construction Period And Its Impact On Civil Works Cost**
 - iii. **Operation & Maintenance Cost**
 - iv. **Weighted Average Cost of Capital (WACC)**
5. The Authority considered Petitioner's submissions on the above grounds. The discussion on above grounds and decision of the Authority thereon is provided in ensuing paragraphs:

Annual Net Energy:

6. The Petitioner submitted that the Authority has determined the net annual energy of 14.634 GWh with a plant factor of 90% and auxiliary consumption of 1%. However, the approved PC-I states that the gross annual energy of 14.7825 GWh after taking into account the system losses and auxiliary consumption of 10% (0.18 MW) results in net annual energy of 13.304 GWh. The Petitioner submitted that the net annual energy of 13.304 GWh was also approved by the Authority in the generation license. Therefore, the net annual energy of 13.304 GWh as per the approved PC-I and allowed in the generation license be allowed.





7. During the hearing, the Petitioner withdrew its claim regarding auxiliary consumption, therefore, this issue stand addressed thus annual net energy shall remain 14.634 GWh.

Construction Period And Its Impact On Civil Works Cost:

8. The Petitioner submitted that the claimed civil works cost of Rs. 182.68 million was adjusted on pro-rata based on a construction period of 48 months, but this is not as per the market practice. According to the Petitioner, the quantity of the works remains the same irrespective of the delay in the construction period. The only factor that increases the cost is the escalation factor, but the same was not claimed. Therefore, the actual incurred cost of Rs. 182.68 million was reasonable and justified and the same may be allowed.
9. The Authority considered the submissions of the Petitioner and agreed to the stance taken by the Petitioner, however, it is noted that the total incurred cost is inclusive of the contingency cost of Rs. 1.06 million which is not prudent since the plant is already developed and the cost are claimed based on actual expenses incurred. Therefore, the contingency cost is not justified. Accordingly, the total civil works cost of Rs. 181.62 million after excluding the contingency of Rs. 1.06 million is hereby allowed.

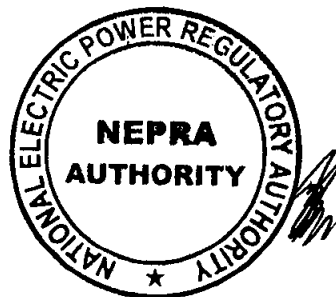
Operation & Maintenance Cost:

10. The Petitioner submitted that the Authority allowed PKR 3.539 million/annum under the head of Operation & Maintenance cost for the Project is insufficient and is also lower as compared to the cost allowed to Ranolia 17 MW, Machai 2.60 MW and Birmogh 2 MW. The Petitioner further stated the PC-I for the Project was approved in 2005 and was based on the estimated figure of Rs. 3.539 million which is not comparable to the actual claimed value of Rs. 18.72 million/annum. Therefore, the earlier claimed cost of Rs. 18.72 million/annum be allowed.
11. The Authority is of the view, that the earlier claimed cost of Rs. 18.72 million is higher, however the allowed cost may be on lower side as argued by the Petitioner considering the cost was fixed in 2005. The Authority is of the view that indexation of the PC-I estimated cost may provide a reasonable cover for the operation and maintenance of the power plant. Thus after indexing the PC-1 cost from 2005 to 2021 with annual average inflation value of 7% of the past 20 years to the maximum limit as per the interenational O&M benchmark, the Authority has decided to allow O&M cost amounting to Rs. 9.504/million per annum.

Weighted Average Cost of Capital (WACC):

12. The Petitioner submitted that the Authority has allowed a WACC of 8.31% and for the cost of debt, a 3 month KIBOR of March 31.2020 (7.59%) was considered, however, the KIBOR on March 31, 2020, is

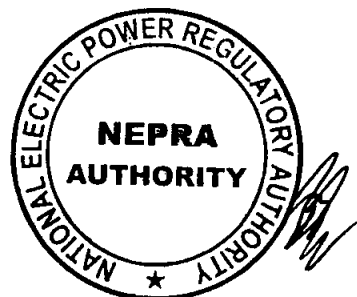
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11.22% as per the state bank, therefore this need correction and after applying the correct KIBOR the WACC works out to be 10.85%.

13. The Petitioner also submitted that the return of 10% for public generation projects set by CCOE is for the Federal generation projects whereas the rate of return allowed to other hydropower plants is 17% which must be applied in the instant case as well.
14. The Petitioner further submitted that the impugned decision provides that ***"the project tariff petition has been filed in 2020 i.e. 8 years after obtaining the G.L, therefore, the petitioner shall get the WACC component on a residual asset at year 2020 assuming the plant starting operation in 2013 when the plant was awarded generation license."*** The Petitioner stated that to calculate the residual value of the Project, it has been assumed that the plant started operating in 2013 and ROI has been allowed based on a residual value derived from 2013, therefore, the same condition shall also be applied to the rate of return to be allowed. The Petitioner stated that rate of return in 2013 allowed to other Hydropower plant was 17% and the same must be applied in the instant case. After incorporating the above submissions the WACC works out to be 12.95% and the same may be allowed to the Petitioner.
15. The Authority considered the submission of the Petitioner regarding the KIBOR. As per the Authority's practice, the latest available KIBOR at the time of approval of the tariff determination is considered, accordingly the KIBOR rate of March 31, 2021 was applied by the Authority. However, the Authority noted that date mentioned in the Impugned Decision is typo error which may be read as March 31, 2021 instead of March 31, 2020.
16. Regarding the issue of calculating ROI on residual value form COD as contested by the Petitioner, the Authority has already considered and deliberated this issue in the Impugned Decision, therefore the same does not merit reconsideration. However, with regard to the RoE, the Authority is of the opinion that the hydropower projects carries additional risks and accordingly a reasonable return should be considered which would cover the associated risks. The Authority is also of the view that an appropriate rate of return on equity will allow harness the local resource. This will not only address the issue of energy security but will address the adverse impact of climate change expectedly by replacing imported fossil fuel based power plants. Thus the Authority considers that a PKR based 16% rate of return on the equity is reasonable and the same is hereby allowed to the instant Project without any dollar indexation. Resultantly, based on 16% rate of return on 30% equity and and 7.59% KIBOR on 70% debt, the WACC of 10.11% is hereby allowed.





Order:

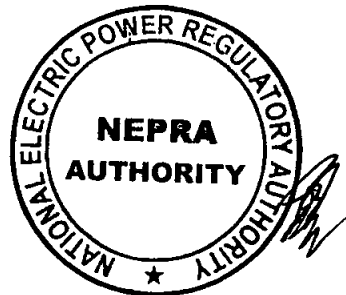
17. In pursuance of section 7(3)(a) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with NEPRA (Tariff Standards & Procedure) Rules, 1998, the Authority hereby determines and approves the generation tariff at Annex-I along with the terms and conditions for 1.875MW Shishi hydropower project of Pakhtunkhwa Energy Development Organization (the Petitioner) for delivery of electricity to power purchaser:

- Levelized tariff works out to be PKR. 2.473/kWh.
- EPC cost of PKR. 296.651 million has been approved.
- Non-EPC cost of PKR. 23.401 million including Land Acquisition cost of PKR.6.779 million and Owner Administration of PKR. 16.622 million.
- Debt to equity ratio of 70:30 has been approved
- WACC of 10.11% has been allowed based on KIBOR rate of 7.59% and ROE of 16%.
- The reference tariff has been calculated on the basis of net annual benchmark energy generation of 14.634 GWh for installed capacity of 1.875 MW. An auxiliary consumption has been restricted to 1%.
- This tariff is limited to the extent of net annual energy generation of 14.634 GWh. Net annual generation supplied during a year to the Power Purchaser in excess of benchmark energy of 14.634 GWh will be charged at 10% of the prevalent approved tariff
- O&M cost of PKR 9.504 million per annum has been approved.
- Construction period of 48 months has been approved.
- The above tariff is applicable for a period from the date the tariff determination will be notified till the time the generation license is valid i.e. till 2039.
- The tariff is based on Take & Pay, with must run provision.
- The component wise tariff is indicated at Annex-I.

One-Time Adjustments:

- The EPC cost of PKR 296.651 million and owner administration of PKR. 16.622 million is allowed as maximum cap which is subject to adjustment at COD tariff based on the documentary evidences and the lower of actual or allowed will be considered.
- The cost of land acquisition of PKR 6.779 million will be adjusted as per actual based on authentic documentary evidence at COD tariff.
- PEDO shall submit the request for adjustment in tariff within 90 days of issuance of this tariff determination.

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Indexation:

- The O&M component of tariff shall be adjusted with local N-CPI (yearly averaged) on annual basis. The first indexation of O&M component of tariff shall be done after 1 year of notification of tariff for which the reference average N-CPI shall be calculated based on 12 months N-CPI values prior to notification of this tariff determination and the revised N-CPI shall be the average of 12 months values of N-CPI of the first year of notification.
18. The order along with reference tariff table are recommended for notification by the Federal Government in the official gazette in accordance with Section 31 (7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997

Authority

Mathar Niaz Rana(nsc)

Member

Engr. Maqsood Anwar Khan

Member

Engr. Rafique Ahmed Shaikh

Member

Tauseef H. Farooqi

Chairman



22/02/23

1.875 MW Shishi Hydropower Project

Reference Tariff Table

Year	O&M	Depreciation Charge	Return on investment	PKR/KWh
PKR./kWh				
1	0.649	0.823	1.504	2.977
2	0.649	0.823	1.421	2.893
3	0.649	0.823	1.337	2.810
4	0.649	0.823	1.254	2.727
5	0.649	0.823	1.171	2.644
6	0.649	0.823	1.088	2.560
7	0.649	0.823	1.004	2.477
8	0.649	0.823	0.921	2.394
9	0.649	0.823	0.838	2.311
10	0.649	0.823	0.755	2.227
11	0.649	0.823	0.671	2.144
12	0.649	0.823	0.588	2.061
13	0.649	0.823	0.505	1.978
14	0.649	0.823	0.422	1.894
15	0.649	0.823	0.338	1.811
16	0.649	0.823	0.255	1.728
17	0.649	0.823	0.172	1.644
18	0.649	0.823	0.088	1.561
Levelized Tariff	0.649	0.823	1.000	2.473

