Registrar

National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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

No. NEPRA/R/ADG(Trf))/TRF-531/Lawi-2020/14002-14004
March 15, 2021

Subject: **Decision of the Authority in the matter of Tariff Petition filed by Pakhtunkhwa Energy Development Organization (PEDO) for Tariff Determination of 69 MW Lawi Hydropower Project** – (Case No. NEPRA/TRF-531/Lawi-2020)

Dear Sir,

Please find enclosed herewith subject Decision of the Authority along with Annex-I & II (36 Pages) in Case No. NEPRA/TRF-531/Lawi-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.

3. The Order along with Reference Tariff Table (Annex-I) & Debt Servicing Schedule (Annex-II) of the Authority's Decision is to be notified in the Official Gazette.

Enclosure: As above

15 03 21
(Syed Safeer Hussain)

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

CC:
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 TARIFF PETITION FILED BY PAKHTUNKHWA ENERGY DEVELOPMENT ORGANIZATION (PEDO) FOR TARIFF DETERMINATION OF 69 MW LAWI HYDROPOWER PROJECT

1. Pakhtunkhwa Energy Development Organization (hereinafter referred to as the "the Petitioner" or "PEDO") vide its letter dated June 25, 2020, filed a tariff petition for determination of generation tariff under Rule 3 of NEPRA (Tariff Standards & Procedure) Rules, 1998 ("Tariff Rules, 1998") in respect of its 69MW hydropower project namely Lawi Hydropower Project (hereinafter referred to as "LHPP" or "the project") envisaged to be set on Shishi River near Drosh Town in District Chitral of Khyber Pakhtunkhwa ("KPK"). The Petitioner has requested the approval of levelized tariff of US Cents 9.2798/kWh (PKR. 15.4590/kWh) over the tariff control period of 30 years.

SUBMISSIONS OF THE Petitioner:

2. The salient features of the petition are as follows:

Project company	:	Lawi Hydropower Project
Sponsors	:	Pakhtunkhwa Energy Development Organization
Power purchaser	:	Peshawar Electric Supply Company (PESCO)/ Central Power Purchasing Agency Guarantee) Limited (CPPA-G)
Project location	:	Drosh town, Chitral Kpk
Water Source	:	Shishi River
Plant Life	:	30 years from COD
Total Installed Capacity	:	69 MW
Dam Type	:	Low height concrete diversion weir
Design Net Height	:	394m
Design Flow	:	$20m^3/s$
Weir Type	:	Concrete Weir
Weir Width (overflow section)	:	6m long ; 10.6m high (from foundation bed)
Sand Trap Length	:	90m Long; Double Chamber
Tunnel Length / Diameter	:	12.16 Km long /4.30m
Surge Shaft	:	Height 70 m, Dia 9 m
Pressure Shaft (Penstock)	:	236 m (vertical), 780m (horizontal), Dia 3m/2.5m
Mean Annual Energy	:	303 GWh
Turbine	:	Pelton
Nos. of Turbines	:	3
No. Of Generator	:	3
Turbine Capacity	:	23 MW (6.66m3/s)
Power House	:	66.60m x 21.20m x 26m (Surface Type)
Power Factor	:	0.85
Plant capacity factor	:	51%
Construction Period	:	60 Months

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Project cost		**PKR in millions**
EPC Contract/Construction	:	115.24
Land Cost	:	1.77
Transmission Line Cost	:	2.40
Development Cost	:	1.44
Cost of Loan arrangement/Financing Fee/Commitment Fee	:	2.49
Management Consultant Cost	:	2.94
Interest During Construction (IDC)	:	27.11
Total project cost	:	**153.39**
Financing structure	:	Debt: 80% : Equity: 20%
Interest Rate	:	10.09%
ROE	:	17%
Operations and Maintenance Cost • 25% Variable (50% Foreign: 50% Local) • 75% Fixed (20% Foreign: 80% Local)	:	USD 2.526 million/annum

3. According to the Petitioner, the proposed project cost and reference tariff is based on the following assumptions. A change in any of these assumptions will necessitate a corresponding adjustment in the reference tariff:

a. Project financing structure is based on 80:20 debt-equity ratio, though the Project has been entirely funded from PEDO's resources. 80% of the project capital cost is considered to be arranged through sponsor loan and 20% is considered as equity. The proposed reference tariff is based on the following assumptions. Any change in any of these assumptions will result in changes in the Reference.
b. Debt Tenor of 20 years.
c. 100% of debt has been assumed to be financed through sponsor loans provided by PEDO.
d. The Insurance during operation cost assumed @ 1.00% of the EPC cost
e. Construction period of 60 months has been requested.
f. No sales tax is assumed, general sales tax, and all other taxes and any new taxes shall be treated as pass through.
g. Withholding tax on dividend @7.5% as required under the Income Tax Ordinance, 2001 is assumed. Any change in the rate of the withholding tax would be pass-through to the Power Purchaser.
h. Hydrological Risk to be borne by Power Purchaser.
i. Return on Equity and Return on Equity during construction @ 17% per annum is assumed over 30 years.
j. Being a Public Sector Project, no water use charges have been considered.

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k. Reference exchange rate (PKR/USD) is taken for tariff calculations PKR 166.587 USD and the tariff does not incorporate any inflation.

l. The EPC figure forming the basis of this petition is based on Exchange rate of USD 1=166.587. The agreed cost shall be further adjusted for reopeners at the time of COD in accordance with the provisions of the signed contract as per the practices adopted for FIDIC based EPC contracts.

m. Total US Dollar Project Cost shall be updated at COD. Debt service, Return on Equity and Return on Equity during Construction shall be adjusted on account of actual variation in debt and equity drawdown actual interest during construction and financing costs/fees and Insurance during Construction. Once adjusted, the Debt services, Return on Equity and Return on Equity during Construction shall be updated accordingly and the relevant capacity charges calculated thereon.

n. The tariff table shall be updated at COD in order to correct the tariff according to the prevailing CPI, WPI, KIBOR, LIBOR and exchange rates (PKR/USD and US$/€ and PKR/€).

o. Actual equity investment profile will be used to update Return on Equity during Construction at the time of COD.

p. Actual IDC using the actual spread will be used to update the capital cost at COD. Any assumptions on commitment fees, upfront fees, arranger costs and similar charges assumed in the funding plan including political risk insurance (PRI) etc. will be adjusted at financial close.

q. Any change in applicable accounting standards which impact revenues, costs and equity IRR shall be reflected in tariff accordingly.

r. No hedging cost has been assumed for exchange rate fluctuations during construction.

s. No Debt Service Reserve Account (DSRA), Maintenance Reserve Account or Contingency Reserve Account or any other Reserve Account has been considered in the tariff model.

t. The monetary impact of all or any modifications or additions required by the Power Purchaser that are not considered in the Project shall be treated as pass through.

Proceedings:

4. The Authority admitted the subject Tariff Petition. Accordingly, the hearing was fixed for September 16, 2020 at 10:45 AM through Zoom. Notice of hearing was published in the national newspaper on August 29, 2020 and the tariff petition was uploaded on NEPRA's website. Separate notices were also sent to the stakeholders on September 03, 2020.

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Hearing:

5. The hearing in the subject matter was held on September 16, 2020 at 10:45 AM, at the NEPRA Headquarters, Islamabad which was attended by the representatives of Pakhtunkhwa Energy Development Organization (PEDO), Central Power Purchasing Agency Guarantee Limited (CPPA-G), and other stakeholders. Prior to hearing CPPA-G on **September 15, 2020** submitted its comments in writing. The comments of CPPA-G were forwarded to the Petitioner on September 29, 2020 for submission of their response on CPPA-G's comments. The response of the Petitioner on CPPA-G's comments has been received on November 03, 2020. The comments of CPPA-G and Petitioner's response thereon have been discussed under relevant issues.

ISSUES

6. Following is the list of issues framed by the Authority for the hearing:

i. Whether the project design/feasibility has been approved by the competent authority/forum?

ii. Whether the plant capacity and annual generation claimed by the Petitioner are justified?

iii. Whether an approved Interconnection Study has been obtained?

iv. Whether NOCs have been obtained from the Environmental protection departments?

v. Whether the construction period of 60 months claimed by the Petitioner is justified?

vi. Whether the EPC cost (USD 115.24 million) is competitive, comparative and has been arrived at through fair and transparent EPC bidding process?

vii. Whether the Transmission line cost of USD 2.40 million claimed by the Petitioner is justified?

viii. Whether the land purchase and infrastructure development cost of USD 1.77 million Claimed by the Petitioner is justified?

ix. Whether the Project Development cost of USD 1.44 million claimed by the Petitioner is justified?

x. Whether the Management Consultants cost of USD 2.94 million claimed by the Petitioner is justified?

xi. Whether the cost of Loan arrangement/financing fee/commitment fee of USD 2.49 million claimed by the Petitioner is justified?

xii. Whether the terms and conditions of debts claimed by the Petitioner are justified?

xiii. Whether the operating costs claimed by the Petitioner are justified?

xiv. Whether the Return on Equity (ROE) and Return on Equity during Construction (ROEDC) computed at 17% is justified?

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xv. Whether Withholding tax on dividends should be allowed as a pass through item?

7. On the basis of the pleadings, record/evidence produced during the course of hearing and afterwards, the issue-wise findings and decision of the Authority are given hereunder:

Issue#i&ii) Whether the project design/feasibility has been approved by the competent authority/forum? and Whether the plant capacity and annual generation claimed by the Petitioner are justified?

8. The Petitioner in its petition and during the hearing has submitted that the feasibility study of the project was prepared by Hydro Electric Planning Organization ("HEPO"), WAPDA in July 2007. Based on the feasibility study, PEDO prepared the PC-I for the design and construction of the Project during the year 2011and approved by Executive Committee of the National Economic Council "ECNEC" on August 16, 2012. Later, Energy and Power Department advised PEDO to revise the PC-I of the Project because lowest quoted bid for EPC by M/S Habib Rafiq JV was PKR.17.00 Billion, which was 96% higher than the EPC/Work cost of the approved PC-I. The Petitioner submitted that feasibility report being the part of PC-I stand approved once the PC-I is approved by ECNEC. Further, the Petitioner during the hearing submitted that based on the hydrology study, 51% plant factor with the plant capacity of 69 MW, the mean annual energy of 303 GWh is justified. It has been noted that there is no mention of assumed auxiliary consumption in the tariff petition.

<u>Comments of CPPA-G:</u>

9. CPPA-G vide its letter dated September 15, 2020 submitted that the tariff petition did not provide the detail of how much auxiliary consumption is taken into account and what will be the gross and net capacity of the Project. CPPA-G submitted that generally auxiliary consumption of 1% is more than sufficient for a hydel project having capacity less than 100 MW, as evident in the case of 81 MW Malakand- III HPP whereby auxiliary consumption is considered in generation license as 0.508 MW i.e. 0.63 %. Therefore, auxiliary consumption must be considered maximum up to 1%. With regard to annual plant factor CPPA-G submitted that since the approved feasibility study is not attached with the tariff petition, therefore, no comments on annual plant factor can be submitted.

<u>Response of Petitioner on CPPA-G's Comments:</u>

10. The Petitioner in response to comments of CPPA-G has submitted that the application of EPC stage tariff petition is based on Net Energy, which is Gross Energy less Auxiliary Consumption of 1% as follows:

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Gross Energy	=	303.00 GWh
Less: Auxiliary Consumption 1% of Gross Energy	=	3.03 GWh
Net Energy	=	299.97 GWh

11. The Petitioner has also submitted that the Authority has already approved 1% auxiliary consumption for Daral Khwar Hydropower Project and the same may be allowed to Lawi HPP.

12. The Authority observed that LHPP in its petition has not submitted approval of POE in respect of its revised feasibility study (FS). However, it has submitted that the same is approved by ECNEC. The Authority has noted that PEDO in its submissions stated that the mean annual energy of 303 GWh has been calculated based on discharges resulting in plant load factor of 51%. The Authority also noted that, the average annual energy of the Project in PC-I (revised) is given as 337.89 GWh at plant factor of 57 % and 308 GWh at a plant factor of 51 % with 2 and 4 hours peaking options respectively. As the plant is planned to meet peak demand hence the Authority has decided to allow average 2 hours peaking energy of 337.89 GWh instead of claimed 308 GWh.

13. Further the Authority observed that, the claimed auxiliary consumption is not in conformity to the international standards as well as NEPRA's previous approved tariff determinations. Therefore, in the instant case, the Authority has decided to allow 0.5% auxiliary consumption based on efficiencies of turbine, generator and transformer on daily flow data. Hence, the net allowed energy output is 336.2 GWh.

Issue # 3 Whether an approved Interconnection Study has been obtained?

14. The Petitioner during the hearing has submitted that the process for hiring of consultants to carryout Interconnection Studies for Transmission Line, load flow studies, preparation of tender documents and construction supervision of 132 kV Transmission Line (T-Off) from the 132 kV switchyard of Lawi HPP to connect with the 132 kV Transmission Line of Golen Gol HPP is at its advanced stages and will be completed very soon.

Comments of CPPA-G:

15. CPPA-G vide letter dated September 15, 2020 informed that NTDCL vide letter dated February 21, 2019 has highlighted that Grid Interconnection Study Report (GISR) of power projects is required to identify the interconnection scheme/scope of work for power dispersal from the power plant before the construction stage. NTDCL further stated that integrated study of the region will take some time and subject HPP is scheduled to be commissioned earlier. Therefore, Project sponsor is

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required to engage an independent study consultant to conduct the Grid Interconnection Study of the subject HPP considering all the upcoming hydropower plants in that area and submit to NTDCL for approval. CPPA-G has also submitted that so far, neither GISR has been submitted to NTDCL/PESCO, nor PESCO has issued any consent pursuant to applicable legal and regulatory framework for purchase of power. Furthermore, it is also not clear that which entity will construct the interconnection facility and who will finance the interconnection facility. CPPA-G also submitted that the interconnection aspect of project must be considered at the feasibility stage because the project viability depends on it. However, from the facts it is assumed that interconnection aspect was not considered at the approval stage of feasibility study.

Response of Petitioner on CPPA-G's Comments:

16. PEDO vide letter dated November 03, 2020 responded to CPPA-G's comments. The Petitioner submitted that the Load Flow Study / Grid Interconnection Study is not included in the scope of the Management Consultant for the construction of Lawi HPP. The process of hiring a separate consultant has been initiated whereas the technical & financial proposal evaluation has been completed, once the contract with the lowest bidder will be signed, the GIS will be carried out and will be submitted to PESCO for approval.

17. The Petitioner further submitted that the feasibility study of the LHPP was carried out by the WAPDA in 2007 wherein different options of interconnection has been addressed in Section 11 of feasibility study. The interconnection option through loop In/Out of Golen Gol-Temergara 132KV (D/C) Transmission line at Lawi is already available in the approved feasibility of Lawi HPP.

18. The Petitioner has also submitted that once the GIS will be approved the same will be submitted to NEPRA.

19. The Authority observed that the Petitioner has not submitted the approval of interconnection study to date. It is also pertinent to mention here that the issue of the approval of interconnection study is deliberated in detail at the time of issuance of generation license. The Authority issued the generation license to the project company on February 09, 2021 subject to the condition that the licensee/PEDO will apply for Licence Proposed Modification to reflect the final interconnection arrangement in its Generation Licence once GIS is finalized and approved by the relevant agency. The grant of generation licence will be subject to provisions contained in the NEPRA Act, relevant rules, regulations framed thereunder and other applicable documents. Therefore, this issue stands addressed.

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Issue # 4: Whether NOCs have been obtained from the Environmental Protection departments?

20. The Petitioner during the hearing submitted that the EIA report has been approved by Environmental Protection Agency ("EPA") for the construction of the Lawi Hydropower Project. The Petitioner also submitted that NOC has been issued by EPA vide letter No. EPA / EIA / Lawi Hydro/434 dated March 31, 2012.

21. The Authority considered the approval letter provided by the Petitioner and found it satisfactory, therefore, this issue stands addressed.

Issue # 5: Whether the construction period of 60 months claimed by the Petitioner is justified?

22. The Petitioner has claimed a construction period of 60 month in its tariff petition. During the hearing the Petitioner submitted that the construction period of 60 months has been anticipated due to following:

   i. Since it is an EPC contract, therefore the initial one year of the construction period is envisaged for the geotechnical investigations and detailed designing of the project.

   ii. The remaining four years of the construction period is to carry out the huge quantum of work including 12.11 km long headrace tunnel, 1.78 km of adit tunnels, intake structures, powerhouse building, residential colony (school, hospital, community center and different types of residential buildings) and access roads.

   iii. Besides, the location of the Project is remote and exists in difficult terrain, hindering the smooth progress of the construction activities.

   iv. The access to the Project site is challenging particularly in winter when the approach roads to Lowari Tunnel area are often blocked due to heavy snowfall / landslides.

23. The Petitioner submitted that considering above, the construction period of 60 months being factual and justified may be allowed.

<u>Comments of CPPA-G:</u>

24. CPPA-G vide its letter dated September 15, 2020 submitted that since the company has already started its construction. Therefore, the time for construction period must be rationalized accordingly.

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Response of Petitioner on CPPA-G's Comments:

25. PEDO vide letter dated November 03, 2020 in response to CPPA-G comments reiterated its submission with regard to the claimed construction period of 60 months and submitted that the claimed construction period of 60 months is factual and justified.

26. The Authority observed that the time for the completion of the EPC work given in the preamble to the conditions of the contract is 1,825 days from the commencement date of the project, which works out to be 60 months. Same construction period has been claimed by the Petitioner whereas ECNEC has approved 48 months' time for the construction of the contract.

27. The Petitioner was asked to explain the reason for deviation in agreeing into the 60 months construction period versus 48 months allowed in the ECNEC approval. The Petitioner informed that in the RFP, 60 months construction period was assumed based on several requests of prospective bidders after analyzing work scope and project difficulties. PC-I was already submitted and under approval at the bidding stage and in order to avoid further delay, it was considered prudent to proceed with the bidding process and opted for revision of PC-I, the construction period in revision of PC-I will be addressed accordingly.

28. The Authority has observed that the claimed construction period of 60 months has not been approved by ECNEC. The Authority also compared the construction period of this project with other comparable projects and found that the construction period as approved by ECNEC is closer to the construction period of similar size projects, therefore the Authority has decided to allow 48 month construction period to LHPP and all the allied adjustments at COD will be restricted to this allowed period.

29. The Authority further directs the Petitioner to provide a detailed report approved by ECNEC at the time of COD tariff adjustment, indicating the time taken for the completion of the Project and reasons for delay in completion of the project. The Petitioner will also be required to provide information about measures taken in order to mitigate such delays and to recover the costs caused by such delays along with relevant documentary evidence to the satisfaction of the Authority.

Issue # 6: Whether the EPC cost (USD 115.24 million) is competitive, comparative and has been arrived at through a fair and transparent EPC bidding process?

30. The Petitioner in its petition has claimed USD 115.24 million on account of Equipment Procurement and Construction Cost ("EPC"). The Petitioner submitted that the estimates given in the tariff petition are based on the signed EPC contract. The EPC contract was signed in October 2016, by

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PEDO as Employer and consortium of M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV as EPC contractor. The Petitioner submitted that the contract envisages that the price is firm and final other than the allowed variations stipulated in the contract. This EPC contract is FIDIC ("Fédération Internationale Des Ingénieurs-Conseils) based and thus not only provides transparency but also is in accordance with best international practices providing a fair/ win-win situation for employer as well as contractor. The Petitioner submitted that it is assumed that at COD stage, tariff shall allow the adjustments/revisions agreed between the EPC contractor and PEDO thus providing for a strictly cost plus tariff. The contract award was made through competitive bidding and most stringent rules pertaining to award of such contracts were followed.

Comments of CPPA-G:

31. CPPA-G vide its letter dated September 15, 2020 submitted that since the Project company did not provide detailed breakup of EPC cost w.r.t civil works, electrical and mechanical equipment, transportation & erection charges and detailed engineering design, therefore comments on EPC cost cannot be provided. Further, CPPA-G has also submitted that the Project company has not provided detail/information for International Competitive Bidding ("ICB") through which EPC contract was awarded to Mis Sichuan-Sarwar-Silian-Chongqing Luyang, therefore the Authority is requested to review bidding documents for ensuring transparent bidding process. CPPA-G also submitted that the claimed EPC cost of USD 2.20 million/MW requested by the company may be rationalized with the tariff determinations of similar other hydropower projects.

Response of Petitioner on CPPA-G's Comments:

32. The Petitioner vide letter dated November 03, 2020 submitted its response to CPPA-G's comments. The Petitioner submitted the following breakup of the claimed EPC cost:

Sr. No.	Title	Amount (PKR.)	Amount (USD in Million)
1.	Design Services	1,090,692,740	
2.	Civil Works, Installation and other services	9,719,775,650	
3.	**Provisional Sum**		
	• Protection of Environment PKR. 30,000,000 • Health and Safety PKR. 60,000,000	1,160,000,000	

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	• Custom Duties, Taxes, Payment on account of Adjustment on Foreign Currency and other works PKR. 1,000,000,000 • Security Arrangement PKR. 70,000,000 **Total Specified Provisional Sum PKR. 1,160,000,000**		
	Total (1)+(2)+(3) @PKR. 166.58/USD	**11,970,468,390**	**71.8570**
4.	Plant and Mandatory Spare Pars procured from abroad		**43.3822**
	Total EPC Cost in USD		**115.2392**

33. The Petitioner in the said letter submitted that the selection of EPC Contractor for design, construction and procurement of the Project was carried out through ICB process in accordance with the Pakistan Engineering Council ("PEC") Guidelines. The Petitioner submitted that a single stage two envelopes bidding process was adopted whereby the bidders submitted the technical & financial bids (which were sealed in separate envelopes) to the 'Bids Opening and Evaluation Committee'. The Petitioner submitted that in accordance with the provision of Standard Bidding Documents of PEC 'Bids Opening and Evaluation Committee' was constituted vide Notification dated: June 16, 2014, for undertaking and completing the 'Bids Opening and Evaluation Process' of the technical as well as financial bids of EPC contractor.

34. The Petitioner submitted that a pre-bid meeting was also held in the committee room of the PEDO House, Peshawar on December 18, 2014 for clarification of bidding documents. Five (05) prospective bidders out of ten (10) firms who purchased the bidding documents up to that date attended the pre-bid meeting. The closing date for the submission of bids was extended from January 05, 2015 to January 20, 2015 upon request from the bidders which was further extended to January 21, 2015 due to local holiday on January 20, 2015 as announced by the Provincial Government. The receipt of bids by PEDO was closed at 14:30 hours local time on **January 21, 2015** as scheduled. Out of eleven (11) firms who purchased the bidding documents before bid submission date, following four (04) bidders submitted their bids:

i. M/S Clic Jv.
ii. M/S Descon-Zoec Jv.
iii. M/S Sichuan-Sarwar-Silian-Chongqing Luyang Jv.
iv. M/S Limak-Zkb Jv.

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35. The Petitioner submitted that in the presence of the authorized representatives of all the four bidders, the 'Bids Opening and Evaluation Committee' received the bids turn by turn and at the same time opened the technical bids. The initial findings of the detailed evaluation of the technical documents submitted by the responsive bidders were sent to respective bidders for point by point clarifications. The additional documents submitted by the bidders in response to these clarifications generally conformed to the technical requirements. After technical bid evaluation the price bids were opened on **March 03, 2015** at 1400 hours, in the conference room of PEDO House, Peshawar, by the Bid Opening & Evaluation Committee. Prices comparison of the financial bids was made after application of corrections/adjustments to work out the evaluated bid prices and it was concluded that the bidders, particularly the lowest Bidder (M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV) fully meets the requirements for the Work and the specifications governing materials and construction processes, and that they were prepared to carry out the work as specified in the bidding documents. According to the Petitioner, there were some minor arithmetic errors in the bids. After applying all these arithmetic corrections, the corrected prices for the bids did not change the bidder's positions in order of prices quoted for the works. As per the Petitioner, the committee, unanimously recommended that:

> *"since the bidder, M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV has been qualified technically and stands lowest financially on the grounds that they have undertaken to fully comply with all the specifications of the bidding documents without any change in the bid price" therefore, the Project may be awarded to M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV with all works i.e. Detailed Engineering Design & Drawings, Construction, Supply, Erection, Installation, Testing, Commissioning and Joint Operation on full load at cost of Pak PKR. 16,337,654,685/- (Inclusive of Provisional Sum and Exclusive of Taxes, Duties and Priced Day works)."*

36. The contract was subsequently signed between PEDO as employer and consortium of M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV as the EPC contractor in October 2016 at a contract price of PKR. 16,337.655 million including the provisional sum of PKR. 1,160 million.

37. The Authority noted that the Petitioner has adopted ICB procedure in 2014 for the selection of the EPC contractor. The contract with the selected EPC contractor was signed in October 2016. It is also pertinent to mention here that NEPRA (Selection of Engineering, Procurement and Construction Contractor by Independent Power Producers) Guidelines, 2017 were issued in May 2017, therefore, these guidelines were not applicable to the Project at the time of selection of EPC contractor. Since, the aforementioned guidelines were not applicable on the Project company therefore for the assessment of the EPC cost earlier benchmarks/practice of the

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Authority has been adopted. The Authority has been allowing EPC cost on the basis of turnkey EPC contracts between the Project companies and the EPC contractors. The Authority however, has noted that a detailed bidding process has been carried out by the Petitioner for the selection of the EPC contractor and as a result, the lowest evaluated bid price of PKR 16,337,654,685/ of M/s Sichuan-Sarwar-Silian-Chongqing Luyang JV was selected.

38. The following will review EPC cost including its breakup:

Plant and Mandatory Spare Parts Supplied from Abroad:

39. The claimed EPC cost consists of USD 43.3822 million for the plant and mandatory spare parts to be supplied from abroad. The Authority has noted that the EPC contract provides that the stated cost of USD 48.3822 million is exclusive of custom duties and taxes. Further, schedule 1 of the rate and prices pertaining to plant and mandatory spare parts supplies from abroad provide that taxes and duties will be reimbursed as per actual.

40. Accordingly, the Authority has decided to allow the cost of USD 43.3822 million for plant and mandatory spare parts along with adjustment for exchange rate variation as per actual payment at the time of COD subject to provision of verifiable documentary evidence. For the purpose of the tariff calculation, this cost has been converted into PKR using an exchange rate of PKR 160/USD.

41. Further, the Authority has also decided to allow custom duties and taxes of USD 2.93 million calculated @ 6.06% of the stated cost comprising 5% custom duty and 1.06% of provincial infrastructure development surcharge. The custom duties and taxes required to be paid on import of plants and spare parts will be allowed as per actual at the time of COD subject to provision of verifiable documentary evidence similar to other power projects.

Design Services and Civil Works, installation and other services:

42. The claimed EPC cost also includes Rs. 1,090 million and Rs. 9,719 million for design services and civil works respectively. The Authority has noted that the EPC contract provides that the cost for design services and civil works is inclusive of price escalation. Accordingly, the Authority has decided to allow Rs. 1,090 million and Rs. 9,719 million for design services and civil works respectively. Further there shall also be no adjustment on any account including exchange rates since these cost items are identified in the signed contract to be incurred locally in Rs.

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Provisional Sum:

43. The claimed EPC cost also includes a provisional sum of Rs. 1,160 million. Following breakup of provisional sum has been provided in the EPC contract:

S.No	Description	PKR. in million
1.	Protection of environment	30
2.	Health and Safety	60
3.	Security Arrangements	70
4.	Custom Duty, Taxes, Payment on account of Adjustment on Foreign currency and other works	1,000
	Total	**1,160**

44. The Authority noted that the provisional sum of PKR. 1,160 million is the estimated budget for any additional work and services against which exact quantity/scope cannot be foreseen at bidding stage and will be paid as per actual work done. The Authority is of the view that this cost cannot be considered as the scope of EPC work. Also, pertinent to mention here that the Authority has not allowed the provisional sum in earlier tariff determinations of other HPP. Accordingly, in the instant case also, the provisional sum of PKR. 1,160 million is not allowed. Further item no 4 of the provisional sum which is the estimate for custom duty, taxes, payment on account of adjustment on foreign currency and other works has already been considered and allowed by the Authority.

45. The approved EPC cost for the Project is tabulated below:

S.No	Description	USD in million	Rs. in million
1.	Plant and Mandatory Spare Parts Supplied from abroad (@Rs. 160/USD)	43.3822	6,941.152
2.	Design Services		1,090.693
3.	Civil Works, installation and other services		9,719.775
	Total (Rs. in million)		**17,751.62**
	Total (USD in million) (@Rs. 160/USD)		**110.947**
	Total (USD in million/MW)		**1.608**

Issue # 7: Whether the Transmission line cost of USD 2.40 million claimed by the Petitioner is justified?

46. The Petitioner in its tariff petition has claimed transmission line cost of USD 2.40 million. The Petitioner has not provided any basis or detail for the claimed transmission line cost in its petition.

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Comments of CPPA-G:

47. CPPA-G vide its letter dated September 15, 2020 submitted that PEDO in its minutes of meeting dated November 25, 2019 presented that Koto and Lawi projects may be evacuated through already constructed 132 kV double circuit line of Golen Gol project, but Chief Engineer NTDCL said that Lawi can be taken on same line however, for Koto HPP an alternate solution will have to be looked into because the power carrying capacity of Golen Gol line is insufficient. CEO PEDO apprised that Koto project is coming ahead of Lawi project, therefore, as an interim arrangement Koto project may be evacuated through existing 132 kV. CPPA-G submitted that PESCO vide letter dated December 11, 2019 has approved the GISR of 40.8 MW Koto HPP with interim interconnection scheme through In/Out arrangement of 132 kV Wari-Timergara Transmission Line and permanent arrangement for that will be through proposed 132 kV Timergara-Khar Bajawar Transmission line. The transmission line proposed for permanent interconnection of Koto project may be completed before commissioning of under construction 69 MW Lawi HPP. Therefore, interconnection of Lawi HPP is dependent on the construction of a permanent transmission line of Koto HPP. CPPA-G submitted that so far PESCO has not issued any consent pursuant to the applicable legal and regulatory framework for purchase of power. CPPA-G also submitted that PEDO has mentioned the cost of transmission line without mentioning how much length of line will be built by the company hence no comments with regard to cost of transmission line can be furnished.

Response of Petitioner on CPPA-G's Comments:

48. The Petitioner vide letter dated November 03, 2020 submitted its response to CPPA-G's comments. The Petitioner submitted that the Engineering, Procurement & Construction of transmission Line is not in the scope of Management Consultant nor in the scope of EPC contractor for construction of Lawi HPP therefore the exact length of line will be decided after the completion of bids evaluation of new consultant & contractor for its design, supervision and construction. However, in revised PC-I, Rs. 400 Million has been allocated for transmission line.

49. The Authority has decided on a similar issue in respect of Rialli [MW] HPP vide its determination dated November 20, 2018.

> *"The Project Sponsors proposed that the Company will submit cost details & nominal tariff to NEPRA for approval pertaining to financing & construction of Purchaser's Interconnection facilities at the time of COD of the Project. In case of PESCO/Power Purchaser refusal to carryout O&M services for Purchaser's Interconnection facilities, then the Sponsors at the time of Project COD or earlier will request the Authority for the issuance of tariff or Special Purpose Transmission License (if required) in order to*

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carry out the aforesaid O&M services. Further, net delivered energy shall be adjusted for line losses subject to figure as allowed under the NEPRA (Interconnection for Renewable Generation Facilities) Regulations, 2015 (amended on June 07, 2018)."

50. Accordingly, in the instant case also, the Authority approves the same mechanism and the cost of USD 2.4 million on account of cost of T/L is not allowed at this stage. However, the Petitioner is directed to provide a detailed cost analysis for transmission line at the time of COD.

Issue # 8: Whether the land purchase and infrastructure development cost of USD 1.77 million claimed by the Petitioner is justified?

51. The Petitioner in its tariff petition has claimed land purchase and infrastructure development cost of USD 1.77 million. The Petitioner stated that the cost associated with acquisition of land, compensation for resettlement to the inhabitants of the area to be affected by the development of the Project, compensation for removal of trees and crops, cost of social welfare of the local community and other allied costs, to be incurred by the Project including cost of consultants and legal fees pertaining to land acquisition and resettlement, have been estimated and accounted for under this head.

Comments of CPPA-G:

52. CPPA-G in this regard has submitted that the Project land is already acquired by the company and construction commenced in November 2016. Therefore, PEDO should submit to the Authority the actual cost in rupee terms that was incurred on the procurement of land.

Reply of Petitioner on CPPA-G's Comments:

53. In response to CPPA-G's comments PEDO submitted that the claimed land cost of PKR.296 Million or USD 1.77 Million (@ 1 USD =166.587 PKR) has actually been incurred for the purchase of land for different components of LHPP, till to date. PEDO has also submitted copies of cheques issued to District Office Revenue, Chitral for purchase of land aggregating to PKR. 296 million.

54. The Authority noted that the Petitioner has acquired land in 2012 and has also submitted copies of cheques issued in 2012 to District Office Revenue, Chitral for the purchase of land aggregating to Rs.296 million. Since, the payment for the purchase of land is PKR. 296 million, therefore, the Authority has decided to allow Rs. 296 million as maximum ceiling on account of cost of land to the Petitioner, subject to adjustment as per actual at the time of COD based on the authentic verifiable documentary evidences to the satisfaction of Authority.

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Issue # 9: Whether the Project Development cost of USD 1.44 million claimed by the Petitioner is justified?

55. The Petitioner in its tariff petition has claimed USD 1.44 million under project development cost ("PDC") head. The Petitioner has submitted that the PDC includes salary, generation licence & tariff petition fee, purchase & cost of repair of durable goods, commodities cost and other service cost.

56. The Authority observed that the Petitioner has claimed PDC on estimation basis which is not backed by any supporting documents, therefore, previously established cost benchmarks need to be relied upon. The PDC claimed by the Petitioner is on higher side as compared to previously established benchmarks for other hydropower projects executed in similar manner, i.e. EPC/Turnkey Contracts with outsourced engineering and administration of the Project to Management Consultants.

57. The Authority has allowed a maximum development cost of USD 0.22 Million for 36 MW Daral Khawar (for the construction period of 36 months) and Ranolia 17 MW (for the construction period of 30 months) Hydropower Projects of PEDO, which in rupee term works out to be PKR. 23 million and PKR. 21 million respectively. The PDC cost has been allowed to these projects on the basis of cost allowed to provincial government projects in Punjab and KPK executed under the Renewable Energy Development Sector Investment Program (REDSIP), which aims to develop indigenous, non-polluting, and renewable sources of energy to help meet Pakistan's power shortage and diversify the power sources.

58. The Authority is of the considered opinion that PDC cost does not vary with the size of the project except for certain cost items such as generation license fee, tariff petition fee etc. and majority of the cost is incurred in PKR. However, this cost may vary with the construction period of the Project. The Authority is of the view that the PDC cost of USD 0.22 million (Rs. 35.2 million) @ Rs. 160/USD is a good estimate for the Project of 69 MW having a construction period of 48 months. Therefore, the Authority has decided to approve a development cost of USD 0.22 million (PKR.35.2 million) for this Project with a condition that the individual items may vary but the overall allowed cost should be the maximum cap and will not be subject to any exchange rate variation.

Issue # 10: Whether the Management Consultants Cost of USD 2.94 million claimed by the Petitioner is justified?

59. The Petitioner has claimed engineering and construction supervision costs of USD 2.94 million during the construction of the civil works and for the supervision of the procurement, testing, installation and commissioning of the mechanical and electrical works.

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Comments of CPPA-G:

60. CPPA-G in this regard has submitted that the breakup of the management consultant cost is not given in the tariff petition; therefore, the Authority may look into it.

Reply of Petitioner on CPPA-G's Comments:

61. PEDO in response to the comments of CPPA-G has submitted that the claimed management consultant's cost of PKR.490.41 Million or USD 2.94 Million (@ 1 USD =166.587 PKR) is reviewed in the CDWP forum in detail and has been finally approved by Executive Committee of the National Economic Council (ECNEC) vide letter No. 14(429) PIA-III/PC/2011 dated: July 27, 2015. The Petitioner submitted that the obligations of the Management Consultants are to review the feasibility study, prepare the bidding documents, review the design submitted by the contractor and construction supervision of Project works which are stretched over an area of 20 km for which sufficient number of technical experts including the Project implementing engineers and their supporting staff is inevitably required. The Petitioner submitted that keeping in view the above-mentioned facts, the Management Consultant's cost of USD 2.94 million is justified.

62. The Authority has noted that the selection of management consultants of the Project has been carried out through a international competitive bidding process in accordance with PEC guidelines. The contract was signed on June 12, 2012 for the management consultancy during the Project construction period for a contract price of Rs. 244.401 million. Later, the cost was revised to PKR 266.155 million, PKR 300.685 million & PKR 313.721 million through addendum # 1, 2 & 3 due to annulment of 1st and 2nd bidding process on January 8, 2013 and suspension of 3rd bidding process by Peshawar High Court ("PHC") from June 19, 2014 to November 20, 2014. The Petitioner was asked about the sanctity of the management consultancy contract keeping in view the aforementioned annulment and suspension by PHC. The Petitioner responded that the 1st bidding process was annulled by PEDO due to receiving of very high bids w.r.t Engineer's Estimate. The 2nd bidding process was annulled by PEDO on the recommendation of inquiry conducted by the committee formulated on the decision of PHC due to complaint of 2nd lowest bidder. The 3rd bidding was called and evaluated and the bid was awarded to the lowest bidder. The consultancy contract was intact since the pre-award stage of Project and extended through amendments and the same consultant is currently on board.

63. In view of the above, the Authority has decided to allow the original contract price of PKR. 244.401 million to the Petitioner. Since, this is the cost required to be incurred for the said services and any additional cost due to delays caused shall not be made part of the management consultancy cost. This is because it is unjustified to pass on the cost of any delay or inefficiencies on the part of PEDO or any other entity to the consumer. The cost allowed will be capped at PKR. 244.401 million

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and will be subject to adjustment at actual (with capping) on COD based on verifiable documentary evidence to the satisfaction of the Authority.

Issue # 11: Whether the cost of loan arrangement/financing fee/commitment fee of USD 2.49 million claimed by the Petitioner is justified?

64. The Petitioner has claimed financial fee & charges of USD 2.49 million and submitted that it includes costs related to debt financing of the Project such as commitment fee. The financial charges claimed by the Petitioner are 2.00% of the debt (excluding Interest during construction and financial charges) and commitment fee, 0.50% of the debt.

Comments of CPPA-G

65. CPPA-G submitted that since the Project is 100% financed by PEDO from its Hydel Development Fund ("HDF"), therefore, the question of loan arrangement/financing fee is illogical.

Reply of Petitioner on CPPA-G's Comments:

66. The Petitioner in response to CPPA-G's comments has submitted that this is true that the Project is financed by PEDO from Hydel Development Fund. But it may be noted that the [Khyber Pakhtunkhwa] Hydel Development Fund is an independent legal entity. It was established on 14th October 1999, as amended up-to-date, and the Provincial Constitution (Amendment) Order No.9 of 1999, and in exercise of all power enabling him in that behalf, the Governor of the [Khyber Pakhtunkhwa] promulgated the Ordinance. According to Section 6 of the Ordinance, for carrying out the purposes of this Ordinance, there is a Board. For the purposes of this Ordinance, the SHYDO through the [Irrigation and Power Department] of Government shall submit each case for financing of a Project or scheme from the Fund to the Board and the Board shall, after it has been scrutinized by the PDWP, subject to the provisions contained in the provisos to section 5, approve the same in the prescribed manner: Provided that until the rules are made in this regard, the case shall be submitted to the board in such a manner as the Board directs.

67. The Petitioner submitted that the claimed financing fee is in accordance with NEPRA (Benchmark for Tariff Determination) Guidelines, 2018 section 8 subsection (3), which states "In case of power Projects, other than those specified in sub-clause (2), a financing fee not exceeding 2.00% of debt shall be approved. The Petitioner also submitted that the Authority has allowed loan arrangement/ finance fee on Daral Khwar Hydropower Project, PEDO. In view thereof, the claimed financing fee is justified.

68. The Authority observed that since the loan for the Project has been arranged from HDF through the Government of KPK, therefore there are no charges applicable for the arrangement of loan

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like conventional loan through financial institutions. Therefore, the same is not allowed to the Project.

Interest During Construction:

69. The Petitioner has claimed interest during construction of USD 27.11 million @ 10.09% based on a flat rate for Project construction period of 60 months. The issue of the cost of debt and tenor has been discussed under the in this determination. Accordingly, an IDC of USD 17.41 million has been approved for the allowed construction period of 48 months based on 6 month KIBOR (7.35%) and by assuming the following debt injections during the construction period:

Period (Biannual)	Drawdown percentages (%) For Tariff Calculations
1	5%
2	10%
3	20%
4	15%
5	15%
6	15%
7	10%
8	10%

70. The total approved and requested Project's cost is tabulated below:

Project Costs	Claimed	Approved
	USD in million	
EPC Cost	115.24	110.95
Custom Duties		2.62
Transmission Line Cost	2.4	-
Land Purchase and Interconnection	1.77	1.85
Project Development Cost	1.44	0.22
Management Consultancy Cost	2.94	1.53
Financial Charges	2.49	-
Interest During Construction	27.11	17.41
Total Project Cost	**153.39**	**134.58**
Project cost USD in million per MW	**2.22**	**1.95**

71. **Issue # 12: Whether the terms and conditions of debts claimed by the Petitioner are justified?**

72. The Petitioner submitted that the planned Project financing structure is in the ratio of 80% debt and 20% equity. The Petitioner further submitted that the major lending for the Project shall be

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from Hydel Development Fund ("HDF"). The Petitioner has submitted that the debt tenor of 20 years has been assumed. The Petitioner also submitted that in case of any change in the debt composition, the debt servicing component and the resultant tariff shall be adjusted accordingly with the approval of the NEPRA at the time of Commercial Operations Date ("COD"). The Petitioner has assumed an interest rate of 10.09% and submitted that indexation for foreign exchange (for foreign loans, if any) and interest rate variation related to the debt financing has been assumed to be allowed in the tariff determination.

73. The Petitioner submitted a letter dated February 10, 2020 of GoKPK finance department regarding interest rate over investment of HDF for the construction period. The said letter provided following interest rates for the period from 2015-2019:

Period	Rate (%)
July 2014 to June 2015	9.48
July 2015 to June 2016	8
July 2016 to June 2017	6.50
July 2017 to June 2018	6.56
July 2018 to June 2019	10.09

Comments of CPPA-G:

74. CPPA-G has submitted that the Company has assumed debt servicing @ 10.09% and there is no information available whether this rate is based on KIBOR or it is a flat rate. CPPA-G submitted that a flat rate of 6% under the Revised State Bank of Pakistan (SBP) Financing Scheme for Renewable Energy as per the National Electric Power Regulatory Authority (Benchmarks for Tariff Determination) Guidelines, 2018 may be allowed to the Project. Since the Project is 100% PEDO financed and the local financing is used as an opportunity cost of the funds, therefore, SBP financing may be used as an opportunity cost for debt service calculation that will benefit the electricity consumers. Furthermore, CPPA-G also informed that other similar hydropower Project including Riali-II and Kathai-II, has availed debt financing under the above SBP scheme @ 5.5% flat interest rate.

Reply of Petitioner on CPPA-G's Comments:

75. The Petitioner in response to comments of CPPA-G has submitted that the Interest During Construction (IDC) has been claimed @ 10.09% based on flat rate provided by Hydel Development Fund (HDF) having an independent legal entity. Further, the Petitioner has submitted that Riali-II and Kathai-II are not similar to the Lawi Hydropower Project due to different modes of debt servicing. The comparison of modes of debt servicing is given as under:

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Sr. No.	Component	Lawi HPP	Riali-II HPP	Kathai-II HPP
1.	Capacity	69 MW	7.08 MW	8.00 MW
2.	Mode of Debt Financing	Local	Foreign	Foreign

76. The Authority noted that Hydel Developmental Fund (HDF) has been utilized for this Project. The HDF is established through "The Khyber Pakhtunkhwa] Hydel Development Fund Ordinance, 2001". The relevant extract of the Provincial ordinance is hereunder:

> **Establishment of the Fund.**—*(i) As soon as may be after the commencement of this Ordinance, Government shall establish a Fund to be known as the Hydel Development Fund.*
>
> *(2) Subject to the availability of resources, with particular reference to its overall liabilities, Government shall, on yearly basis, contribute to the Fund, such amount as it may determine, out of the total amount received from the Federal Government or an authority of the Federal Government on account of net profits earned by it from the generation of hydroelectricity, for the purposes of this Ordinance, and may, in cases of exigencies, contribute to the Fund from other grants received from the Federal Government or any other agency or from its own budget pertaining to the Annual Development Programme.*
>
> *(3) All profits from hydel projects undertaken from the Fund shall be deposited in the Provincial Consolidated Fund at the close of each financial year:*
>
> *Provided that Government shall contribute ten per cent of such profits to the Hydel Development Fund.*
>
> *(4) The amount contributed to the Fund shall be exclusively utilized for the development of hydel electricity in the Province and shall be operated upon in accordance with the provisions of this Ordinance and the rules made thereunder*

77. The Authority opined that HDF is funded by NHP which the province of KPK receives from time to time from WAPDA Hydroelectric operated power plants established in the province, therefore, allowing cost of debt in the lines of commercial banking is not justified. The Authority noted that the Project has been under implementation since 2014, whereas the State Bank of Pakistan (SBP) announced the financing for Renewable Energy in 2016. Further it was also observed that PEDO with its own funding (coming largely from HDF) is not expected to approach SBP for lending needs nor SBP has the required sources set aside which will cover all existing and future lending needs of PEDO sponsored Project including other private sector RE projects. In view of the above, the application of 6% concessional lending rates of SBP may not be applicable. The issue of the cost

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of HDF funding needs to be seen from an opportunity cost point of view. It was observed that an unutilized HDF is generally invested in risk-free assets (short to long term securities). For this purpose, KIBOR is an appropriate benchmark. Therefore, the Project is being allowed cost of debt at 6 months KIBOR of 7.35 % without any spread which shall be adjusted biannually with variation in KIBOR.

78. Further the Authority in case of approved determination of Karora 11.8 MW and Jabori 10.2 MW spread the loan over the entire loan period as per the suggestion of PEDO, since the instant Project is also to be developed by PEDO, therefore, the Authority has decided to spread the loan over the entire 30 years for this Project as well .

Issue # 13: Whether the operating costs claimed by the Petitioner are justified?

79. The Petitioner has claimed a total O&M cost of USD 2.53 million per annum based on 2% of the total claimed Project cost excluding interest during construction. The Petitioner submitted that the O&M cost has been divided into fixed and variable O&M cost components which is further subdivided into local and foreign cost components. The Petitioner submitted that the fixed O&M cost component or the capacity payment represents all the fixed costs such as salaries of all the staff for O&M, power plant administration costs, security costs, transportation costs, overheads costs, office costs, professional fees such as audit tax and legal as well as some minor fixed operational costs such as environmental monitoring etc. The variable cost component primarily includes costs of lubricant consumption, consumables, imported spare parts to be changed on normal scheduled maintenance and unscheduled maintenance. It also includes specialized technical services from manufacturers during maintenance of the power plant. The breakup of the claimed O&M cost and indexation claimed thereon is provided as under:

Description	Components	Sub-Components	Indexation
O&M Cost (2 % of Project Cost excluding IDC) **USD 2.5256 million**	Fixed O&M Cost (75% of total O&M cost) **USD 1.8942 million**	Foreign (20% of fixed O&M cost i.e. **USD 0.3788 million**)	US-CPI and PKR/USD Exchange rate
		Local (80% of fixed O&M cost i.e. **USD 1.5154 million**)	Local CPI
	Variable O&M Cost (25% of total O&M cost)	Foreign (50% of variable O&M cost i.e. **USD 0.3157 million**)	US-CPI and PKR/USD

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USD 0.6314 million	Exchange rate
Local (50% of variable O&M cost i.e. **USD 0.3157 million)**	Local CPI

Comments of CPPA-G:

80. CPPA-G has submitted that the company has worked out operation and maintenance cost of 2% of total Project cost (without IDC) which is much higher as compared to similar size other hydro power projects which must be rationalized in view of the fact that recently PEDO has itself claimed O&M cost @ 1% of project cost in case of 40 MW Koto Hydro project of PEDO. CPPA-G has also submitted that there is no information available in petition that the Company has any foreign O&M contract, therefore the O&M component may not be indexed for PKR to USD and US-CPI variation. In addition to above, CPPA-G has also submitted that the Authority may also direct PEDO to submit the documentary proof of the annual expense of O&M for verification by the Authority.

Reply of Petitioner on CPPA-G's Comments:

81. The Petitioner in response to CPPA-G's comments has submitted that Koto Hydropower Project and Lawi Hydro Project are of different sizes, having different plant capacities, energy, number of turbines etc, It is known that turbines with larger capacity need higher O&M cost. The Authority has approved O&M cost of 1.8% of the approved Capital Cost on other projects such as Daral Khwar Hydropower Project. The same level of O&M cost may be considered in this Project as well.

82. The Authority has noted that the proposal of 2% of capital cost of the Project for operation & maintenance of the plant is on the higher side than the O&M cost approved by ECNEC. ECNEC has approved 1% of the Project base cost (excluding PEDO's overhead charges, escalation, custom duties and IDC) for operation and maintenance of the Project.

83. While relying on ECNEC assumption, an O&M cost of USD 1.172 million per annum has been approved for the project which has been computed by taking 1% of approved Capex of the Project. The O&M cost allowed is bifurcated into 80% fixed and 20% variable which is further bifurcated into 40% local and 60% foreign cost components.

84. Further, the Authority hereby directs to conduct a transparent and competitive bidding process for the selection of O&M contractors in line with NEPRA (Selection of Operation and Maintenance

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Contractors by Generation Companies) Guidelines, 2021. Accordingly, the allowed O&M cost is the maximum cap subject to actual whichever is lower.

Insurance during Operation:

85. The Petitioner has claimed annual insurance during operation @ 1% of EPC contact in line with the NEPRA (Benchmarks for Tariff Determination), Guidelines, 2018.

Comments of CPPA-G:

86. CPPA-G in its comments has proposed to revise Insurance during operation cost @ 0.75% of the EPC in line with recent MOUs signed with IPPs.

Reply of Petitioner on CPPA-G's Comments:

87. The Petitioner in response to the comments of CPPA-G has submitted that the claimed insurance during operation @ 1% is as per Schedule II (Section 9) Insurance costs, NEPRA notification SRO 763(I)/2018 dated Islamabad, the 19th of June 2018, (Benchmarks for Tariff Determination) Guidelines, 2018. The Petitioner has submitted that the MOU signed between GoP and IPPs is not relevant because PEDO is not an IPP rather it is a Public sector organization,

88. Keeping in view the continuous decline in global insurance index, the Authority has allowed insurance during operation cost @ 0.75% of EPC cost subject to maximum of 1% of EPC cost in case of other hydropower projects. Further, this lower impact is also evident in case of operational hydropower projects wherein the actual insurance premium was as low as 0.46% of the EPC cost. In view thereof, the Authority has decided to allow 0.75% of EPC subject to adjustment on the basis of actual up to maximum at 1% of the EPC cost upon provision of verifiable documentary evidence by the Petitioner. Accordingly, the estimated amount works out to be USD 0.832 million (0.75% of EPC cost of USD 110.95 million).

Issue # 14: Whether the Return on Equity (ROE) and Return on Equity during Construction (ROEDC) computed at 17% is justified? And whether the Withholding Tax on dividend should be allowed as a pass through item?

89. The Petitioner has submitted that the Return on equity (ROE) and Return on Equity during Construction (ROEDC) comprises an IRR based return on equity invested @ 17% per annum or 12.60% net after deduction of withholding tax. The Petitioner submitted that this is based on the fact that para 1.4 (c) of the guidelines for the determination of tariff for IPPs (November 2005) provide that IRR should be equal to yield on 10 years PIB plus a premium of x% to be determined by NEPRA. Further, the Petitioner during the hearing submitted that in the light of NEPRA Guidelines

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dated June 19, 2018, and determination of the Authority in the matter of Daral Khwar HPP the claimed ROE and ROEDC by the Petitioner are justified. The Petitioner also submitted that the withholding tax on dividend @ 7.5% as required under the Income Tax Ordinance, 2001 is assumed and any change to the rate of the Withholding tax would be pass through to the Power Purchaser.

Comments of CPPA-G:

90. CPPA-G vide letter dated September 15, 2020 has submitted that the Return on Equity (ROE) and Return on Equity during Construction (ROEDC) as claimed by the Petitioner may be rationalized in the light of recent MOU signed by GoP with IPPs. It is assumed that the 100% equity investment is in local currency therefore, the ROE & ROEDC may not be indexed or PKR to USD exchange rate variation. Further, it is also highlighted that as per the recent MOU signed by GOP with the IPPs, ROE will not be indexed for PKR to USD exchange rate variation, therefore the same should not be allowed, in case of any foreign equity investment. CPPA-G further submitted that in case the actual Return on Equity exceeds from the determined Return on Equity, a claw back mechanism may be added in tariff to rationalize the profits. CPPA-G submitted that the Company has not incorporated redemption of equity in the ROE Component of the tariff table and also suggested that compounding should not be allowed in calculation of ROEDC.

91. With regard to withholding tax on dividend, CPPA-G submitted that it is the tax on the income of the shareholder, not on the income of the project company. As per the NEPRA Guidelines for Tariff Determination 2018 "Withholding tax on dividends shall not be allowed as pass-through item in any technology." Further, the Authority has not allowed the same in recent similar tariff determinations. Therefore, withholding tax on dividends shall not be allowed as a pass-through item.

Reply of Petitioner on CPPA-G's Comments:

92. The Petitioner in response to the comments of CPPA-G has submitted that the tariff is calculated based on 17% IRR based return on equity as approved by the Authority for similar Daral Khwar Hydropower Project of PEDO. The Petitioner has submitted that MOU signed between GoP and IPPs effective from August 2020 is not relevant since PEDO is a Public sector organization. Accordingly, Return on Equity (ROE), Return on Equity during Construction (ROEDC) and Indexation may be allowed on the same basis as allowed to PEDO's Daral Khwar Hydropower Project.

93. Further with regard to withholding tax on dividend the Petitioner has submitted that it agrees to CPPA-G submissions with regard to WHT on dividend that it shall not be allowed as pass-through item.

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94. Previously, the Authority has been allowing 17% IRR to other hydropower projects. Pertinent to refer here that in the recent MoUs signed with renewable private power producers (i.e. wind, solar) the IRR has been reduced to 13%. Further, in the case of thermal power projects, where the 100% equity investment is in local currency, it has been agreed that the ROE & ROEDC may not be indexed for PKR to USD exchange rate variation.

95. The Authority noted that the Cabinet Committee on Energy (CCoE) in its meeting held on August 27, 2020 reduced the return for GoP owned power projects the summary of which is given hereunder:

- RLNG 12% return with US indexation
- Nuclear 14.5% @148 exchange rate with no further US indexation
- WAPDA/GENCO, 10% return with no US dollar indexation

96. The Authority is of the view that the instant project being owned by KPK government should also be treated in the same manner in terms of return and any discrimination in the level of return between federal government power plants and provincial government power plants may defeat the spirit of the decisions taken in CCoE for a reduction in overall national power tariffs. In view of the above, the Authority has decided to allow a return of 10% for the Project as recently reduced by CCoE for WAPDA hydroelectric with no USD indexation. A similar level of return was also allowed to recently approved tariffs of PEDO funded projects such as Karora and Jabori HPP.

97. In addition to the above, the Authority has also decided that the return allowed for this Project should be considered as the maximum ceiling and the return beyond the stated limit, if any, should be adjusted for which a claw back mechanism shall be prescribed at the time of COD.

98. With regard to withholding tax on dividend, it is informed that the Authority has principally decided not to allow withholding tax on dividend as pass through.

Other Comments of CPPA-G:

99. Following comments were also submitted by CPPA-G vide its letter dated September 29, 2020:

a. No consent for purchase of power by CPPA-G under Legal and Regulatory framework has been issued to the Project. Therefore, CPPA-G may not be considered as a Power Purchaser for the Project. Generation license should precede the Tariff. Further CPPA-G highlighted that CPPA-G vide letter no. CPPA-G/CTO/DGM(Renewable)/Lawi/8093-98 dated April 13, 2020 has submitted the comments on the application of Generation License to Authority in which it was highlighted that pursuant to Rule 3(5) of NEPRA (Generation) Rule 2000 requires the Authority to process the application after taking into consideration that development of new

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projects is in line with market realities so that the available resources, including indigenous resources, are optimally utilized and their developments are in line with the short-term and long-term forecasts for additional capacity requirement, which requires tool based evaluation. Therefore, least cost criteria as mentioned for processing of license applications can't be effective if tariff was already obtained by the company from NEPRA

b. Pursuant to Ministry of Energy minutes of meeting dated July 19, 2018 , it is directed that PEDO will not initiate any project, excluding projects (i.e. Pehur, Ranolia, Daral Khwar and Machai), without following due legal and regulatory framework and the necessary consents of the relevant stakeholders. Furthermore, PPIB in its 125th Board meeting minutes having representation of KPK Government decided that future procurement of new power projects must be inducted as per the approved Indicative Generation Capacity Expansion Plan (IGCEP). It is also suggested that for control point of view three stage hydel tariff may also be considered for public sector projects to reduce the inefficiencies as per the NEPRA's "Mechanism for Determination of Tariff for Hydropower Projects".

c. The Project does not fall under any Federal Government Power Generation Policy; therefore, on the basis of that it is suggested that the Project may be allowed to dispatch on a Take-and-Pay basis along with provision of Must-Run arrangement to pass the hydrology risk to Project Company. It is evident from the experience that NEPRA has already provided the incentive to the technologies, which are newly developed or for which the resource is still in the testing phase. Whereas, it is known fact that we are developing hydel power plant for decades and still the risk of the resource is on the Power Purchaser. Now Power Sector dynamics has been changed, therefore, resources risk (Hydrological risk) may be borne by the Project sponsor, like in the case of first seven (07) Projects of wind; resource risk was born by Purchaser but onwards risk was shifted to Seller. In Solar Projects, since beginning the resource risk is on Seller

Reply of PEDO on CPPA-G's comments:

100. PEDO vide letter dated November 03, 2020 responded to the comments of CPPA-G. The response of PEDO is reproduced below:

a. The request has been sent to NTDC vide our Letter No.2800/PEDO/PD Lawi HPP dated January 01, 2019 for Consent Power Evacuation of Lawi HPP. The NTDC has forwarded the same letter to CPPA-G. The CPPA-G replied vide his Letter no. CPPAG/CTO/DGMT-(REN)/MT-(H&S)/1175-80 dated January 16, 2019 wherein it is stated that "NTDC is only the relevant Authority to evaluate and analyse the subject Project in term of Demand Vs Supply and also the arrangement required for the evacuation of subject power plant

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need to be confirmed from NTDC". In this regard a meeting was held on November 15, 2019 at PEDO House Peshawar with GM NTDC & representatives of PESCO wherein the Chief Engineer (NTDC) agreed that the power of the Lawi HPP shall be taken on the 132 kV double circuit Line of Golen Gol HPP. Similarly, the Project was been included in list of committed projects in the IGCEP-2047 Power System Planning of NTDC which is sort of consent of power absorption.

b. The energy of Lawi Hydropower Project 69MW will be sold to CPPA-G.

c. Tariff would become a sort of "take , and pay" basis mechanism, generation Facility would be assigned Must Run Status, thus making it compulsory for the purchase to dispatch all the kWh made available by the seller to the Purchaser.

101. The Authority considered the argument put forward by the CPPA-G and also reviewed the Petitioner's response thereof, and is of the view that the hydrological risk has already been agreed by PEDO to be taken by the producer in case of Koto HPP, Jabori and Karora HPP and through the letter dated November 03, 2020 PEDO has also agreed to the arrangement of take and pay with must run condition for the instant Project.

ORDER

102. 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 following generation tariff along with the terms and conditions for Lawi Hydropower Project of Pakhtunkhwa Energy Development Organization (the Petitioner) for delivery of electricity to Power Purchaser:

i) Levellized tariff works out to be PKR. 6.7825 per kWh (US Cents 4.2390 per kWh)

ii) EPC cost of USD 110.95 million has been approved.

iii) Custom duties of USD 2.62 million (PKR. 420 million) have been approved.

iv) Non-EPC cost of PKR. 279.6 million including Managing Consultancy cost of PKR. 244.401 million, Project Management Unit Cost of PKR. 35.2 million has been approved.

v) Land and resettlement of PKR. 296 Million (USD 1.86 Million) has been assumed for calculation.

vi) Interest during construction of USD 17.41 million (PKR. 2,785 million) has been approved.

vii) Debt to equity ratio of 80:20 has been approved.

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viii) Debt repayment period of 30 years has been taken into account assuming 100% local loan.

ix) The KIBOR rate of 7.35% has been taken into account while calculating the cost of debt.

x) Annual ROE & ROEDC of 10% has been approved.

xi) The reference tariff has been calculated on the basis of net annual benchmark energy generation of 336.192 GWh for installed capacity of 69 MW. An auxiliary consumption has been restricted to 0.5%.

xii) The above charges will be limited to the extent of net annual energy generation of 336.192 GWh. Net annual generation supplied during a year to the Power Purchaser in excess of benchmark energy of 336.192 will be charged at 10% of the prevalent approved tariff.

xiii) O&M cost of USD 1.172 million per annum has been approved.

xiv) Insurance during the operation has been calculated as 0.75% of the EPC cost.

xv) The reference USD/PKR rate has been taken as 160.

xvi) Construction period of 48 months has been approved and the same is used for the workings of ROEDC and IDC.

xvii) IDC and ROEDC have been worked out using the following drawdown schedule:

Period (Biannual)	**Drawdown percentages (%) For Tariff Calculations**
1	5%
2	10%
3	20%
4	15%
5	15%
6	15%
7	10%
8	10%

xviii) In the above tariff no adjustment for carbon emission reduction receipts, has been accounted for. However, upon actual realization of carbon emission reduction receipts, the same shall be distributed between the Power Purchaser and the Petitioner in accordance with the approved mechanism given in the applicable government policy.

xix) The above tariff is applicable for a period of thirty years commencing from the commercial operations date (COD).

xx) The tariff is based on Take & Pay, with must run provision, accordingly a single part tariff has been allowed to the Project.

xxi) The component wise tariff is indicated at Annex-I.

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xxii) Debt Servicing Schedule is attached as Annex-II.

I. One Time Adjustments

The following one time adjustments shall be applicable to the reference tariff:

a. Out of total approved EPC cost of USD 110.95 million, an amount of USD 43.382 million shall be adjusted at COD on account of variation in PKR/USD parity during the construction period, on production of authentic documentary evidence by the Petitioner to the satisfaction of the Authority. The remaining cost amounted to PKR. 10,810.467 million shall remain the same and no variation in cost of civil works shall be allowed.

b. Any liquidated damages, penalties, etc. (by whatever name called), actually recoverable by the Petitioner from the EPC contractor(s), pertaining to the construction period allowed by the Authority, will be adjusted in the project cost at COD.

c. Custom duties of USD 2.62 million (PKR. 420 million) shall be subject to adjustment as per actual at COD. The lower of actual or approved shall be taken into consideration

d. Land and resettlement costs will be allowed as per actual, as against PKR. 296 Million (USD 1.85 Million) allowed now, upon production of verifiable documentary evidence. The initial schedule of rates and variation in them shall be certified by the Provincial government and approved by NEPRA.

e. Non-EPC cost of PKR. 279.6 million including Managing Consultancy cost of PKR. 244.4 million and Project Development Cost of PKR. 35.2 million shall be subject to verification at COD in PKR only. The lower of actual or approved shall be taken into consideration.

f. If no insurance cost has been incurred during the operation phase of the power plant or the same is the part of the O&M cost, the assumed calculated tariff component shall be excluded from the tariff components at COD stage.

g. Interest During Construction (IDC) will be adjusted at COD on the basis of actual debt composition, debt drawdown of loan (not exceeding the amount allowed by the Authority) and applicable interest rate during the actual project construction period (not exceeding the construction period allowed by the Authority).

h. The return on equity (including return on equity during construction) will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD), during the project construction period allowed by the Authority.

i. The reference tariff table shall be revised at COD while taking into account the above adjustments. The Petitioner shall submit its request to the Authority within 90 days of COD for necessary adjustments in tariff at the time of COD.

II. Indexations:

The following indexation shall be applicable to the reference tariff:

i) Indexation applicable to O&M

The local part of O&M cost will be adjusted on account of local inflation and O&M foreign component will be adjusted on account of variation in dollar/rupee exchange rate and US CPI. Quarterly adjustments for inflation and exchange rate variation will be made on

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1st July, 1st October, 1st January and 1st April respectively on the basis of latest available information with respect to CPI - General (notified by the Pakistan Bureau of Statistics), US CPI (notified by US Bureau of Labor Statistics) and revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan. The mode of indexations will be as follows:

$$F\ O\&M_{(LREV)} = F\ O\&M_{(LREF)} * CPI_{(REV)} / CPI_{(REF)}$$

$$F\ O\&M_{(FREV)} = F\ O\&M_{(FREF)} * US\ CPI_{(REV)} / US\ CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

$$V\ O\&M_{(LREV)} = V\ O\&M_{(LREF)} * CPI_{(REV)} / CPI_{(REF)}$$

Where;

$F\ O\&M_{(LREV)}$	=	The revised applicable fixed O&M local component of tariff
$F\ O\&M_{(FREV)}$	=	The revised applicable fixed O&M foreign component of tariff
$V\ O\&M_{(LREV)}$	=	The revised applicable variable O&M local component of tariff
$FO\&M_{(LREF)}$	=	The reference fixed O&M local component of tariff for the relevant period
$FO\&M_{(FREF)}$	=	The reference fixed O&M foreign component of tariff for the relevant period
$VO\&M_{(LREF)}$	=	The reference variable O&M local component of tariff for the relevant period
$CPI_{(REV)}$	=	The revised Consumer Price Index (General) as notified by the Pakistan Bureau of Statistics
$CPI_{(REF)}$	=	140.86 Consumer Price Index (N-CPI) of December 2020 notified by the Pakistan Bureau of Statistics
$US\ CPI_{(REV)}$	=	The revised US CPI (all urban consumers)
$US\ CPI_{(REF)}$	=	260.474 US CPI (all urban consumers) for the month of December 2020 as notified by the US Bureau of Labor Statistics
$ER_{(REV)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(REF)}$	=	The reference TT & OD selling rate of US dollar as notified by the National Bank of Pakistan - Current reference 160.

ii) <u>Adjustment of insurance component</u>

The insurance component of the reference tariff will be adjusted as per prudently cost incurred, subject to the maximum ceiling of 1% of the approved EPC cost, on annual basis upon production of authentic documentary evidence by the Petitioner.

iii) <u>Adjustment for KIBOR variation</u>

The interest part of debt service component will remain unchanged throughout the term except for the adjustment due to variation in 6 months KIBOR, according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 7.35\%) / 2$$

Where:

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ΔI = the variation in interest charges applicable corresponding to variation in 6 months KIBOR. ΔI can be positive or negative depending upon whether 6 months KIBOR $_{(Rev)}$ per annum > or < 7.35%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each half year under adjustment.

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order at **Annex-II**) on a bi-annual basis at the relevant calculations date.

III. Terms and Conditions of Tariff:

Design & Manufacturing Standards:

Hydro power generation systems shall be designed, manufactured and tested in accordance with the latest IEC standards or other equivalent standards. All plants and equipment shall be new.

Emissions Trading/ Carbon Credits:

The Petitioner shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the Power Purchaser as per the applicable government policy and the terms and conditions agreed between the Petitioner and the Power Purchaser.

Power Curve of the Hydel Power Complex:

The power curve of the Hydel Power plant shall be verified by the Power Purchaser, as part of the Commissioning tests according to the latest IEC standards and shall be used to measure the performance of the hydel generating units.

Others:

i. The Authority has allowed/approved only those cost(s), terms term(s), condition(s), provision(s), etc. which have been specifically approved in this tariff determination. Any cost(s), term(s), condition(s), provision(s), etc. contained in the tariff petition or any other document which are not specifically allowed/approved in this tariff determination, should not be implied to be approved, if not adjudicated upon in this tariff determination.

ii. The above tariff and terms and conditions shall be incorporated as the specified tariff approved by the Authority pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 in the power purchase agreement between the Petitioner and the Power Purchaser. General assumptions, which are not covered in this determination, may be dealt with as per the standard terms of the EPA.

iii. In case the company earns annual profit in excess of the approved return on equity (including ROEDC), then that extra amount shall be shared between the power producer and consumers through a claw back mechanism to be decided by the Authority.

iv. Pre COD sale of electricity is allowed to the project company, subject to the terms and conditions of EPA, at the applicable tariff excluding debt servicing and return

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on equity components. However, pre COD sale will not alter the required commercial operations date stipulated by the EPA in any manner.

v. In case the company is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of refundable nature, are imposed on the company, the exact amount paid by the company on these accounts shall be reimbursed on production of original receipts. This payment shall be considered as a pass-through payment. However, withholding tax on dividend shall not be a pass through item.

103. The order along with reference tariff table and debt servicing schedule as attached thereto 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

(Rehmatullah Baloch)
Member

(Rafique Ahmed Shaikh)
Member

Tauseef H. Farooqi
Chairman

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LAWI HYDROPOWER PROJECT
REFERENCE TARIFF TABLE

Annex-I

Year	Variable O&M		Fixed O&M		Insurance	ROEDC	ROE	Debt Servicing		Total PKR/kWh
	Foreign	Local	Foreign	Local				Principal	Interest	
	(PKR/kWh)									
1	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.4969	3.7571	6.7825
2	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.5341	3.7199	6.7825
3	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.5741	3.6799	6.7825
4	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.6170	3.6369	6.7825
5	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.6632	3.5908	6.7825
6	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.7129	3.5411	6.7825
7	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.7662	3.4878	6.7825
8	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.8236	3.4304	6.7825
9	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.8852	3.3688	6.7825
10	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	0.9515	3.3025	6.7825
11	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.0227	3.2313	6.7825
12	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.0992	3.1547	6.7825
13	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.1815	3.0725	6.7825
14	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.2699	2.9840	6.7825
15	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.3650	2.8890	6.7825
16	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.4672	2.7868	6.7825
17	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.5770	2.6770	6.7825
18	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.6950	2.5589	6.7825
19	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.8219	2.4321	6.7825
20	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	1.9583	2.2957	6.7825
21	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	2.1049	2.1491	6.7825
22	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	2.2624	1.9916	6.7825
23	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	2.4317	1.8222	6.7825
24	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	2.6138	1.6402	6.7825
25	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	2.8094	1.4446	6.7825
26	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	3.0197	1.2343	6.7825
27	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	3.2457	1.0083	6.7825
28	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	3.4887	0.7653	6.7825
29	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	3.7498	0.5042	6.7825
30	0.0669	0.0446	0.2677	0.1784	0.3960	0.3491	1.2258	4.0305	0.2235	6.7825
Levelized Tariff	**0.0669**	**0.0446**	**0.2677**	**0.1784**	**0.3960**	**0.3491**	**1.2258**	**1.0487**	**3.2053**	**6.7825**

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Annex-II

LAWI HYDROPOWER PROJECT
Debt Servicing Schedule

Period	Opening Balance	Mark-UP PKR in million	Principle Repayment PKR in million	Debt Service Million PKR	Closing Balance PKR in million	Annual Principal Repayment-Rs./kWh	Annual Interest Rs./kWh	Annual Debt Servicing Rs./kWh
			PKR in million					
	17,226	633	82	715	17,144			
	17,144	630	85	715	17,059			
1	17,226	1,263	167	1,430	17,059	0.4869	3.7571	4.2540
	17,059	627	88	715	16,971			
	16,971	624	91	715	16,879			
2	17,059	1,251	180	1,430	16,879	0.5341	3.7199	4.2540
	16,879	620	95	715	16,785			
	16,785	617	98	715	16,686			
3	16,879	1,237	193	1,430	16,686	0.5741	3.6799	4.2540
	16,686	613	102	715	16,585			
	16,585	609	106	715	16,479			
4	16,686	1,223	207	1,430	16,479	0.6170	3.6369	4.2540
	16,479	606	109	715	16,370			
	16,370	602	113	715	16,256			
5	16,479	1,207	223	1,430	16,256	0.6632	3.5908	4.2540
	16,256	597	118	715	16,138			
	16,138	593	122	715	16,016			
6	16,256	1,190	240	1,430	16,016	0.7129	3.5411	4.2540
	16,016	589	126	715	15,890			
	15,890	584	131	715	15,759			
7	16,016	1,173	258	1,430	15,759	0.7662	3.4878	4.2540
	15,759	579	136	715	15,623			
	15,623	574	141	715	15,482			
8	15,759	1,153	277	1,430	15,482	0.8236	3.4304	4.2540
	15,482	569	146	715	15,336			
	15,336	564	151	715	15,184			
9	15,482	1,133	298	1,430	15,184	0.8852	3.3688	4.2540
	15,184	558	157	715	15,027			
	15,027	552	163	715	14,864			
10	15,184	1,110	320	1,430	14,864	0.9515	3.3025	4.2540
	14,864	548	169	715	14,696			
	14,696	540	175	715	14,521			
11	14,864	1,088	344	1,430	14,521	1.0227	3.2313	4.2540
	14,521	534	181	715	14,339			
	14,339	527	188	715	14,151			
12	14,521	1,061	370	1,430	14,151	1.0992	3.1547	4.2540
	14,151	520	195	715	13,956			
	13,956	513	202	715	13,754			
13	14,151	1,033	397	1,430	13,754	1.1815	3.0725	4.2540
	13,754	505	210	715	13,544			
	13,544	498	217	715	13,327			
14	13,754	1,003	427	1,430	13,327	1.2699	2.9840	4.2540
	13,327	490	225	715	13,102			
	13,102	481	234	715	12,868			
15	13,327	971	459	1,430	12,868	1.3650	2.8890	4.2540
	12,868	473	242	715	12,626			
	12,626	464	251	715	12,375			
16	12,868	937	493	1,430	12,375	1.4672	2.7868	4.2540
	12,375	455	260	715	12,114			
	12,114	445	270	715	11,845			
17	12,375	900	530	1,430	11,845	1.5770	2.6770	4.2540
	11,845	435	280	715	11,565			
	11,565	425	290	715	11,275			
18	11,845	860	570	1,430	11,275	1.6950	2.5589	4.2540
	11,275	414	301	715	10,974			
	10,974	403	312	715	10,662			
19	11,275	818	613	1,430	10,662	1.8219	2.4321	4.2540
	10,662	392	323	715	10,339			
	10,339	380	335	715	10,004			
20	10,662	772	658	1,430	10,004	1.9583	2.2957	4.2540
	10,004	368	347	715	9,656			
	9,656	355	360	715	9,296			
21	10,004	723	708	1,430	9,296	2.1049	2.1491	4.2540
	9,296	342	373	715	8,923			
	8,923	328	387	715	8,536			
22	9,296	670	761	1,430	8,536	2.2624	1.9916	4.2540
	8,536	314	401	715	8,134			
	8,134	299	416	715	7,718			
23	8,536	613	818	1,430	7,718	2.4317	1.8222	4.2540
	7,718	284	431	715	7,287			
	7,287	268	447	715	6,839			
24	7,718	551	879	1,430	6,839	2.6138	1.6402	4.2540
	6,839	251	464	715	6,376			
	6,376	234	481	715	5,895			
25	6,839	486	945	1,430	5,895	2.8094	1.4446	4.2540
	5,895	217	498	715	5,396			
	5,396	198	517	715	4,880			
26	5,895	415	1,015	1,430	4,880	3.0197	1.2343	4.2540
	4,880	179	536	715	4,344			
	4,344	160	555	715	3,789			
27	4,880	339	1,091	1,430	3,789	3.2457	1.0083	4.2540
	3,789	139	576	715	3,213			
	3,213	118	597	715	2,616			
28	3,789	257	1,173	1,430	2,616	3.4887	0.7653	4.2540
	2,616	96	619	715	1,997			
	1,997	73	642	715	1,355			
29	2,616	170	1,261	1,430	1,355	3.7498	0.5042	4.2540
	1,355	50	665	715	690			
	690	25	690	715	(0)			
30	1,355	75	1,355	1,430	(0)	4.0305	0.2235	4.2540

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA
AUTHORITY