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National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/PAR-107/15633-15635
October 11, 2018

Subject: **Decision of the Authority in the matter of Motion for Leave for Review against the NEPRA Decision dated 17.05.2018 filed by Central Power Purchasing Agency (Guarantee) Ltd. [Case No. NEPRA/PAR-107]**

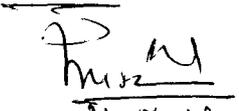
Dear Sir,

This is in continuation of this office letter No. NEPRA/PAR-107/7754-7756 dated May 17, 2018 whereby Determination of the Authority in the matter of Tariff Proposal submitted by Central Power Purchasing Agency (Guarantee) Ltd. (CPPA-G) for Import of Electric Power from 700.7 MW Azad Pattan Hydropower Project located in AJK was communicated to the Federal Government for notification in the official Gazette.

2. Enclosed please find herewith the subject Decision of the Authority along with Annex-I, II, III and IV (24 pages).
3. 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.
4. Order of the Authority's Decision is to be notified in the Official Gazette.

Encl: As above

Enclosure: As above


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(Syed Safer 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 MOTION FOR LEAVE
FOR REVIEW AGAINST THE NEPRA DECISION DATED 17.05.2018 FILED
BY CENTRAL POWER PURCHASING AGENCY**

1. Brief facts leading to the disposal of the case are that pursuant to Regulation 3 of Import of Power Regulations, 2017 (hereinafter referred as “Regulations”), Central Power Purchasing Agency (Guarantee) Limited (hereinafter referred to as “CPPA(G)”) had filed a tariff proposal dated October 10, 2017 for determination of rates proposed by 700.7 MW Azad Pattan Hydropower Project (Hereinafter referred as “The Project Company” or “APPL”) located in the territory of AJK. After observing due process of law, the determination into the matter was issued by NEPRA on May 17, 2018.
2. The Project Company being aggrieved opted to file a review motion against the determination dated May 17, 2018. Since the Project Company could not file the review petition directly before NEPRA, therefore, it approached CPPA-(G) for the purposes, accordingly, the review petition of Project Company was simply forwarded by CPPA-(G) to NEPRA for consideration along with its own comments.
3. The Project Company has sought review of the impugned determination in respect of the following components of rates: -
 - i) Provisional Sum for Relocation of Roads and Bridges
 - ii) Legal Cost
 - iii) Engineering and Supervision Cost
 - a) Owner’s Engineer
 - b) PPA Engineer & Re-opener Verifier
 - iv) Insurance During Construction
 - v) Project Development Cost
 - vi) Environmental Cost
 - vii) Financing/Lending Fee
 - viii) Sinasure Insurance
 - ix) Operating O &M Cost
 - x) Sharing of Savings on Financing Spreads
 - xi) Tariff Computational Clarifications
 - xii) Other Issues
4. The request forwarded by CPPA-(G) seeking review of the determination dated May 17, 2018 (hereinafter referred as “impugned determination”) was considered by the Authority and it was admitted on July 10, 2018 for further proceedings. It was also decided to provide an opportunity of hearing to the parties to the proceedings; accordingly, the hearing in this regard was held on July 19, 2018, for which letters of invitation for participation and



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submission of comments were sent to the major stakeholders. In response, written comments were filed by Syed Akhtar Ali Shah (Ex-member, Ministry of Planning Development and Reforms))

5. Syed Akhtar Ali (Ex-Member Energy Planning Commission) during the hearing explained his submitted comments pertaining to higher Electromechanical & Electrical Equipment costs, as compared to other comparable hydropower projects despite lower EPC cost than others, lower capacity factor as compared to Neelum Jhelum Hydropower Project.
6. Brief summary of the Project Company's submissions and CPPA-(G) comments are as follows:

i. Provisional Sum for Relocation of Roads and Bridges:

APPL in its review motion submitted to CPPA-(G), stated that, based on the then determined scope of work in the Feasibility Study (2011) it has claimed cost of roads, bridges and infrastructure of US\$ 7.5 Million. According to APPL, the cost estimated in 2011 can only be ascertained at COD, once the detailed requirements for roads, bridges and infrastructure have been put in place by the relevant Government Department as per the scope to be identified and agreed by the relevant governmental authorities. The EPC contractor estimated this cost as US\$ 24.17 Million; which was excluded from the committed EPC price to show it separately as a provisional sum with the request to adjust the same at actual at COD, subject to certification by the concerned Government department.

APPL submitted that although, the Authority has considered provisional sum for Relocation of Roads and Bridges under the head of Land Acquisition but has capped it at US\$ 7.5 Million as against US\$ 24.17 Million. APPL contended that since the conditions, specifications and designs of public infrastructure is subject to approval of the relevant local government departments and the company is required to build/relocate the three bridges and associated roads in addition to the relocation of roads along the reservoir which are at lower elevation and will be submerged, which are:

- A pedestrian bridge at Khokhral Village and approximately four (4) km of road.
- A concrete bridge at Tai Dhalkot Village and approximately five (5) km of road.
- A concrete bridge across the Mahl River at the confluence with the Jhelum River and approximately four (4) km of road.

CPPA-(G) stated that it supports the Authority decision to allocate a sum of US\$ 12.028 Million for Land Acquisition & Resettlement inclusive of a maximum cost of US\$ 7.5 Million capped for relocation of roads, bridges and infrastructures upon the submission of verifiable documentary evidence at COD while the rest of amount pertaining to Land Acquisition & Resettlement shall be adjusted at actual in line with NEPRA's Three stage Tariff Mechanism for Hydropower Projects at COD. CPPA-G further stated, that company would have catered these costs while finalizing the EPC contract of the Project Company.



ii. Legal Cost:

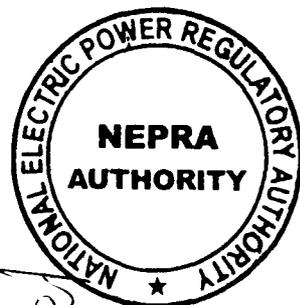
APPL in its review motion application submitted that, the Authority in its impugned determination allowed legal cost of US\$ 3.7 Million against the requested amount of US\$ 13.67 Million. According to APPL, legal fees and charges are associated with engagement of international and domestic law firms for advice on all legal aspects of the project.

APPL further submitted that, the services of legal advisors will be required throughout development and construction period to assist during negotiation, execution and administration of different project agreements, financing agreements, security agreement, land acquisition/lease agreement, Sinosure agreement, project site agreements and other related legal services. Furthermore, PPA structure has now been changed from earlier bilateral PPA to tripartite agreement which requires considerable time from the legal advisors to structure and negotiate agreements to ensure respective obligations of each party and to avoid double jeopardy. The “risk and responsibility matrix” has changed substantially as there are now two GoP entities involved with respective obligations which require major restructuring of the agreement and to ensure GoP guarantee still cover the new tripartite arrangement to make the document bankable. The new PPA agreement has been under discussion since March 2018 with over dozen sessions and still not has been concluded with many open points. Furthermore, the same legal team has to explain to lenders legal counsel (who was used to the previous PPA) each change and its applications on the risk and responsibility matrix now applicable under the new PPA.

APPL, while referring other comparable hydropower projects submitted that, in April 2016 Karot HPP which is similar size project was allowed US\$ 7.5 Million under this head. Although number of years have passed since award of the Tariff and instead of PPA structure being changed which will require more legal input, the amount of US\$ 3.7 Million allowed by Authority is insufficient to cover legal cost.

APPL requested the Authority to increase the amount of legal cost to US\$ 7.5 Million, subject to adjustment on the basis of verifiable documentary evidence to the satisfaction of the Authority.

CPPA-(G) submitted that it is of the view that cost allowed by NEPRA with a cap of US\$ 3.70 Million under the legal cost seems on higher side as compared to Kohala HPP’s allowed cost of US\$ 1.065 Million. CPPA-(G) further submitted that the plea of the Project Company for increase of legal cost further on the basis of change PPA structure for bilateral PPA to tripartite agreement is not permissible since, the risk and responsibility matrix is the same and only project specific technologies changes are required to be incorporated in the document without any extra exercise from the Project Company.



iii. **Engineering & Supervision Cost:**

a) **Owner's Engineer (OE):** APPL in review motion forwarded by CPPA-(G) submitted that, the amount of US\$ 20.70 Million (inclusive of all taxes) allowed for OE cost based on the Karot HPP's OE cost is not sufficient to cover the cost after accounting for sales tax applicable @ 16%. APPL requested to allow US\$ 24.01 Million including sales tax impact under this head.

CPPA-(G) submitted that, the Authority in its impugned determination allowed the Owner Engineer's cost of US\$ 20.7 Million against US\$ 29.53 Million, keeping in view the scope of work of O.E and construction period. The cost seems to be in line with other hydropower projects. CPPA-(G) supports that Owner Engineer should be maintained at US\$ 20.7 Million since much of the cost doesn't change with the size of the projects and request the Authority to stick to its decision already made in impugned determination.

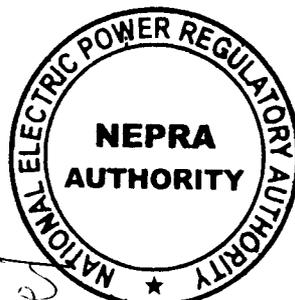
b) **PPA-Engineer & Re-opener Verifier:** APPL requested the Authority to allow US\$ 3.5 Million & US\$ 1.7 Million for PPA-Engineer & Reopener Verifier as against the allowed amount of US\$ 0.5 Million for each on the plea that due to the tripartite PPA regime, the scope of work of the PPA-Engineer has increased, which will increase the engineers cost. APPL further submitted that while assessing the cost of Re-opener Verifier the Authority has relied upon the precedent of other projects where construction period and technical complexities are not comparable with that of APPL.

CPPA-(G) submitted that PPA Engineer & Reopener Verifier are appointed pursuant to the Article 2 of the PPA. TORs of the PPA Engineer & Reopener Verifier include monitoring and evaluating of any cost variation due to geological condition limited to the tunnel areas and the cost escalations in the civil works associated with construction and resettlement costs. This cost should not be more than US\$ 1 Million.

iv. **Insurance During Construction:**

APPL in its review stated that, the Authority allowed maximum of 2% of EPC cost against the requested 2.5% of EPC cost under the above head. The Authority is requested to allow the cost as per actual subject to verifiable documentary evidence to the satisfaction of the Authority up to a maximum cap of 2.5% of EPC cost as allowed to other projects of similar size.

CPPA-(G) stated that Kohala HPP, Mahl and Azad Pattan are located on the same river/streams and in the same area and agrees with the cost of insurance allowed @ 2% of EPC. CPPA-(G) further stated that Insurance cost for Azad Pattan should be reviewed downward and capped, keeping in view the lesser construction period and similar environment.



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v. **Project Development Cost (PDC):**

APPL in its review motion forwarded by CPPA-(G) submitted that, the Authority allowed cost of US\$ 40.84 Million against the requested amount of US\$ 56.25 Million and disallowed US\$ 11.6 Million. APPL further submitted that Owner's administration cost does not cater for Chinese expats and is unavoidable for a project of this size funded by Chinese and requested the Authority to increase the PDC by at least US\$ 10.0 Million, subject to adjustment on the basis of verifiable documentary evidence to the satisfaction of the Authority.

CPPA-(G) stated that, the cost of US\$ 11.60 Million requested separately for Chinese expats has already been covered under the owner's administration cost and the stance of the Project Company seems to be vague and unacceptable to the Power Purchaser, so the decision of the Authority should prevail.

vi. **Environmental Costs:**

APPL submitted that the environmental costs of US\$ 9.69 Million have been allowed by the Authority against the requested amount of US\$ 12.948 Million. The breakup of the disallowed cost amounting to US\$ 3.256 Million provided by APPL is as follows:

S.No	Environmental Cost	US\$ Million	Status
1	ESIA, Bio Diversity Plan	0.199	Already incurred cost
2	Project Design Document	0.080	Already incurred cost
3	UNFCCC&WCD (CDM related)	1.022	Registration Cost for CDM
4	Lender Environment monitoring	1.023	Mandatory Cost to be incurred
5	Personnel Protection Equipment	0.675	Mandatory Cost to be incurred
6	Local Administration	0.257	Regulatory Fee
	Total	3.256	

CPPA-(G) is of the view and understanding that the environmental cost should not be increased further as it has already been covered by the Authority in its impugned determination with the remarks that such cost will be adjusted upon the submission of verifiable document at the COD.

vii. **Financing/Lending Fees:**

APPL in its review motion forwarded by CPPA-(G) submitted that, the Authority's allowed cost of US\$ 21.67 Million against the requested amount of US\$ 41.98 Million is insufficient as the subject costs include fees and charges related to lenders up-front fee, commitment fee, administration/monitoring fee, and other financing fees, costs and charges. The Project Company has argued that, NEPRA has set a benchmark of 3% of the loan amount as financial charges in previous projects but has lowered the benchmark for APPL.



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APPL further submitted that the Authority in its recent decisions for RLNG based project and for Thar Coal Upfront tariff, has allowed Financing Fee and Charges at 3% of the debt amount for a project having a construction period of 26 months (while the APPL has a construction period of 69 months).

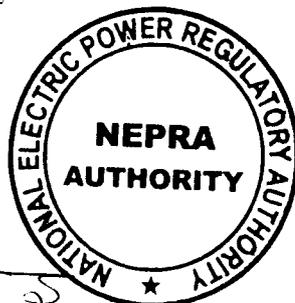
APPL in its review motion stated that, hydropower projects not only in Pakistan but internationally face immense challenges and barriers to finance due to the greater inherent risks including long construction period, hydrological, geological, seismic risks and large (80%-85%) proportion of civil works. Thermal projects on the other hand are based on standard modular technology with only 10-15% civil works, fewer construction risks and short construction periods. Despite these differences the thermal projects, in the same time period and conditions, were allowed 3.0% cap by the Authority. APPL expressed that, the quantum of financing fees and charges reflect conditions at a given point in time; while fully understanding the Authority's desire to reduce costs/tariff such initiatives should have a rational and logical basis; it is inequitable to allow 3.0% for thermal projects and 2.5% for hydropower projects in the same time frame when financing conditions are at best the same or more likely to be more onerous for hydropower projects in the current state of the power sector and conditions in Pakistan.

APPL requested that based on the explanations given above and since NEPRA has a benchmark for financial fees and charges at 3% of loan (excluding the impact of Sinosure and IDC), which has been applied by the Authority to similar hydropower projects in the past, the same may be allowed to the Seller.

CPPA-(G) is of the opinion that the Authority has reduced financing fees and charges from 3% to 2.5% of the debt amount excluding impact of Sinosure and IDC. The head normally covers fees and charges related to lenders upfront fee, commitment fee, monitoring fee etc. The Company applied higher financing fee terms rather than a rational term. It is further stated that the liquidity position of the financial market has currently improved and developers now are able to finance the industry at lower credit terms. Therefore, the reduction in financing fee and charges is in line with financial market conditions.

viii. **Sinosure Insurance**

APPL in its review motion forwarded by CPPA-(G) submitted that the Authority has allowed Sinosure Insurance fee at the rate of 0.6% of the assessed loan plus interest thereon, however, commitment fee on the undrawn amount has not been allowed. APPL further submitted that Sinosure commitment amount is a mandatory requirement for obtaining Sinosure Insurance for the purpose of debt financing through Chinese bank and requested the Authority to allow the same and clearly state the formula with regard to Sinosure computation for better clarity.



ix. **Operating O&M Cost:**

The Project Company in its review submitted that the allowed cost of US\$ 25.03 Million as against the requested amount of US\$ 31.22 Million for O&M cost is insufficient and it will not be possible for the Project Company to manage the annual O&M in this amount. Hence, it has requested the Authority to reconsider its determined cost and allow the claimed O&M cost.

CPPA-(G) is of the view that the cost of US\$ 25.03 Million allowed by the Authority is still on higher side as compared to other hydropower projects and hence does not support the increase in the operating O & M cost.

x. **Sharing of Savings on Financing Spreads:**

APPL requested the Authority to provide interest rate spread sharing mechanism, as specified in the standard PPA, wherein the benefit of reduction is shared between consumer and the sponsors in the ratio of 60:40 respectively, in the manner as allowed in case of determination for other power projects.

CPPA-(G) is of the opinion that NEPRA may please clarify on sharing of saving on financing spreads.

xi. **Tariff Computational Clarifications:**

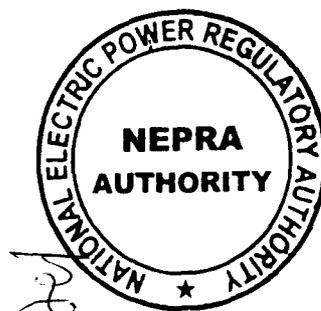
APPL stated that the impugned determination and tariff computations were reviewed thoroughly, and the following clarifications are requested to ensure that the computations are free of any errors or omissions and are understood with absolute clarity;

- a) **ROEDC and Special ROE (SROE):** In the impugned determination the amount of ROEDC and SROE works out as PKR 493.8790/kW/Month and PKR 0.2492/kWh (US Cents 0.2378/kWh) respectively, which as per APPL is much higher considering the same disbursement ratios envisaged under the Project Company's original tariff proposal.

Sinosure Cost During Operating Period: According to APPL, in all computations related to Sinosure, the Authority has used a rate of 0.60% p.a., except for Sinosure during operations, where this rate has been erroneously grossed up by adding withholding tax thereby using rate of 0.75% p.a., which is inconsistent with the approach taken in the impugned determination and is most likely an error which would require correction.

xii. **Other Issues:**

In addition to above APPL requested to include and specifically state the following assumptions as claimed under the Tariff Proposal, and additional assumption on the basis of



new evidence of fact, in the impugned determination to provide the necessary protection to the Project Company:

a) Sales Tax and Withholding Tax on EPC Contracts:

APPL stated that no provision has been made for imposition of any tax on the construction contract imposed by government and requested to allow any variation in the project cost if applicable.

CPPA-(G) stated that Sales Tax and Withholding Tax on EPC contract may be considered and if applicable should be capitalized in the project cost.

b) Cost of Transmission & Interconnection Facility:

APPL in its review motion has stated that in all power project to date, the interconnection arrangement, delivery point and related cost, for the complex electricity evacuation, is based on the scheme whereby (a) the transmission line and interconnection at the outgoing bus bar of the power plant shall be built, operated and maintained by the company; while (b) the transmission line and interconnection with the grid up to the complex shall be built, owned, maintained and operated by the Power Purchaser. APPL submitted that now alternate scheme is proposed by the Power Purchaser, as is being negotiated and may be detailed in the revised Tripartite PPA. Hence APPL has proposed that any additional cost incurred on this account shall be allowed as a one-time adjustment to the project cost and Reference Tariff at COD.

CPPA-(G) submitted that, the subject cost matter relates to NTDC, so NTDC should provide the cost of Interconnection Facility under applicable provisions of Grid Code.

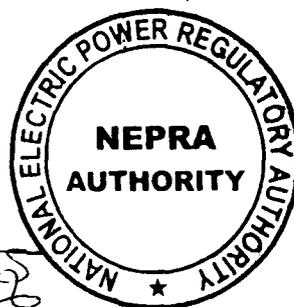
c) Indexation:

APPL submitted that following indexations, though customary are not mentioned in the impugned determination and requested to include these indexations

- I. Foreign Debt- exchange rate indexation
- II. Sinasure- exchange rate and LIBOR Rate Indexation
- III. Special Return on Equity- exchange rate indexation

d) Additional costs imposed under Tripartite PPA

APPL submitted that, certain costs are being proposed by NTDC in the Tripartite PPA which were either not known to the Project Company at the time filing of tariff petition or have never been claimed previously from any other project under the standard Bilateral PPA arrangement e.g. NTDC requires to be paid for its visits during testing, in addition to cost to be paid to the PPA Engineer, such visits by NTDC personnel shall be to review, verify and



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approve drawings, protective devices, metering system, SCADA & telecommunication system etc. Further additional costs in relation to electronic data recorder and system usage charge for SCADA and telecommunication system whether on VSAT or microwave link has now been claimed by NTDC. Such costs include but are not limited to cost of inspection for grid operator's staff witnessing tests at factories and at site during manufacturing and installation of the equipment. The Project Company has requested that once these costs are agreed between CPPA G, NTDC and included in the PPA they may be allowed by the Authority as a one-time adjustment to cost and tariff at COD.

CPPA-(G) submitted that the Tripartite is only to segregate the rights and obligations of System Operator (NTDCL) and Market Operator CPPA-(G). It is pertinent to mention here that the risk and responsibility matrix of the Tripartite PPA is the same as that of bilateral agreement and only project specific technological changes require to be incorporated in the documents, so no extra exercise is required from the Project Company.

Response of APPL to Syed Akhter Comments:

APPL in response to the comments of Syed Akhter Ali as stated in para 05 above, submitted a detailed Technical Report prepared by its consultant Peter Rae Hydro Consulting Ltd. The report concludes that Electro-Mechanical (E&M) cost of hydropower projects cannot be validly compared between different projects on a cost per MW basis as the capacity at each site relies on different head and water flow conditions (key determinants of power), which lead to different power potential and physical plant sizes at each site; hence the report suggests that, the E&M cost of Azad Pattan HPP is fully consistent with cost of E&M plant at other sites after equalization to reflect differing generating heads, hydraulic capacity, and other site conditions.

Regarding the plant factor the report concludes that, the plant factor is derived directly from the plant size (i.e. installed capacity). The sizing is optimized considering total project cost, hydrology, weighted average cost of generation, incremental cost of each additional unit of power generated and cost of alternate generation, and the most economic plant size is selected within the given constraints. The report further states that once the plant size has been determined, the plant factor is merely the ratio of the theoretical annual generation and the nameplate plant capacity. The optimization and sizing of the Project was carried out by experienced technical experts, reflected in the bankable feasibility study and duly approved by Panel of Experts. Azad Pattan HPP is located on the River Jhelum and not on the River Neelum as stated by the commentator. The plant factor of Azad Pattan HPP depends on the hydraulic conditions of the River Jhelum, the predetermined headwater and tail water levels arising from a cascade study duly notified by PPIB, the requirement of grid and the planned operation of the cascade of hydropower projects of which it is a part.

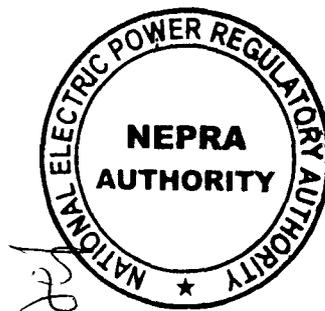


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7. Argument heard and record perused.
8. As per regulation 3(2) of the National Electric Power Regulatory Authority (Review Procedure) Regulations, 2009, “any party who is aggrieved from any order of the Authority and who, from the discovery of new and important matter of evidence or on account of some mistake or error apparent on the face of record or from any other sufficient reasons, may file a motion seeking review of such order”.
9. In the instance case, it is observed that the majority of the submissions made in the review motion were already deliberated upon in the impugned determination. The Authority is of the view that only the following grounds merit consideration and certain clarifications:-
 - i. **Provisional Sum for Relocation of Roads and Bridges:** The Authority while assessing cost of US\$ 7.5 Million relied on the estimate of the approved feasibility study; which in Authority’s opinion is reasonable and does not merit review by the Authority. However, if the Project Company is obligated to construct any other road which was not envisaged at the feasibility study time, the Authority may consider prudently incurred cost at the time of COD upon submission of authentic documentary evidence. In view thereof, the Authority has decided to maintain its earlier decision in this regard.
 - ii. **Engineering Supervision:**
Owner’s Engineer: The Authority having considered the arguments put forward by the Project Company feels that it found no ground to modify its earlier decision. In view thereof, the assessment of US\$ 20.7 Million as a maximum cap (inclusive of all taxes) under the head of Owner’s Engineer being maintained to be adjusted at the time of COD if actual expenses are lower than the assessed amount.
 - iii. **Environmental Costs:** The Authority considered the submissions/documents submitted regarding the disallowed cost of US\$ 3.26 Million and observed that most of these pertain to the Project Development Costs, which is sufficient to cover this cost. Therefore, the same amount cannot be considered under this head. The costs related to CDM, however can be adjusted against the Carbon Credits if earned.
 - iv. **Sharing of Savings on Financing Spreads:**
The Authority considers that the request for provision of interest rate sharing mechanism is valid and hence, in case, the spreads on LIBOR and KIBOR are agreed at lower than 410 basis points and 275 basis points respectively, the benefit of such reduction in spread will be shared in proportion of 40% to the Project Company and 60% to the consumer through necessary adjustment in tariff at COD.

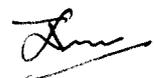


- v. **Taxes on EPC contracts:** The Authority considered the submission of APPL with regard to general provision of tax on the EPC contract if applicable. The Authority decided that a tax imposed on the Project Company which is non-refundable or non-adjustable in nature, will be considered and adjusted at COD subject to provision of documentary evidence to the satisfaction of the Authority.
- vi. **Indexations:** The Authority considered the submissions of APPL with regard to provision of exchange rate/LIBOR rate applicable indexations on foreign debt, Sinosure during operation and SROE. The Authority considers that the APPL's concerns are based on some misunderstandings as LIBOR and exchange rate indexation on foreign debt has been provided in the order part at page 25 of the impugned determination (Tariff Component Table). As regards to the Sinosure, it is to be noted that it is applied on the principal and interest; therefore, it automatically takes care of exchange rate/LIBOR rate adjustment. In view thereof, the Authority feels that the aforesaid adjustments are not required to be indicated in the case of Sinosure. Similarly the exchange rate indexation for ROE & ROEDC has been provided in the referred order part table and the same will be applicable for SROE.
- vii. **Tariff Computational Clarifications:** The Authority has carefully reviewed the calculation with regards to Return on Equity During Construction (ROEDC), Special Return on Equity (SROE) and Sinosure during operation and found that ROEDC was calculated correctly, however SROE which is an estimated figure and will be adjusted based on actual injection of equity was inadvertently calculated on higher side. The SROE component was shown as footnote and has no impact on levelized tariff, however the same has been corrected and the estimated SROE component is calculated as US Cents 0.0596/kWh. Sinosure during operation allowed @ 0.60 as a maximum, was erroneously calculated @ 0.75% and the same has been rectified in this decision.
10. The Authority also noted that Engineering Supervision Cost was inadvertently assumed in the model as \$36.09 Million while the actual allowed under this head was \$29.41 Million. This has now been rectified in the tariff computation.
11. Regarding the comments of Syed Akhter Ali Shah, the Authority is of the view that the APPL's response on the issue being satisfactory is accepted
12. **Order**

Considering the above findings, the impugned determination is modified with the following rates, terms and conditions for import of power by Central Power Purchasing Agency CPPA-(G) from 700.7 MW Azad Pattan hydropower project:



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Tariff Components	Year 1-12	Year 13-30	Indexation
Variable Charge (Rs/kWh)			
Variable O&M – Local	0.1032	0.1032	Pakistan CPI
Water Use Charge	0.4250	0.4250	
Fixed Charge (Rs/kW/M)			
Fixed O&M – Local	109.8811	109.8811	Pakistan CPI
Fixed O&M – Foreign	164.8217	106.8217	PKR/US\$, US CPI
Insurance	95.6998	95.6998	PKR/US\$
Debt Service (Local)			KIBOR
Debt Service (Foreign)	1,467.7894		LIBOR, PKR/US\$
Return on Equity (ROE)	722.7703	768.2878	PKR/US\$
ROE During Construction	491.8689	491.8689	PKR/US\$

- i. The reference tariff has been calculated on the basis of net contracted capacity of 693.70 MW and net annual energy production of 3,265.81 GWh.
- ii. In the above tariff, no adjustment for Carbon Emission Reduction receipts (CERs) has been accounted for. However, upon actual realization of CERs, the same shall be distributed between the Power Purchaser and APPL in accordance with the GOP Policy for Power Generation Projects 2002 as amended from time of time.
- iii. The above tariff is applicable for a period of thirty (30) years on BOOT basis commencing from Commercial Operation Date (COD).
- iv. Debt service will be paid in the first 12 years of commercial operation of plant after COD.
- v. Redemption of equity has been allowed after 12 years of commercial operations of the plant.
- vi. Sinosure Fee on debt component of tariff for 12 years period after COD is allowed at per annum rate of 0.6% (calculated on semi-annual basis) and is given in the tariff table attached herewith as Annex-III.
- vii. The reference PKR/Dollar rate has been assumed at 1 US\$ = 104.827 PKR.
- viii. The component wise tariff is indicated at Annex-III.
- ix. Debt Servicing Schedules are attached as Annex-IV

I. One-Time Adjustments

- a. The Principal repayment and the cost of debt will be adjusted at COD as per the actual borrowing composition, LIBOR and KIBOR at the relevant date.
- b. 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 6-months LIBOR & KIBOR during the actual project construction period



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(not exceeding the construction period allowed by the Authority). In case of any savings resulting from reduction in construction period, IDC shall accordingly be adjusted in tariff. The increase due to delay in construction shall however, not be allowed.

- c. The specific items of project cost to be paid in foreign currency will be adjusted at COD on account of actual variation in exchange rate over the reference PKR/US\$ exchange rate of Rs. 104.827 on production of verifiable documentary evidence to the satisfaction of the Authority.
- d. Duties and/or taxes, not being of refundable nature, imposed on the Project Company up to the commencement of its commercial operations for the import of its plant, machinery and equipment will be adjusted on actual basis at COD, as against reference allowed amount of US\$ 17.05 Million, upon production of verifiable documentary evidence to the satisfaction of the Authority.
- e. Civil works cost will be adjusted on account of variation in the price of construction material (Cement, Steel, Labour and Fuel) during the project construction period based on mechanism attached herewith as Annex-I.
- f. The prices of tunnels will be adjusted due to variation in rock type/classification in accordance with the mechanism attached herewith as Annex-II. However, the total quantities shall not be varied and remained fixed as on signing of the Contract.
- g. Cost of land and resettlement will be adjusted in accordance with the Hydropower Mechanism based on authentic documentary evidence at COD.
- h. Insurance during construction will be adjusted at COD based on actual subject to the maximum of 2% of the adjusted and approved EPC cost upon production of verifiable documentary evidence to the satisfaction of the Authority.
- i. Financial charges will be adjusted at COD on the basis of actual subject to the maximum of 2.5% of the total debt (excluding the impact of interest during construction, Sinosure fees and financial charges) allowed on production of authentic documentary evidence.
- j. Return on Equity (ROE) and Return on Equity During Construction (ROEDC) will be calculated at COD on the basis of actual equity injections and PKR/US\$ exchange rate variation (within the overall equity allowed by the Authority at COD) over the construction period of 69 months allowed by the Authority.
- k. In case, the spreads on LIBOR and KIBOR are agreed at lower than 410 basis points and 275 basis points respectively, the benefit of such reduction in rate will be adjusted in proportion of 40% to the Project Company and 60% to the consumer through necessary adjustment in tariff.
- l. The adjustment for Special Return on Equity in tariff for the 30-month period will be allowed at COD on the basis of actual equity injections prior to the financial close date on the basis of audited accounts and verifiable documentary evidence to be provided by APPL.

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- m. The amount of Sinasure Fee in project cost based on applicable foreign debt for the project construction period (69 months) and Sinasure component based on applicable foreign debt component for operational period after COD (12 years) will be adjusted at COD on the basis of variation in PKR/US\$ exchange rate and based on finalized terms with insurance provider subject to the maximum rate of 0.6% per annum on production of reliable documentary evidence to the satisfaction of the Authority. The reference tariff table for each year of applicable Sinasure Fee will be revised accordingly.
- n. The reference tariff table shall be revised at COD while taking in to account the above adjustments. APPL shall submit its request to the Authority within 90 days of COD for necessary adjustments in tariff.

II. Pass-Through Items

No provision for income tax has been accounted for in the tariff. If the power producer is obligated to pay any such tax, the exact amount paid by the power producer (the Project Company) shall be reimbursed by the Power Purchaser to the Project Company on production of original receipts. This payment should be considered as pass-through payment (Rs/kW/M) spread over a twelve (12) months period in addition to fixed charges in the Reference Tariff.

Withholding tax shall be paid @ 7.5% of the return on equity (including return on equity during construction). The Power Purchaser shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% of 17% equity according to the following formula:

$$\text{Withholding Tax Payable} = \{ \{ 17\% * (E_{(Ref)} - E_{(Red)}) \} + ROEDC_{(Ref)} \} \times 7.5\%$$

Where:

$E_{(Ref)}$	=	Adjusted Reference Equity at COD
$E_{(Red)}$	=	Equity Redeemed
$ROEDC_{(Ref)}$	=	Adjusted Reference Return on Equity during Construction

In case the Project Company does not declare a dividend in any particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what has been paid in that year and the total entitlement as per the Net Return on Equity) would be carried forward and accumulated so that the Project Company is able to recover the same as a pass through item from the Power Purchaser in future on the basis of the total dividend payout.

III. Hydrological Risk

Hydrological Risk shall be borne by the Power Purchaser in accordance with the GoP Policy for Power Generation Projects, 2002.

IV. Indexation

The following indexation shall be applicable to the reference tariff:






i) Indexation applicable to O&M

The Variable O&M cost is based on 100% local. The Fixed O&M cost is based on 40% local and 60% foreign expense. The local part of O&M will be adjusted on account of Inflation (CPI General), whereas the foreign part of O&M will be adjusted on account of Rupee/Dollar exchange rate variation and US CPI. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January & 1st April respectively on the basis of the latest available information with respect to WPI (or alternative index as determined by the Authority), US CPI (notified by US bureau of labor statistics) and revised TT & OD Selling rate of US Dollar (notified by the National Bank of Pakistan). The mode of indexation will be as under:

a. Fixed O&M

$$F O\&M_{(I,REV)} = FO\&M_{(I,REF)} * CPI_{(REV)} / CPI_{(REF)}$$

$$F O\&M_{(F,REV)} = FO\&M_{(F,REF)} * USCPI_{(REV)} / USCPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

Where:

- $FO\&M_{(I,REV)}$ = The revised applicable Fixed O&M local component of tariff indexed with Pakistan CPI (General).
- $FO\&M_{(F,REV)}$ = The revised applicable Fixed O&M foreign component of tariff indexed with US CPI and exchange rate variation.
- $FO\&M_{(I,REF)}$ = The reference fixed O&M local component of tariff for the relevant period.
- $FO\&M_{(F,REF)}$ = The reference fixed O&M foreign component of tariff for the relevant period.
- $CPI_{(REV)}$ = The Revised Pakistan CPI (General) as notified by the Pakistan Bureau of Statistics for the relevant month.
- $CPI_{(REF)}$ = The Reference Pakistan CPI (General) of June 2017 as notified by the Pakistan Bureau of Statistics.
- $US CPI_{(REV)}$ = The Revised US Consumer Price Index (All Urban Consumers) notified by the Bureau of Labor Statistics.
- $US CPI_{(REF)}$ = Reference US CPI (All Urban Consumers) notified by the Bureau of Labor Statistics for the month of June 2017.
- $ER_{(REV)}$ = The revised TT and OD selling rate of US dollar as notified by the National Bank of Pakistan.
- $ER_{(REF)}$ = The reference TT and OD selling rate of US dollar of 104.827

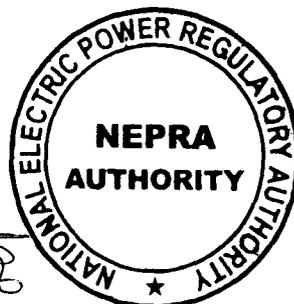
b. Variable O&M

$$VO\&M_{(I,REV)} = VO\&M_{(I,REF)} * CPI_{(REV)} / CPI_{(REF)}$$

$$VO\&M_{(F,REV)} = VO\&M_{(F,REF)} * USCPI_{(REV)} / USCPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

Where:

- $VO\&M_{(I,REV)}$ = The revised applicable Variable O&M local component of indexed with Pakistan CPI (General).
- $VO\&M_{(F,REV)}$ = The revised applicable Variable O&M foreign component of tariff indexed with US CPI and exchange rate variation.



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- VO&M_(I,REF) = The reference variable O&M local component of tariff for the relevant period.
 VO&M_(F,REF) = The reference variable O&M foreign component of tariff for the relevant period.
 CPI_(REV) = The Revised Pakistan CPI (General) as notified by the Pakistan Bureau of Statistics for the relevant month.
 CPI_(REF) = The Reference Pakistan CPI (General) of June 2017 as notified by the Pakistan Bureau of Statistics.
 US CPI_(REV) = The Revised US Consumer Price Index (All Urban Consumers) notified by the Bureau of Labor Statistics.
 US CPI_(REF) = Reference US CPI (All Urban Consumers) notified by the Bureau of Labor Statistics for the month of June 2017.
 ER_(REV) = The revised TT and OD selling rate of US dollar as notified by the National Bank of Pakistan.
 ER_(REF) = The reference TT and OD selling rate of US dollar of 104.827

ii) Water Use Charges

Water Use Charge will be paid on units delivered basis and revised/ indexed as per government policy.

iii) Insurance

Insurance cost component of tariff, in case insurance is denominated in foreign currency, will be adjusted on account of PKR/US\$ exchange rate variation at COD and thereafter on an annual basis at actual subject to the maximum of 1% of the EPC cost on production of Authentic documentary evidence by APPL, according to the following formula:

$$Ins_{(REV)} = Ins_{(REF)} * ER_{(REV)} / ER_{(REF)}$$

Where;

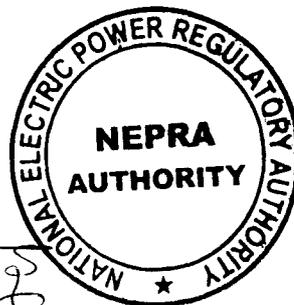
- Ins_(REV) = Revised Insurance cost component of tariff adjusted with the exchange rate variation (PKR/US\$)
 Ins_(REF) = Reference insurance cost component of tariff for the relevant period.
 ER_(REV) = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan.
 ER_(REF) = The reference TT & OD selling rate of US dollar as notified by the National Bank of Pakistan.

iv) Adjustment for LIBOR variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to exchange rate variation and variation in 6 months LIBOR, while spread of 4.10% on LIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (LIBOR_{(REV)} - 1.42239\%) / 2$$

Where;




ΔI = the variation in interest charges applicable corresponding to variation in six-month LIBOR. ΔI can be positive or negative depending upon whether LIBOR_(REV) > or < 1.42239%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each period under adjustment applicable on bi-annual basis.

$P_{(REV)}$ = the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-IV) on a semi-annual basis at the relevant calculations dates.

v) Adjustment for KIBOR Variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variation in 6 months KIBOR, while spread of 2.75% on KIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 6.15\%) / 2$$

Where;

ΔI = the variation in interest charges applicable corresponding to variation in six-month KIBOR. ΔI can be positive or negative depending upon whether KIBOR_(REV) > or < 6.15%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each period under adjustment applicable on bi-annual basis.

$P_{(REV)}$ = the outstanding principal on a semi-annual basis at the relevant calculations dates.

vi) Return on Equity

Return on equity (ROE) as well as Return on Equity during Construction (ROEDC) components of tariff shall be adjusted for variation in PKR/US\$ exchange rate according to the following formula:

$$\begin{aligned} ROE_{(REV)} &= ROE_{(REF)} * ER_{(REV)} / ER_{(REF)} \\ ROEDC_{(REV)} &= ROEDC_{(REF)} * ER_{(REV)} / ER_{(REF)} \end{aligned}$$

Where;

$ROE_{(REV)}$ = Revised Return on Equity component of tariff expressed in Rs/kW/M adjusted with exchange rate variation.

$ROEDC_{(REV)}$ = Revised Return on Equity during Construction component of tariff in Rs/kW/M adjusted with exchange rate variation.

$ROE_{(REF)}$ = Reference Return on Equity component of tariff expressed in Rs/kW/M for the relevant period.

$ROEDC_{(REF)}$ = Reference Return on Equity during Construction component of tariff expressed in Rs/kW/M for the relevant period.

$ER_{(REV)}$ = Revised 'TT' and OD selling rate of US dollar as notified by the National Bank of Pakistan.

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ER_(REF) = Reference TT and OD selling rate of US dollar.

Note: -

Adjustment on account of inflation, foreign exchange rate variation and LIBOR/KIBOR variation will be approved by the Authority within fifteen working days after receipt of APPL's request for adjustment in tariff in accordance with the requisite indexation mechanism stipulated hereinabove.

V. Other Terms and Conditions of Tariff

Design & Manufacturing Standards:

Hydel Power Generation system shall be designed, manufactured and tested in accordance with the latest IEC standards or other equivalent standards. All plant and equipment shall be new and of standard quality.

Power Curve of the Hydel Power Complex:

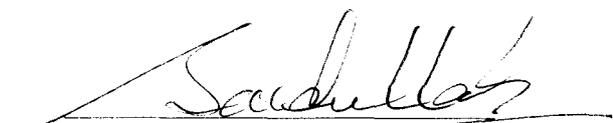
The power curve of the Hydel Power plant shall be verified by the Power Purchaser, as part of the Commissioning tests according to the latest IEC standards and shall be used to measure the performance of the hydel generating units.

Emissions Trading/Carbon Credits:

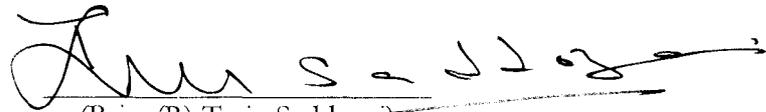
The Project Company shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the Power Purchaser as per the policy issued by the Federal Government.

13. This Revised Order shall be notified in the official Gazette as per Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with regulation 4(4) of the NEPRA (Import of Electric Power) Regulations, 2017.

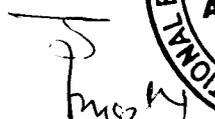
AUTHORITY


(Saif Ullah Chattha)
Member
10.9.2018


10/10/2018
(Rehmatullah Baloch)
Vice Chairman


(Brig. (R) Tariq Saddozai)
Chairman




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One-Time Adjustment in Reference EPC Cost for Civil Works cost escalation

The cost of civil works will be adjusted due to variation in the prices/indices of a selected number of cost elements. The method is set out hereunder for adjusting the Contract Price for changes in costs for cement, fuel, reinforcement and labour obtained and utilized by the Contractor in Pakistan.

The changes in costs shall only be adjusted in local currency portion on the basis of "rise and fall" of the prices of the above specified materials and labour.

The formula by which the indexations are applied is given below:

$$P_n = V_n \times [(C_n - C_o)/C_o] + W_n \times [(S_n - S_o)/S_o] + Y_n \times [(F_n - F_o)/F_o] + Z_n \times [(L_n - L_o)/L_o]$$

$$T_{fn} = T_n + P_n$$

Where:

"P_n" is the adjustment factor to be applied to the estimated value of the work carried out in month "n"

"V_n", "W_n", "Y_n", and "Z_n" are the reference values for the relevant month "n" based on the coefficients representing the estimated proportion of each cost element – cement, reinforcing steel, fuel and labor respectively, in the works;

"L_o", "F_o", "C_o", and "S_o" are the base cost indices or reference prices corresponding to the above cost elements;

"L_n", "F_n", "C_n", and "S_n" are the cost indices or prices corresponding to the above cost elements in month "n";

T_{fn} is the Total Final Amount for the relevant month n, after adding the Escalated Amount (P_n) to the Total Reference Amount (T_n) as given in Table 1.

T_n is the Total Reference Amount for the relevant month "n" from Construction Start Date.

The reference indices of the specified input cost items as agreed and incorporated in the EPC contract are as under:

Cost Element	Reference Index	Remarks
Labor (L)	230.48	Applicable index of "Construction Wage Rates" of Consumer Price Index Number by Major Groups and Selected Commodities of the published in Monthly Bulletin of Statistics of November 2016 by Pakistan Bureau of Statistics (PBS)
Fuel (F)	144.34	Applicable index of "Diesel Oil" of Index Numbers of Wholesale Prices by Commodities of published in Monthly Bulletin of Statistics of November 2016 by PBS
Cement (C)	212.72	Applicable index of "Cement" of Index Numbers of Wholesale Prices by Commodities of published in Monthly Bulletin of Statistics of November 2016 by PBS
Reinforcing Steel (S)	120.20	Applicable index of "Steel Bars & Sheets" of Index Numbers of Wholesale Prices by Commodities of published in Monthly Bulletin of Statistics of November 2016 by PBS

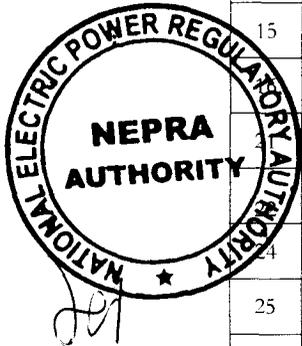







Material Cost Escalation Table-I

Month	Amounts (PKR)						Coefficients				
	Fixed (Z) PKR	Cement PKR	Steel (W) PKR	Fuel (Y) PKR	Labor (V) PKR	Total PKR	Fixed A	Cement B	Steel C	Fuel d	Labor e
1	567,177,594.26	185,362,180.27	148,667,312.00	165,185,902.22	113,506,312.81	1,179,899,301.56	48.07%	15.71%	12.60%	14.00%	9.62%
3	133,817,645.85	43,733,622.14	35,075,979.57	38,973,310.63	26,780,232.02	278,380,790.20	48.07%	15.71%	12.60%	14.00%	9.62%
5	1,021,133,213.81	333,721,713.94	267,657,135.30	297,396,817.00	204,354,098.54	2,124,262,978.60	48.07%	15.71%	12.60%	14.00%	9.62%
7	278,382,514.14	90,979,598.44	72,968,996.84	81,076,663.16	55,711,249.97	579,119,022.55	48.07%	15.71%	12.60%	14.00%	9.62%
9	432,334,754.71	141,293,509.39	113,322,610.97	125,914,012.19	86,520,914.09	899,385,801.35	48.07%	15.71%	12.60%	14.00%	9.62%
10	714,484,850.21	233,504,410.17	187,279,157.74	208,087,953.05	142,986,150.59	1,486,342,521.76	48.07%	15.71%	12.60%	14.00%	9.62%
13	2,366,780,616.83	773,499,552.54	620,375,198.09	689,305,775.65	473,651,540.13	4,923,612,683.24	48.07%	15.71%	12.60%	14.00%	9.62%
14	1,880,647,000.55	614,623,764.90	492,950,950.84	547,723,278.71	376,364,138.66	3,912,309,133.66	48.07%	15.71%	12.60%	14.00%	9.62%
15	222,303,827.50	72,652,239.03	58,269,777.96	64,744,197.73	44,488,513.01	462,458,555.24	48.07%	15.71%	12.60%	14.00%	9.62%
	1,102,883,405.73	360,438,907.93	289,085,311.26	321,205,901.40	220,714,340.82	2,294,327,867.14	48.07%	15.71%	12.60%	14.00%	9.62%
	994,308,278.83	324,954,921.17	260,625,843.84	289,584,270.93	198,985,763.31	2,068,459,078.07	48.07%	15.71%	12.60%	14.00%	9.62%
	1,790,078,281.41	585,024,543.39	469,211,282.42	521,345,869.35	358,239,090.23	3,723,899,066.79	48.07%	15.71%	12.60%	14.00%	9.62%
24	356,688,431.24	116,571,151.55	93,494,367.25	103,882,630.28	71,382,207.38	742,018,787.68	48.07%	15.71%	12.60%	14.00%	9.62%
25	726,333,574.55	237,376,751.74	190,384,918.65	211,538,798.50	145,357,374.40	1,510,991,417.84	48.07%	15.71%	12.60%	14.00%	9.62%
26	995,591,705.43	325,374,364.31	260,962,252.72	289,958,058.58	199,242,608.82	2,071,128,989.86	48.07%	15.71%	12.60%	14.00%	9.62%
27	871,631,234.69	284,862,215.46	228,470,013.67	253,855,570.74	174,435,042.18	1,813,254,076.74	48.07%	15.71%	12.60%	14.00%	9.62%
32	448,377,707.57	146,536,588.02	117,527,753.60	130,586,392.89	89,731,507.11	932,759,949.18	48.07%	15.71%	12.60%	14.00%	9.62%
33	919,199,106.54	300,408,112.42	240,938,396.97	267,709,329.97	183,954,553.88	1,912,209,499.78	48.07%	15.71%	12.60%	14.00%	9.62%
37	335,514,970.56	109,651,345.69	87,944,427.48	97,716,030.54	67,144,872.41	697,971,646.68	48.07%	15.71%	12.60%	14.00%	9.62%

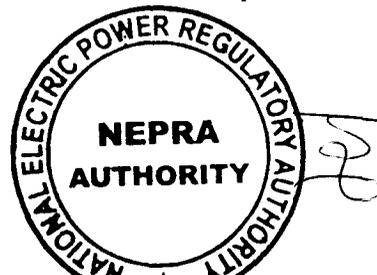




38	847,389,170.55	276,939,543.78	222,115,738.49	246,795,264.98	169,583,603.51	1,762,823,321.31	48.07%	15.71%	12.60%	14.00%	9.62%
39	811,357,889.24	265,163,978.37	212,671,300.28	236,301,444.76	162,372,849.90	1,687,867,462.54	48.07%	15.71%	12.60%	14.00%	9.62%
40	602,329,276.63	196,850,279.50	157,881,191.71	175,423,546.34	120,541,036.84	1,253,025,331.03	48.07%	15.71%	12.60%	14.00%	9.62%
42	798,966,911.71	261,114,420.28	209,423,405.19	232,692,672.43	159,893,107.77	1,662,090,517.39	48.07%	15.71%	12.60%	14.00%	9.62%
43	685,981,726.02	224,189,159.89	179,807,983.10	199,786,647.89	137,281,968.05	1,427,047,484.96	48.07%	15.71%	12.60%	14.00%	9.62%
44	453,108,607.87	148,082,717.49	118,767,806.51	131,964,229.46	90,678,277.67	942,601,639.00	48.07%	15.71%	12.60%	14.00%	9.62%
48	222,903,949.04	72,848,367.79	58,427,080.46	64,918,978.29	44,608,612.23	463,706,987.81	48.07%	15.71%	12.60%	14.00%	9.62%
49	1,991,345,359.03	650,801,655.72	521,966,954.93	579,963,283.26	398,517,627.50	4,142,594,880.44	48.07%	15.71%	12.60%	14.00%	9.62%
50	1,129,295,024.75	369,070,622.82	296,008,265.28	328,898,072.53	225,999,961.27	2,349,271,946.63	48.07%	15.71%	12.60%	14.00%	9.62%
52	827,636,103.71	270,483,944.03	216,938,109.15	241,042,343.50	165,630,524.60	1,721,731,024.99	48.07%	15.71%	12.60%	14.00%	9.62%
54	102,878,776.87	33,622,333.78	26,966,353.00	29,962,614.44	20,588,596.49	214,018,674.58	48.07%	15.71%	12.60%	14.00%	9.62%
55	237,375,270.94	77,577,813.74	62,220,270.73	69,133,634.14	47,504,682.89	493,811,672.43	48.07%	15.71%	12.60%	14.00%	9.62%
56	104,210,621.53	34,057,600.67	27,315,453.12	30,350,503.46	20,855,131.66	216,789,310.44	48.07%	15.71%	12.60%	14.00%	9.62%
57	1,120,919,081.66	366,333,238.46	293,812,781.96	326,458,646.62	224,323,727.18	2,331,847,475.89	48.07%	15.71%	12.60%	14.00%	9.62%
63	1,168,921,143.12	382,021,035.12	306,394,974.06	340,438,860.07	233,930,130.99	2,431,706,143.37	48.07%	15.71%	12.60%	14.00%	9.62%
65	250,361,797.80	81,822,006.31	65,624,269.86	72,915,855.40	50,103,609.21	520,827,538.60	48.07%	15.71%	12.60%	14.00%	9.62%
67	1,275,982,375.38	417,010,258.31	334,457,622.84	371,619,580.93	255,355,740.61	2,654,425,578.07	48.07%	15.71%	12.60%	14.00%	9.62%
69	508,660,014.76	166,237,753.94	133,328,816.02	148,143,128.91	101,795,492.87	1,058,165,206.50	48.07%	15.71%	12.60%	14.00%	9.62%
Note	4,776,846,887.22	-	-	-	-	4,776,846,887.22	100.00%	-	-	-	-
TOTAL	34,074,138,702.24	9,574,796,222.47	7,679,340,063.85	8,532,600,070.94	5,863,115,191.61	65,723,990,251.11	51.84%	14.57%	11.68%	12.98%	8.92%

Note: This pertains to design cost of US\$ 45,586,860 which is part of the fixed cost component of the Civil Works Cost under Construction Contract.

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Adjustment in the cost of Tunneling Works due to Geological Conditions

- a. Subject to the verification of the Re-opener Verifier, cost variation due to geological conditions related to underground tunneling works will be allowed at Commercial Operation Date.
- b. The cost of the Tunneling Work shall be allowed to vary depending on the category of rock encountered during construction of tunnels. The increase or decrease in the cost shall be subject to the baseline conditions given in Table 1, 2 & 3 of this Annex.

Table 1 - Diversion Tunnels Geological Cost Variation

Diversion Tunnels			
Rock Class	RMR	Price PKR per meter	Length of Tunnel (m)
Very Good Rock	>80	6,547,216	0
Good Rock	61-80	6,633,927	90
Fair Rock	41-60	6,782,310	360
Poor Rock	21-40	7,682,569	360
Very Poor	0-20	7,988,273	90
Total Price			6,523,354,440

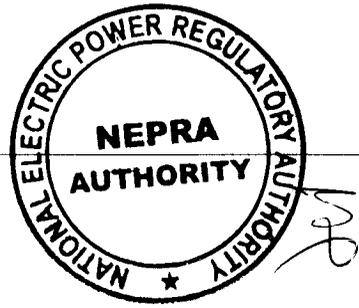
Table 2 - Upstream Waterway Penstock Tunnels Geological Cost Variation

Upstream Waterway Penstock Tunnels			
Rock Class	RMR	Price PKR per meter	Length of Tunnel (m)
Very Good Rock	>80	2,015,097	0
Good Rock	61-80	2,071,956	65
Fair Rock	41-60	3,091,004	260
Poor Rock	21-40	3,356,806	260
Very Poor	0-20	3,511,503	65
Total Price			2,039,355,435

Table 3 - Downstream Waterway Tunnels Cost Variation

Downstream Waterway Tunnels			
Rock Class	RMR	Price PKR per meter	Length of Tunnel (m)
Very Good Rock	>80	4,965,371	0
Good Rock	61-80	5,139,488	78
Fair Rock	41-60	5,608,324	312
Poor Rock	21-40	5,714,761	312
Very Poor	0-20	6,266,236	78
Total Price			4,422,448,992





**AZAD PATTAN HYDROPOWER PROJECT
REFERENCE TARIFF TABLE**

Period	Water Use Charge	Variable O&M Local	Total EPP	Fixed O&M		Insurance	ROEDC	ROE	Sinasure Fee	Debt Servicing		Total CPP	Total PKR/Kwh	Total US\$ Cents/Kwh
				Foreign	Local					Principal	Interest			
1	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	80.6916	773.9610	693.8284	3,133.52	8.5154	8.1233
2	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	75.7878	817.2922	650.4971	3,128.62	8.5029	8.1114
3	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	70.6095	863.0494	604.7400	3,123.44	8.4898	8.0988
4	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	65.1413	911.3684	556.4210	3,117.97	8.4758	8.0855
5	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	59.3670	962.3926	505.3968	3,112.20	8.4611	8.0715
6	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	53.2693	1,016.2734	451.5160	3,106.10	8.4456	8.0567
7	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	46.8303	1,073.1708	394.6186	3,099.66	8.4291	8.0410
8	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	40.0308	1,133.2537	334.5357	3,092.86	8.4118	8.0245
9	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	32.8506	1,196.7004	271.0890	3,085.68	8.3935	8.0070
10	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	25.2684	1,263.6992	204.0902	3,078.10	8.3742	7.9886
11	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	17.2617	1,334.4491	133.3403	3,070.09	8.3538	7.9691
12	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	722.7703	8.8067	1,409.1600	58.6294	3,061.64	8.3322	7.9485
13	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
14	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
15	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
16	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
17	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
18	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
19	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
20	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
21	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
22	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
23	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
24	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
25	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
26	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
27	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
28	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
29	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
30	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	768.2878				1,630.56	4.6845	4.4688
Levelized Tariff	0.4250	0.1032	0.5282	164.8217	109.8811	95.6998	491.8689	735.3882	39.8540	722.6120	338.2934	2,698.4191	7.4064	7.0653

*Withholding Tax on Dividend and Special Return on Equity have an additional estimated impact of US Cents/kWh 0.2283 & US Cents/kWh 0.0596 respectively on the levelized tariff.



Azad Pattan Hydropower Project
Debt Service Schedule for Foreign Debt (in US\$)

Annex-IV

Semi-Annual Period	Opening Balance	Interest	Principal	Debt Service	Closing Balance	Annual Principal Repayment	Annual Interest Repayment	Annual Debt Servicing
	US\$	US\$	US\$	US\$	US\$	Rs./KW/M	Rs./KW/M	Rs./KW/M
1	1,012,866,990	27,967,233	30,311,961	58,279,193	982,555,029			
2	982,555,029	27,130,260	31,148,933	58,279,193	951,406,096	773.9610	693.8284	1,467.7894
3	951,406,096	26,270,178	32,009,016	58,279,193	919,397,080			
4	919,397,080	25,386,346	32,892,847	58,279,193	886,504,233	817.2922	650.4971	1,467.7894
5	886,504,233	24,478,111	33,801,083	58,279,193	852,703,151			
6	852,703,151	23,544,797	34,734,396	58,279,193	817,968,754	863.0494	604.7400	1,467.7894
7	817,968,754	22,585,712	35,693,481	58,279,193	782,275,273			
8	782,275,273	21,600,146	36,679,048	58,279,193	745,596,226	911.3684	556.4210	1,467.7894
9	745,596,226	20,587,366	37,691,828	58,279,193	707,904,398			
10	707,904,398	19,546,621	38,732,572	58,279,193	669,171,826	962.3926	505.3968	1,467.7894
11	669,171,826	18,477,139	39,802,054	58,279,193	629,369,772			
12	629,369,772	17,378,127	40,901,067	58,279,193	588,468,705	1,016.2734	451.5160	1,467.7894
13	588,468,705	16,248,768	42,030,425	58,279,193	546,438,280			
14	546,438,280	15,088,226	43,190,967	58,279,193	503,247,313	1,073.1708	394.6186	1,467.7894
15	503,247,313	13,895,640	44,383,554	58,279,193	458,863,760			
16	458,863,760	12,670,123	45,609,070	58,279,193	413,254,690	1,133.2537	334.5357	1,467.7894
17	413,254,690	11,410,768	46,868,425	58,279,193	366,386,264			
18	366,386,264	10,116,639	48,162,554	58,279,193	318,223,710	1,196.7004	271.0890	1,467.7894
19	318,223,710	8,786,777	49,492,416	58,279,193	268,731,294			
20	268,731,294	7,420,195	50,858,998	58,279,193	217,872,296	1,263.6992	204.0902	1,467.7894
21	217,872,296	6,015,879	52,263,314	58,279,193	165,608,982			
22	165,608,982	4,572,787	53,706,406	58,279,193	111,902,575	1,334.4491	133.3403	1,467.7894
23	111,902,575	3,089,848	55,189,345	58,279,193	56,713,230			
24	56,713,230	1,565,963	56,713,230	58,279,193	(0)	1,409.1600	58.6294	1,467.7894

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