



Registrar

# National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No.NEPRA/PAR-107/1051-1053  
January 30, 2014

Subject: **Decision of the Authority in the matter of Power Acquisition Request filed by National Transmission and Despatch Company (NTDC) under the NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 for Permission to Negotiate Power Acquisition Contract in respect of 640 MW Azad Pattan Hydropower Project [Case # NEPRA/PAR-107]**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annexure I, II, III & (IV) (14 pages) in Case No. NEPRA/PAR-107.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

Enclosure: As above

( Syed Safer Hussain )

Secretary  
Ministry of Water & Power  
'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 Power Acquisition Request filed by National Transmission and Despatch Company under the NEPRA Power Procurement (Standards & Procedure) Regulations 2005 for permission to negotiate power acquisition contract in respect of 640 MW Azad Pattan Hydropower Project.

**1 Background**

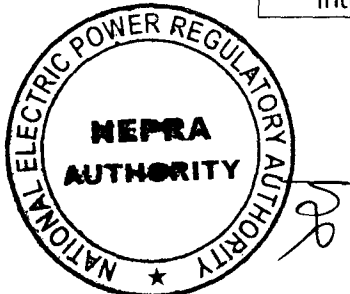
1.1 The National Transmission & Despatch Company Limited (hereunder referred to as "NTDC") filed a power acquisition request under the NEPRA Interim Power Procurement (Standards & Procedure) Regulations 2005 (hereinafter referred to as "IPPRs) seeking permission of the Authority to negotiate power acquisition contract for purchase of 640 MW electricity from Azad Pattan Hydropower Project located in the state of Azad Jammu & Kashmir (AJK). NTDC also requested for approval of advance tariff based on a feasibility study report for negotiating a power acquisition contract to be approved by the Authority in terms of regulation 4(2) of IPPRs.

1.2 The Authority admitted the power acquisition request of NTDC as per regulation 4(1) of IPPR and in order to satisfy itself in respect of the prudence of the procurement and grant the power acquisition permission to NTDC for negotiating a power acquisition contract, the Authority decide to conduct public hearing so that due input from the stakeholders is obtained and also with a view to ensure transparency in the process of granting permission to NTDC for negotiation PPA in respect of the subject project. Accordingly, the notice of hearing was published in the daily newspapers on April 21, 2013, containing brief description of NTDC's request for information & invitation to all the stakeholders for their participation in the process for granting permission. . Separate notices were also sent to persons/parties who, in the opinion of the Authority, were likely to be affected or interested in the NTDC's request. The hearing in the subject matter was held on Wednesday, 8<sup>th</sup> May, 2013 at the NEPRA Main Office Islamabad which was attended by the petitioner, representatives of the project company, PPIB and other stakeholders.

**2 Submissions of NTDC**

2.1 Summary of the technical and financial information provided in the power acquisition request is as follows:

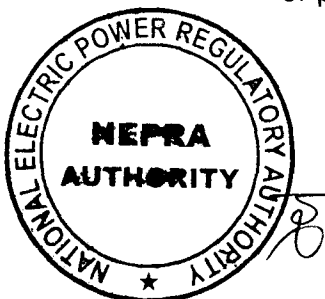
Type of the project	Hydropower project (BOOT)
Project location	Village of Muslimabad, some 7 km upstream of the Azad Pattan bridge, in district Sudhnoti, Azad Jammu & Kashmir
Installed capacity (Gross)	640 MW
Construction Period	72 months
Concession Period	30 years from commercial operations date
Power purchaser	National Transmission and Despatch Company (NTDC)
<b>Plant Characteristics</b>	
Gross Annual generation	3,075 GWh
Net Annual generation	3,064 GWh
Plant factor	54.84%
Financing structure	Debt 75% - Equity 25%
Interest rate	6 months KIBOR plus 325 bps



	6 months LIBOR plus 475 bps
Debt repayment period (including grace period)	17 years Foreign Loan 13.5 years Local Loan
Repayment schedule basis	Semi-annual instalments
Return on equity (IRR)	17%
<b>Project cost</b>	<b>US\$ (million)</b>
Civil Works	399.636
Electrical & Mechanical Equipment	483.551
Infrastructure	53.516
<b>Total EPC Cost</b>	<b>936.705</b>
<b>Total CAPEX</b>	<b>1111.398</b>
Interest During Construction	243.310
<b>Total Project Cost</b>	<b>1354.708</b>
<b>30 years levelized tariff</b>	<b>Rs. 6.4156/kWh, US cents 7.2904/kWh</b>
<b>Reference Exchange rate</b>	<b>1 US\$ = Rs. 88</b>

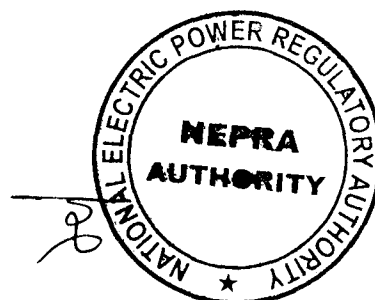
3. On the basis of information provided by NTDC, the available record, input so received from the stake-holders, the Authority hereby grants permission to NTDC to negotiate a power acquisition contract with Azad Pattan Hydro Power Project for procurement of 640 MW of electricity in terms of regulation 4(1) of IPPR-2005. With regard to NTDC's request for approval of advance tariff and other terms and conditions of tariff as required under regulation 4(2) of the NEPRA IPPRs-2005, the Authority has decided to make necessary adjustments in the requested project costs and other terms and conditions of tariff for Azad Pattan Hydropower Project which in its opinion are either found to be inconsistent with previous decisions of the Authority in such matters or considered to be unjustified as mentioned hereunder.

- i) Project Construction Period – The proposed project construction period of 6 years for the Azad Pattan Hydropower project is not acceptable to the Authority particularly in view of the present energy situation of the country as well as project construction time allowed in other similar hydropower projects. The Authority considers that the Azad Pattan hydropower project can be completed in a 4 year time provided the project sponsors expeditiously pursue the project progress and employ latest mechanized techniques and equipment for its timely completion. The Authority has therefore decided to allow project construction period of 4 years in the instant case and directs the power purchaser to regularly monitor progress of the project for its timely completion within the approved timeline.
- ii) Electrical & Mechanical Equipment Cost – The NTDC's negotiated cost for Electrical and Mechanical Equipment US\$ 483.551 million which works out to be US\$ 0.756 million/MW is considered to be on the higher side as compared to other hydropower projects located in the same region with similar plant configuration. The Authority has therefore decided to approve US\$ 353.155 million on this account on comparable basis.
- iii) Land Acquisition & Resettlement Cost – The negotiated cost of US\$ 16.448 million by the NTDC is considered to be higher in view of the location of the project and relevant information made available to the Authority regarding land procurement and displacement of private holders of land at the project site. In view hereof the Authority has decided to



approve US\$ 12.028 million at this stage subject to adjustment at COD on the basis of verifiable documentary evidence to be provided by the petitioner in accordance with the approved Mechanism of Tariff for Hydropower Projects (hereinafter referred to as the "Hydropower Mechanism").

- IV) Lender's Advisors/Consultants Cost - The Authority has not allowed Lender's Advisors Cost separately as requested and proposed by the NTDC, rather this component is included within the maximum benchmark of 3% of the capital cost allowed under the head of Financial Charges. The Authority has therefore decided to disallow the cost of Lender's Advisors/ Consultants separately.
- V) Owner's Administration Cost - The proposed cost of US\$ 25.930 million is considered to be unjustified particularly in view of the reduced project construction period of 4 years as already approved by the Authority as well as past delays in project development solely attributable to the project Company, which can not be allowed to be passed on to the consumers. In view of the aforementioned the Authority has assessed US\$ 16.955 million on account of Owner's Administration Cost and therefore is approved.
- VI) O&M Mobilization Cost - The Authority has not allowed this cost component to the feasibility stage hydropower projects due to the reason that such cost is to be reimbursed by the power purchaser based on energy delivered to it during the project testing and commissioning phase at mutually agreed rates in accordance with the standardized provisions of the Power Purchase Agreement to be signed between the parties.
- VII) Owner's Advisors/Consultants Cost - NTDC has proposed US\$ 10.750 million for this cost component, which is considered to be high. The Authority, has therefore decided to approve US\$ 8.532 million, on comparable basis, for the cost of Owner's Advisors/Consultants.
- VIII) Insurance during construction - The Authority in its latest determination of hydropower project has allowed Insurance during Construction at 2.4% of the EPC cost. Accordingly, US\$ 19.351 million on the basis of 2.40% of the approved EPC cost is being allowed in the instant case well.
- IX) Custom Duties and Taxes - The cost for payment of custom duty and other applicable taxes is a pass through cost and therefore is not considered for inclusion in the total project cost at this stage. The Project Company is, however, entitled for adjustment of custom duty and other applicable taxes which are of non-refundable nature at the time of COD on the basis of verifiable documentary evidence to the satisfaction of the Authority.
- X) Terms of Debt financing - The NTDC has proposed that the term of foreign and local financing will be of 17 years and 13.5 years respectively including the proposed project construction period of 6 years. The Authority in other similar hydropower projects at the feasibility stage has approved 12 years debt repayment period after COD for both local and foreign financing. The Authority has therefore decided to approve 16 years term for both foreign and local financing including approved project construction of 4 years.

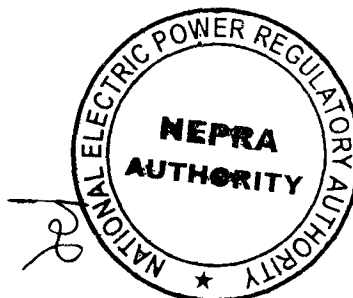


- XI) Annual O&M Cost – NTDC has negotiated US\$ 20.176 million for the annual O&M cost component based on the Authority's approved benchmark of 1.50% of the total claimed project cost, comprising US\$ 18.107 million ( 90%) and US\$ 2.069 million (10%) for fixed and variable O&M cost respectively. The Authority in other hydropower projects at feasibility stage has approved Fixed and Variable O&M cost in a ratio of 60% and 40% respectively. Accordingly US\$ 15.723 million on the basis of 1.50% of the total approved cost divided between Fixed and Variable cost component in a ratio of 60% and 40% is approved as per the detailed breakup of foreign and local cost given at IV attached herewith.
- XII) Insurance during Operations - NTDC has requested US\$ 12.645 million per annum based on 1.35% of the requested EPC cost on account of annual Insurance expense during the project operational period. The Authority in another hydropower project has allowed annual insurance expense at 1.00% of the EPC cost. Accordingly, US\$ 8.063 million based at 1.00% of the approved EPC cost is approved, which is considered to be reasonable to meet the annual insurance expense of plant & equipment and other project requirements.

4. In view of the aforementioned, NTDC is allowed an advance tariff based on a feasibility study report duly endorsed by the PPIB and Power Purchaser for negotiating a power acquisition contract to be approved by the Authority as per following"-

Tariff Components	Year 1-12	Year 13-30	Indexation
<b>Variable Charge (Rs/kWh)</b>			
Variable O&M - Local	0.2012	0.2012	CPI
Water Use Charge	0.1500	0.1500	CPI
<b>Fixed Charge (Rs/kW/M)</b>			
Fixed O&M - Local	72.4878	72.4878	CPI
Fixed O&M - Foreign	48.3252	48.3252	PKR/US\$, US CPI
Insurance	103.2599	103.2599	PKR/US\$
Debt Service	1265.4701	-	LIBOR, KIBOR
Return on Equity	570.5061	606.4345	PKR/US\$
Return on equity during construction (ROEDC)	221.8219	221.8219	PKR/US\$

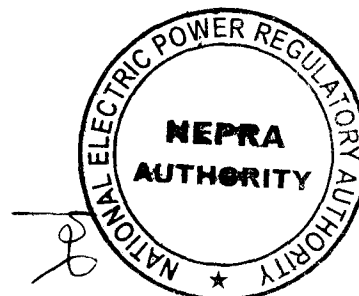
- i. The reference tariff has been calculated on the basis of net contracted capacity of 637.696 MW and net annual energy production of 3064.00 GWh.
- ii. In the above tariff, no adjustment for Carbon Emission Reduction receipts (CERs) has been accounted for. However, upon actual realization of CERs, the same shall be distributed between the Power Purchaser and the project company 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 operation of the plant.



- vi. The Petitioner is entitled for adjustment of cost reopeners and cost escalation in the civil works. Such adjustment will be allowed subject to provision of the required information/data in accordance with the Mechanism for Determination of Tariff for Hydropower Projects approved by NEPRA.
- vii. The reference PKR/Dollar rate has been assumed at 1 USD = 98 PKR.
- viii. The component wise tariff is indicated at Annex-I
- ix. Debt Servicing Schedule is attached herewith as Annex-II
- x. Table showing total approved project cost is attached herewith as Annex-III.
- xi. Table showing approved annual O&M cost is attached herewith as Annex-IV

I. **One Time Adjustment**

- a. The Principal repayment and the cost of debt will be adjusted at COD as per the actual borrowing composition and LIBOR/KIBOR at the relevant date.
- b. Interest During Construction (IDC) will be adjusted at COD on the basis of actual debt composition, debt drawdown (not exceeding the amount allowed by the Authority) and applicable 6-months LIBOR & KIBOR during the project construction period of 48 months (4 years) approved by the Authority.
- c. The specific items of project cost to be paid in foreign currency (i.e. US\$) will be adjusted at COD on account of actual variation in exchange rate over the reference PKR/US\$ exchange rate of Rs. 98.00 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 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, upon production of verifiable documentary evidence to the satisfaction of the Authority.
- e. Cost of land and resettlement US\$ 12.028 million will be adjusted in accordance with the Hydropower Mechanism based on authentic documentary evidence at COD.
- f. Insurance during construction will be adjusted at COD based on actual subject to the maximum of 2.40% of the adjusted and approved EPC cost upon production of verifiable documentary evidence to the satisfaction of the Authority.
- g. Financial charges will be adjusted at COD on the basis of actual subject to the maximum of 3% of the total debt allowed (excluding the impact of interest during construction and financial charges) on production of authentic documentary evidence.
- h. Return on Equity (ROE) and Return on Equity During Construction (ROEDC) will be adjusted 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) during the project construction period allowed by the Authority.
- i. The reference tariff table shall be revised at COD while taking in to account the above adjustments. The Petitioner 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 tax, the exact amount paid by the power producer (the Company) shall be reimbursed by the Power Purchaser to the 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 on dividends is also a pass through item just like other taxes as indicated in the government Guidelines. 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:

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

Where:

$E_{(Ref)}$	=	Adjusted Reference Equity at COD
$E_{(Red)}$	=	Equity Redeemed
$\text{ROEDC}_{(Ref)}$	=	Adjusted Reference Return on Equity during Construction

In case the 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 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

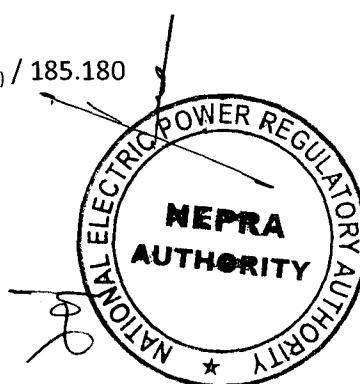
The following indexation shall be applicable to the reference tariff:

### i) Indexation applicable to O&M

The Variable O&M cost is based on local currency. The Fixed O&M cost is based on 60% local and 40% foreign expense. The local component of O&M will be adjusted on account of Inflation (CPI), whereas the foreign component 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 local CPI general (notified by Federal Bureau of Statistics Pakistan), 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

$$F O\&M_{(LREV)} = O\&M_{(LREF)} * CPI_{(REV)} / 185.180$$



$$F O\&M_{(FREV)} = O\&M_{(FREF)} * USCPI_{(REV)} / 231.407 * ER_{(REV)} / 98$$

Where:

$F O\&M_{(LREV)}$  = The revised applicable Fixed O&M local component of tariff indexed with CPI (General).

$F O\&M_{(FREV)}$  = The revised applicable Fixed O&M foreign component of tariff indexed with US CPI and exchange rate variation.

$O\&M_{(LREF)}$  = The reference fixed O&M local component of tariff for the relevant period.

$O\&M_{(FREF)}$  = The reference fixed O&M foreign component of tariff for the relevant period.

$CPI_{(REV)}$  = The Revised Consumer Price Index (General) for the relevant month.

$CPI_{(REF)}$  = The Consumer Price Index (General) of September 2013 notified by the Pakistan Federal 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 September 2013.

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

b. Variable O&M

$$V O\&M_{(LREV)} = O\&M_{(LREF)} * CPI_{(REV)} / 185.180$$

Where:

$V O\&M_{(LREV)}$  = The revised applicable Variable O&M local component of tariff indexed with CPI.

$O\&M_{(LREF)}$  = The reference variable O&M local component of tariff for the relevant period.

$CPI_{(REV)}$  = The Revised Consumer Price Index (General) for the relevant month.

$CPI_{(REF)}$  = The Consumer Price Index (General) of September 2013 notified by the Federal Bureau of Statistics.

$US CPI_{(REV)}$  = The Revised US Consumer Price Index (All Urban Consumers) notified by the Bureau of Labor Statistics.

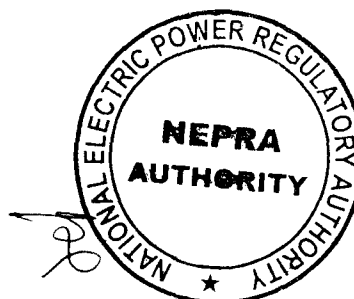
$US CPI_{(REF)}$  = Reference US CPI (All Urban Consumers) notified by the Bureau of Labor Statistics for the month of September 2013.

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

ii) Water Use Charges

Water Use Charge will be paid on units delivered basis and will be indexed with Consumer Price Index (General) annually from the date of COD. The first such adjustment shall be due after one year of commercial operation from COD, according to the formula:

*[Handwritten signature]*





$$WUC_{(REV)} = WUC_{(REF)} * CPI_{(REV)} / 185.180$$

Where;

$WUC_{(REV)}$  = The revised Water Use Charge component of tariff indexed with Consumer Price Index (CPI).

$WUC_{(REF)}$  = The reference Water Use Charge component of tariff for the relevant period.

$CPI_{(REV)}$  = The Revised Consumer Price Index (General) for the relevant month.

$CPI_{(REF)}$  = The Consumer Price Index (General) of September 2013 notified by the Federal Bureau of Statistics.

iii) Insurance

Insurance cost component of tariff, in case insurance is procured 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 1.0% of the EPC cost on production of authentic documentary evidence by the Petitioner, 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/KIBOR variation

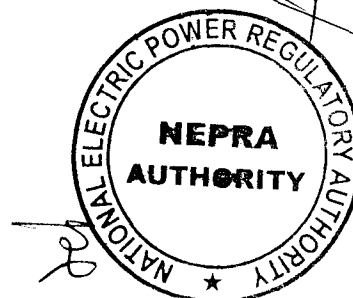
a) The interest part of fixed charge component of foreign debt will remain unchanged throughout the term except for the adjustment due to exchange rate variation and variation in 6 months LIBOR, while spread of 4.75% on LIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (LIBOR_{(REV)} - 0.55\%) / 2$$

Where;

$\Delta I$  = the variation in interest charges applicable corresponding to variation in six-month LIBOR.  $\Delta I$  can be positive or negative depending upon whether  $LIBOR_{(REV)} >$  or  $< 0.55\%$ . The interest payment obligation will be enhanced or reduced to the extent of  $\Delta I$  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-II) on a semi-annual basis at the relevant calculations dates.



- b) The interest part of fixed charge component of local debt will remain unchanged throughout the term except for the adjustment due to variation in 6 months KIBOR, while spread of 3.25% on KIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 9.50\%) / 2$$

Where;

$\Delta I$  = the variation in interest charges applicable corresponding to variation in six-month KIBOR.  $\Delta I$  can be positive or negative depending upon whether  $KIBOR_{(REV)} >$  or  $<$  9.50%. The interest payment obligation will be enhanced or reduced to the extent of  $\Delta I$  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-II) on a semi-annual basis at the relevant calculations dates.

v) Return on Equity

Return on equity (ROE) as well as Return on Equity during Construction (ROEDC) component 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.

$ER_{(REF)}$  = 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 complete required information by the petitioner upon its 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:

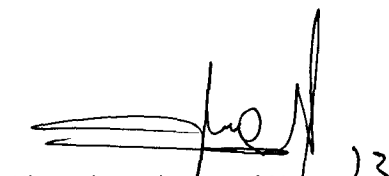
The power curve of the Hydel Power plant shall be verified by the Power Purchaser, as part of the Commissioning tests according to the latest IEC standards and shall be used to measure the performance of the hydel generating units.

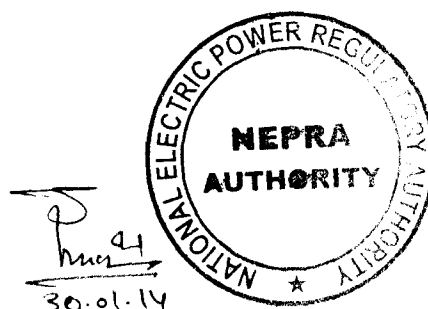
5. The above order is being communicated to NTDC in terms of regulation 4(5) of IPPR-2005.

AUTHORITY

  
31/12/2013  
Habibullah Khilji  
Member

  
31/12/13  
Major (Rtd) Haroon Rashid  
Member

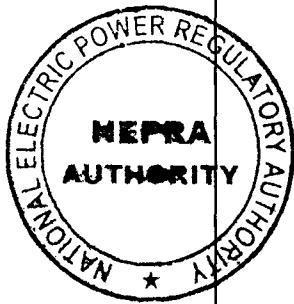
  
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Khawaja Muhammad Naeem  
Vice Chairman/Member



**AZAD PATTAN HYDROPOWER PROJECT  
ADVANCE TARIFF**

Year	Variable O&M Local	Water Use Charge	Fixed O&M Local	Fixed O & M Foreign	Insurance	Return on Equity	ROE During Construction	Loan Repayment	Interest Charges	Total Tariff
	Rs./kWh	Rs./kWh	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs./kW/M	Rs. / kWh
1	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	565.0986	700.3715	6.0501
2	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	602.5403	662.9299	6.0501
3	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	642.9260	622.5441	6.0501
4	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	686.5367	578.9334	6.0501
5	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	733.6846	531.7855	6.0501
6	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	784.7169	480.7533	6.0501
7	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	840.0200	425.4502	6.0501
8	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	900.0246	365.4455	6.0501
9	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	965.2111	300.2591	6.0501
10	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	1,036.1155	229.3546	6.0501
11	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	1,113.3366	152.1335	6.0501
12	0.2012	0.1500	72.4878	48.3252	103.2599	570.5061	221.8219	1,197.5438	67.9263	6.0501
13	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
14	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
15	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
16	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
17	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
18	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
19	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
20	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
21	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
22	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
23	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
24	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
25	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
26	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
27	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
28	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
29	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
30	0.2012	0.1500	72.4878	48.3252	103.2599	606.4345	221.8219			2.9794
<b>Levelized Tariff</b>	<b>0.2012</b>	<b>0.1500</b>	<b>72.4878</b>	<b>48.3252</b>	<b>103.2599</b>	<b>580.4658</b>	<b>221.8219</b>	<b>561.5511</b>	<b>353.1198</b>	<b>5.1989</b>

Levelized Tariff (1-30 years) discounted at 10% per annum = US Cents 5.3050/kWh at reference exchange rate of 1US\$=Rupees 98.00.

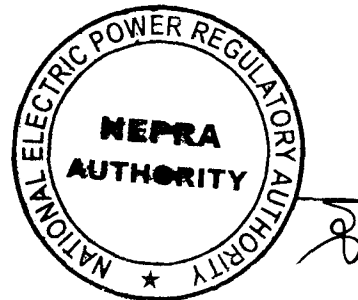


## AZAD PATTAN HYDROPOWER PROJECT

## Debt Servicing Schedule

Period	Foreign Debt					Local Debt					Annual Principal Repayment Million US\$	Annual Interest Million US\$	Annual Debt Servicing Million US\$	Annual Principal Repayment Rs./kW/M	Annual Interest Rs./kW/M	Annual Debt Servicing Rs./kW/M
	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$						
1	601.8897	18.2635	15.9501	583.6263	34.2135	184.2532	3.4476	11.7461	180.8056	15.1937	44.1259	54.6887	98.8145	565.0986	700.3715	1,265.4701
	583.6263	18.7474	15.4661	564.8788	34.2135	180.8056	3.6674	11.5264	177.1382	15.1937						
2	564.8788	19.2443	14.9693	545.6346	34.2135	177.1382	3.9012	11.2926	173.2371	15.1937	47.0495	51.7650	98.8145	602.5403	662.9299	1,265.4701
	545.6346	19.7542	14.4593	525.8803	34.2135	173.2371	4.1499	11.0439	169.0872	15.1937						
3	525.8803	20.2777	13.9358	505.6026	34.2135	169.0872	4.4144	10.7793	164.6728	15.1937	50.2030	48.6115	98.8145	642.9260	622.5441	1,265.4701
	505.6026	20.8151	13.3985	484.7875	34.2135	164.6728	4.6958	10.4979	159.9770	15.1937						
4	484.7875	21.3667	12.8469	463.4209	34.2135	159.9770	4.9952	10.1985	154.9818	15.1937	53.6084	45.2061	98.8145	686.5367	578.9334	1,265.4701
	463.4209	21.9329	12.2807	441.4880	34.2135	154.9818	5.3136	9.8801	149.6682	15.1937						
5	441.4880	22.5141	11.6994	418.9739	34.2135	149.6682	5.6524	9.5413	144.0158	15.1937	57.2899	41.5246	98.8145	733.6846	531.7855	1,265.4701
	418.9739	23.1107	11.1028	395.8632	34.2135	144.0158	6.0127	9.1810	138.0031	15.1937						
6	395.8632	23.7232	10.4904	372.1400	34.2135	138.0031	6.3960	8.7977	131.6070	15.1937	61.2748	37.5397	98.8145	784.7169	480.7533	1,265.4701
	372.1400	24.3518	9.8617	347.7882	34.2135	131.6070	6.8038	8.3899	124.8033	15.1937						
7	347.7882	24.9972	9.2164	322.7910	34.2135	124.8033	7.2375	7.9562	117.5658	15.1937	65.5931	33.2214	98.8145	840.0200	425.4502	1,265.4701
	322.7910	25.6596	8.5540	297.1314	34.2135	117.5658	7.6989	7.4948	109.8669	15.1937						
8	297.1314	26.3396	7.8740	270.7919	34.2135	109.8669	8.1897	7.0040	101.6772	15.1937	70.2786	28.5359	98.8145	900.0246	365.4455	1,265.4701
	270.7919	27.0376	7.1760	243.7543	34.2135	101.6772	8.7118	6.4819	92.9654	15.1937						
9	243.7543	27.7541	6.4595	216.0003	34.2135	92.9654	9.2672	5.9265	83.6982	15.1937	75.3687	23.4458	98.8145	965.2111	300.2591	1,265.4701
	216.0003	28.4895	5.7240	187.5107	34.2135	83.6982	9.8580	5.3358	73.8402	15.1937						
10	187.5107	29.2445	4.9690	158.2662	34.2135	73.8402	10.4864	4.7073	63.3538	15.1937	80.9053	17.9092	98.8145	1,036.1155	229.3546	1,265.4701
	158.2662	30.0195	4.1941	128.2467	34.2135	63.3538	11.1549	4.0388	52.1989	15.1937						
11	128.2467	30.8150	3.3985	97.4317	34.2135	52.1989	11.8660	3.3277	40.3329	15.1937	86.9351	11.8794	98.8145	1,113.3366	152.1335	1,265.4701
	97.4317	31.6316	2.5819	65.8001	34.2135	40.3329	12.6225	2.5712	27.7104	15.1937						
12	65.8001	32.4698	1.7437	33.3303	34.2135	27.7104	13.4272	1.7665	14.2832	15.1937	93.5105	5.3040	98.8145	1,197.5438	67.9263	1,265.4701
	33.3303	33.3303	0.8833	(0.0000)	34.2135	14.2832	14.2832	0.9106	(0.0000)	15.1937						

Reference: LIBOR at 0.55% plus 4.75% spread, KIBOR at 9.50% plus 3.25% spread.

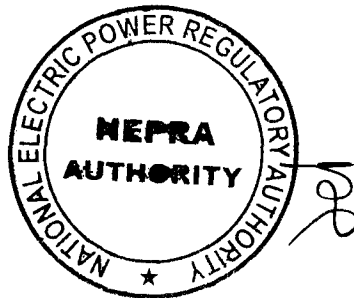


Annex-III

**AZAD PATTAN HYDROPOWER PROJECT**

**Approved Project Cost**

<b>Project cost</b>	<b>US\$ Mln</b>
Civil Works Cost	399.636
Electrical & Mechanical equipment	353.155
Infrastructure Cost	53.516
<b>EPC Cost</b>	<b>806.307</b>
<b>Other Project Costs</b>	
Insurance during construction	19.351
Land Acquisition & Resettlement	12.028
Owner's Engineer	22.440
Owner's Advisors/Consultants	8.532
Owner's Administration Cost	16.955
Environment Miltigation Cost	0.472
<b>Sub-Total</b>	<b>79.778</b>
Financing Cost/Charges	26.583
Interest during coonstruction	135.522
<b>Sub-Total</b>	<b>162.105</b>
<b>Total Project Cost</b>	<b>1048.190</b>



**AZAD PATTAN HYDROPOWER PROJECT**  
**Approved Annual O&M Cost**

Project annual O & M Cost	US\$ Mln	Rs/kW/Month
Fixed Local Component	5.6602	72.4878
Fixed Foreign Component	3.7735	48.3252
Insurance Expense	8.0631	103.2599
		<b>Rs/kWh</b>
Variable Local Component	6.2891	0.2012

