



Registrar

**National Electric Power Regulatory Authority
Islamic Republic of Pakistan**

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

No.NEPRAPAR-205/1058-1060
January 30, 2014

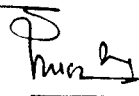
Subject: **Decision of the Authority in the matter of Power Acquisition Request filed by National Transmission and Despatch Company (NTDC) under the NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 for Permission to Negotiate Power Acquisition Contract in respect of 500 MW Chakothi Hattian Hydropower Project [Case # NEPRA/PAR-205]**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annexure I, II, III & (IV) (15 pages) in Case No. NEPRA/PAR-205.

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 500 MW Chakothi Hattian 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 500 MW electricity from Chakothi Hattian 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.

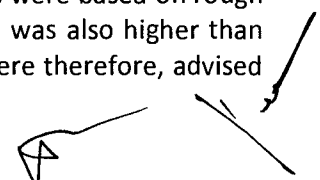
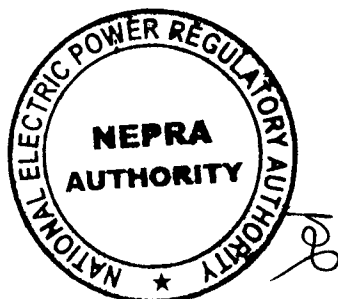
1.2 The Authority admitted the power acquisition request of NTDC as per regulation 4(1) of IPPR and in order to satisfy itself in respect of the prudence of the procurement and grant the power acquisition permission to NTDC for negotiating a power acquisition contract, the Authority decided to conduct 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 of 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, 8th 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 the NTDC

2.1. NTDC submitted that the project Feasibility Study envisages a Run-of-River scheme, consisting of an 88m high gravity dam on River Jhelum, 9.8 km downstream of the line of control. Diversion of the river flows through 2 concrete lined power tunnels 8560 m in length (8.5 m dia) and an underground power house with 4 Francis Turbine Units of 125 MW each, located on the left bank of Jhelum River immediately upstream of the head pond of Kohala HPP.

2.2 NTDC submitted that as per the requirements of the 2002 Power Policy, the sponsors submitted a Tariff Proposal to NTDC in August 2011 indicating a levelized tariff of US cents 9.727/kWh for a 30 year agreement term. The tariff proposal was based on the cost estimates given in the feasibility study at total project cost of US\$ 1242.650 million, debt: equity ratio of 75:25, debt term of 15 years (including grace period of 5 years) loan interest rate of LIBOR plus 475 basis points (the entire loan was assumed as foreign loan) and IRR on equity of 20%.

2.3 NTDC submitted that on scrutiny of the proposal it was revealed that some of the costs such as the Owner's Admn cost, Engineering & Supervision cost, Owner's advisors cost etc were based on rough percentages and were unrealistically high. The assumption of 20% IRR on equity was also higher than the 17% return allowed by NEPRA to other hydropower projects. The sponsors were therefore, advised



to lower the costs of certain specific items as well as the IRR and were asked to submit a revised tariff proposal.

2.4 NTDC further submitted that following a number of meetings with the representatives of the project sponsors, a levelized tariff of US cents 7.896/kWh was agreed based on total project cost of US\$ 1092.970 million.

2.5 The technical and financial details as submitted by the CPPA in a summarized form are given hereunder.

Technical parameters	
Installed /Contract Capacity	500 MW
Annual Estimated Energy	2409.88 GWh
Annual Plant Capacity Factor	55.02%

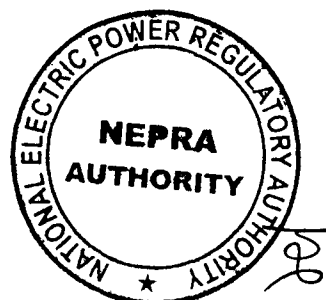
Project Cost	Feasibility costs US\$ Million)	Negotiated cost (US\$ Million)	(Dec.)/Increase (US\$ Million)
Civil works	552.110	552.110	0
Electrical & mechanical works	207.370	200.050	(7.320)
Other EPC costs i.e. Preliminary, building, establishment & Misc.	83.150	49.690	(33.46)
Mobilization cost	10.000	0.000	(10.000)
Total EPC Cost	852.630	801.850	(50.780)
Insurance during construction	22.110	20.046	(2.064)
Land acquisition & resettlement	31.790	31.790	0
Engineering & Supervision			
Owner's engineer	44.220	14.500	(29.720)
Owner's advisor	17.690	10.500	(7.190)
Lenders' advisors and agents	8.840	5.800	(3.040)
Owner administration & Overhead	48.640	22.200	(26.440)
Legal fee & charges	8.840	3.000	(5.858)
Environment & Ecology	8.840	8.019	(0.821)
O&M Mobilization	0	5.000	5.000
Custom Duties	0	7.318	7.318
L/C Commitment fee	8.840	0	(8.840)
Financial charges	26.520	23.662	(2.858)
Base Project Cost	1078.960	953.68	(125.280)
Interest during construction (IDC)	164.690	139.280	(25.410)
Total project cost	1243.650	1092.970	(150.690)

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 Chakothi Hattian Hydro Power Project for procurement of 500 MW of electricity in terms of regulation 4(1) of IPPR-2005. With regard to 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 of costs and other terms and conditions of tariff for Chakothi Hattian 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) Civil Works Cost – The NTDC’s negotiated cost for civil works US\$ 552.110 million which works out to be US\$ 1.101 million/MW is considered to be on the higher side as compared to other hydropower projects with same scope of civil works. The Authority has therefore decided to approve US\$ 475.000 million at this stage for the civil works cost on comparable basis while taking into account additional cost for construction of two underground tunnel (Head race tunnels).
- II) Land Acquisition & Resettlement Cost – The negotiated cost of US\$ 31.790 million is based on estimates and the actual cost will be known once the process of land acquisition and resettlement would be completed. However, keeping in view the requirement of funds for the instant project to carry out the process of land procurement and resettlement smoothly which is considered to be different from Azad Pattan Hydropower project being developed in the same area, the Authority has decided to approve US\$ 14.528 million at this stage subject to adjustment at COD in accordance with the approved Mechanism of Tariff for Hydropower Projects (hereinafter referred to as the “Hydropower Mechanism”) upon production of verifiable documentary evidence. Regarding cost for environment mitigation and ecology, the Authority has decided to allow US\$ 0.472 million on this account which is considered to be reasonable and is in line the with cost allowed to other hydropower projects for the same cost component.
- III) Owner’s Advisors/Consultants Cost - NTDC has proposed US\$ 10.500 million under the cost head of Owner’s Advisors and US\$ 3.000 million separately for the cost of legal advisor. The Authority, in other hydropower projects has allowed US\$ 8.532 million for the cost of owner’s advisors and consultants. Accordingly US\$ 8.532 million is approved for the cost of advisors and consultants as against NTDC’s total demand of US\$ 13.500 million.
- IV) Insurance during Construction – The Authority in its latest determinations of hydropower projects has allowed Insurance during Construction at 2.4% of the EPC cost. Accordingly, US\$ 17.394 million on the basis of 2.40% of the approved EPC cost is being allowed in the instant case well.
- V) O&M Mobilization Cost – The Authority has not allowed this cost component in the case of 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.
- VI) 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.



- VII) Terms of Debt financing – NTDC has proposed that the term of foreign and local financing will be 15 years including the proposed project construction period of 5 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 17 years term for both foreign and local financing including project construction period of 5 years.
- VIII) Annual O&M Cost – NTDC has negotiated US\$ 15.000 million for the annual O&M cost component comprising US\$ 14.000 million (93%) and US\$ 1.000 million (7%) for fixed and variable O&M cost respectively. The Authority considers that the overall O&M cost of US\$ 15.000 million per annum already negotiated by the NTDC is reasonable for a project of this size and therefore is approved. The Authority however does not agree with the proportion of total O&M cost allocated between fixed and variable O&M cost. In the Authority's opinion the risk of plant operation as per the requirements of power purchaser should be evenly balanced. In view hereof the Authority has decided to approve 60% of the total O&M cost for Fixed O&M and 40% for the variable O&M cost as per the detailed breakup of foreign and local cost given at IV attached herewith.
- ix) Insurance during Operations - NTDC has requested US\$ 10.830 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 other hydropower projects has allowed annual insurance expense at 1.00% of the EPC cost. Accordingly, US\$ 7.247 million based at 1.00% of the approved EPC cost is approved for the project.

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
Variable Charge (Rs/kWh)			
Variable O&M – Local	0.2440	0.2440	CPI
Water Use Charge	0.1500	0.1500	CPI
Fixed Charge (Rs/kW/M)			
Fixed O&M – Local	88.2000	88.2000	CPI
Fixed O&M – Foreign	58.8000	58.8000	PKR/US\$, US CPI
Insurance	118.3742	118.3742	PKR/US\$
Debt Service	1491.3219	-	LIBOR, KIBOR
Return on Equity	676.2669	718.8558	PKR/US\$
Return on equity during construction (ROEDC)	379.1820	379.1820	PKR/US\$

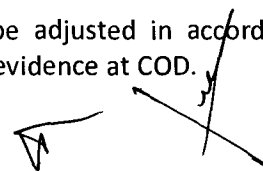
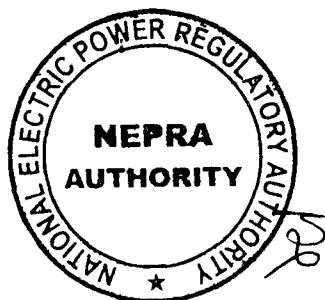
- i. The reference tariff has been calculated on the basis of net contracted capacity of 500 MW and net annual energy production of 2410 GWh.



- 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 to 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 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 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 3-months LIBOR & KIBOR during the project construction period of 60 months (5 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\$ 14.528 milli on 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.

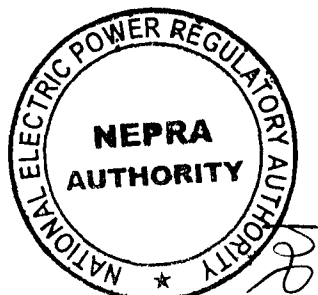
Withholding tax on dividends is also a pass through item just like other taxes as indicated in the government Guidelines. Withholding tax shall be paid @ 7.5% of the return on equity (including return on equity during construction). The Power Purchaser shall make payment on account of withholding tax 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

$$\begin{aligned} F O\&M_{(LREV)} &= O\&M_{(LREF)} * CPI_{(REV)} / 185.180 \\ F O\&M_{(FREV)} &= O\&M_{(FREF)} * USCPI_{(REV)} / 231.407 * ER_{(REV)} / 98 \end{aligned}$$

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.

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

$USCPI_{(REF)}$ = 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:

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

Where;

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

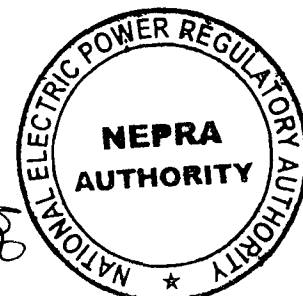
$WUC_{(REF)}$ = The reference Water Use Charge component of tariff for the relevant period.

$CPI_{(REV)}$ = 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 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 1.0% of the EPC cost on production of authentic documentary evidence by the Petitioner, according to the following formula:



$$\text{Ins}_{(REV)} = \text{Ins}_{(REF)} * \text{ER}_{(REV)}/\text{ER}_{(REF)}$$

Where;

$\text{Ins}_{(REV)}$ = Revised Insurance cost component of tariff adjusted with the exchange rate variation (PKR/US\$)

$\text{Ins}_{(REF)}$ = Reference insurance cost component of tariff for the relevant period.

$\text{ER}_{(REV)}$ = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan.

$\text{ER}_{(REF)}$ = 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 3-months LIBOR, while spread of 4.75% on LIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (\text{LIBOR}_{(REV)} - 0.42\%) / 4$$

Where;

ΔI = the variation in interest charges applicable corresponding to variation in three-month LIBOR. ΔI can be positive or negative depending upon whether $\text{LIBOR}_{(REV)} >$ or $<$ 0.42%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each period under adjustment applicable on quarterly basis.

$P_{(REV)}$ = the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a quarterly 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 3-months KIBOR, while spread of 3.25% on KIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (\text{KIBOR}_{(REV)} - 9.50\%) / 4$$

Where;

ΔI = the variation in interest charges applicable corresponding to variation in three-month KIBOR. ΔI can be positive or negative depending upon whether $\text{KIBOR}_{(REV)} >$ or $<$ 9.50%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each period under adjustment applicable on quarterly basis.



$P_{(REV)}$ = the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a quarterly 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.

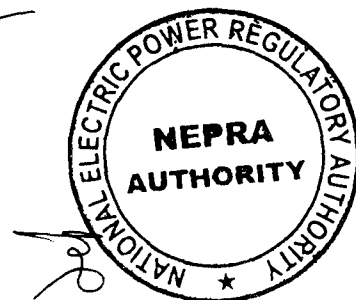
V. Other Terms and Conditions of Tariff

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.

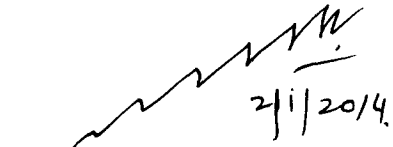
Power Curve of the Hydel Power Complex:


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.

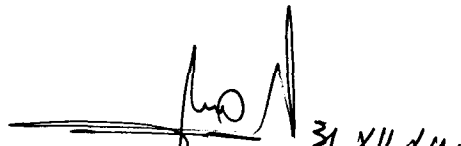


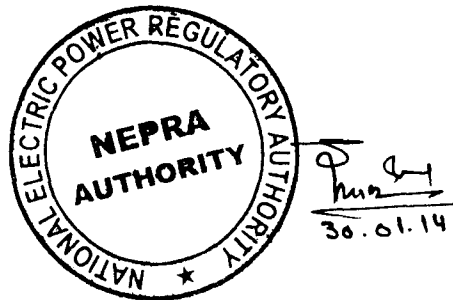
5. The above order is being communicated to NTDC in terms of regulation 4(5) of IPPR-2005.

AUTHORITY


21/1/2014
Habibullah Khilji
Member


11/1/14
Major ^(Rtd) Haroon Rashid
Member

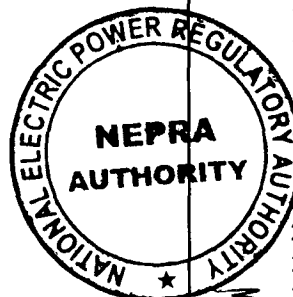

31 XII 2011
Khawaja Muhammad Naeem
Vice Chairman/Member



**CHAKOTHI HATTIAN HYDROPOWER PROJECT
ADVANCE TARIFF**

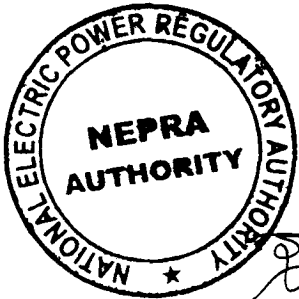
Year	Variable O&M Local	Water Use Charge	Fixed O&M Local	Fixed O & M Foreign	Insurance	Return on Equity	ROE During Construction	Loan Repayment	Interest Charges	Total Tariff
	Rs./kWh	Rs./kWh	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs. / kW/M	Rs./kW/M	Rs. / kWh
1	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	668.7129	822.6091	7.3952
2	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	712.9826	778.3394	7.3952
3	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	760.7921	730.5298	7.3952
4	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	812.4895	678.8325	7.3952
5	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	868.4624	622.8595	7.3952
6	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	929.1437	562.1782	7.3952
7	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	995.0166	496.3053	7.3952
8	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	1,066.6213	424.7007	7.3952
9	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	1,144.5620	346.7599	7.3952
10	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	1,229.5154	261.8066	7.3952
11	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	1,322.2394	169.0825	7.3952
12	0.2440	0.1500	88.2000	58.8000	118.3742	676.2669	379.1820	1,423.5840	67.7380	7.3952
13	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
14	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
15	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
16	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
17	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
18	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
19	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
20	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
21	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
22	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
23	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
24	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
25	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
26	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
27	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
28	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
29	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
30	0.2440	0.1500	88.2000	58.8000	118.3742	718.8558	379.1820			3.7884
Levelized Tariff	0.2440	0.1500	88.2000	58.8000	118.3742	688.0729	379.1820	665.3377	412.5768	6.3953

Levelized Tariff (1-30 years) discounted at 10% per annum = US Cents 6.5259/kWh at reference exchange rate of 1US\$=Rupees 98.00.



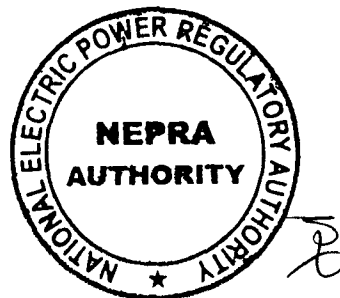
CHAKOTHI HATTIAN HYDROPOWER PROJECT
Debt Servicing Schedule

Period	Foreign Debt					Local Debt					Annual Principal Repayment Rs./kW/Month	Annual Interest Rs./kW/Month	Annual Debt Servicing Rs./kW/Month
	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$			
	551.7606	8.3674	7.1315	543.3932	15.4989	178.8999	1.6250	5.7024	177.2749	7.3274			
	543.3932	8.4756	7.0234	534.9176	15.4989	177.2749	1.6768	5.6506	175.5981	7.3274			
	534.9176	8.5851	6.9138	526.3325	15.4989	175.5981	1.7302	5.5972	173.8679	7.3274			
	526.3325	8.6961	6.8028	517.6364	15.4989	173.8679	1.7854	5.5420	172.0825	7.3274			
1	551.7606	34.1242	27.8715	517.6364	61.9957	178.8999	6.8174	22.4923	172.0825	29.3097	668.7129	822.6091	1,491.3219
	517.6364	8.8085	6.6905	508.8279	15.4989	172.0825	1.8423	5.4851	170.2402	7.3274			
	508.8279	8.9223	6.5766	499.9056	15.4989	170.2402	1.9010	5.4264	168.3392	7.3274			
	499.9056	9.0377	6.4613	490.8680	15.4989	168.3392	1.9616	5.3658	166.3776	7.3274			
	490.8680	9.1545	6.3445	481.7135	15.4989	166.3776	2.0241	5.3033	164.3534	7.3274			
2	517.6364	35.9229	26.0728	481.7135	61.9957	172.0825	7.7291	21.5806	164.3534	29.3097	712.9826	778.3394	1,491.3219
	481.7135	9.2728	6.2261	472.4407	15.4989	164.3534	2.0887	5.2388	162.2648	7.3274			
	472.4407	9.3926	6.1063	463.0481	15.4989	162.2648	2.1552	5.1722	160.1095	7.3274			
	463.0481	9.5140	5.9849	453.5340	15.4989	160.1095	2.2239	5.1035	157.8856	7.3274			
	453.5340	9.6370	5.8619	443.8970	15.4989	157.8856	2.2948	5.0326	155.5908	7.3274			
3	481.7135	37.8165	24.1793	443.8970	61.9957	164.3534	8.7627	20.5470	155.5908	29.3097	760.7921	730.5298	1,491.3219
	443.8970	9.7616	5.7374	434.1355	15.4989	155.5908	2.3680	4.9595	153.2228	7.3274			
	434.1355	9.8877	5.6112	424.2478	15.4989	153.2228	2.4434	4.8840	150.7793	7.3274			
	424.2478	10.0155	5.4834	414.2322	15.4989	150.7793	2.5213	4.8061	148.2580	7.3274			
	414.2322	10.1450	5.3540	404.0872	15.4989	148.2580	2.6017	4.7257	145.6563	7.3274			
4	443.8970	39.8098	22.1859	404.0872	61.9957	155.5908	9.9345	19.3752	145.6563	29.3097	812.4895	678.8325	1,491.3219
	404.0872	10.2761	5.2228	393.8111	15.4989	145.6563	2.6846	4.6428	142.9717	7.3274			
	393.8111	10.4089	5.0900	383.4022	15.4989	142.9717	2.7702	4.5572	140.2015	7.3274			
	383.4022	10.5435	4.9555	372.8588	15.4989	140.2015	2.8585	4.4689	137.3430	7.3274			
	372.8588	10.6797	4.8192	362.1790	15.4989	137.3430	2.9496	4.3778	134.3934	7.3274			
5	404.0872	41.9082	20.0875	362.1790	61.9957	145.6563	11.2630	18.0467	134.3934	29.3097	868.4624	622.8595	1,491.3219
	362.1790	10.8178	4.6812	351.3613	15.4989	134.3934	3.0436	4.2838	131.3497	7.3274			
	351.3613	10.9576	4.5413	340.4037	15.4989	131.3497	3.1407	4.1868	128.2091	7.3274			
	340.4037	11.0992	4.3997	329.3045	15.4989	128.2091	3.2408	4.0867	124.9683	7.3274			
	329.3045	11.2427	4.2563	318.0618	15.4989	124.9683	3.3441	3.9834	121.6242	7.3274			
6	362.1790	44.1172	17.8785	318.0618	61.9957	134.3934	12.7691	16.5406	121.6242	29.3097	929.1437	562.1782	1,491.3219
	318.0618	11.3880	4.1109	306.6738	15.4989	121.6242	3.4507	3.8768	118.1736	7.3274			
	306.6738	11.5352	3.9638	295.1386	15.4989	118.1736	3.5606	3.7668	114.5129	7.3274			
	295.1386	11.6843	3.8147	283.4544	15.4989	114.5129	3.6741	3.6533	110.9388	7.3274			
	283.4544	11.8353	3.6636	271.6191	15.4989	110.9388	3.7913	3.5362	107.1476	7.3274			
7	318.0618	46.4427	15.5530	271.6191	61.9957	121.6242	14.4767	14.8330	107.1476	29.3097	995.0166	496.3053	1,491.3219
	271.6191	11.9883	3.5107	259.6308	15.4989	107.1476	3.9121	3.4153	103.2355	7.3274			
	259.6308	12.1432	3.3557	247.4876	15.4989	103.2355	4.0368	3.2906	99.1987	7.3274			
	247.4876	12.3002	3.1988	235.1875	15.4989	99.1987	4.1655	3.1620	95.0332	7.3274			
	235.1875	12.4591	3.0398	222.7284	15.4989	95.0332	4.2982	3.0292	90.7350	7.3274			
8	271.6191	48.8907	13.1050	222.7284	61.9957	107.1476	16.4126	12.8971	90.7350	29.3097	1,066.6213	424.7007	1,491.3219
	222.7284	12.6202	2.8788	210.1082	15.4989	90.7350	4.4352	2.8922	86.2997	7.3274			
	210.1082	12.7833	2.7156	197.3249	15.4989	86.2997	4.5766	2.7508	81.7231	7.3274			
	197.3249	12.9485	2.5504	184.3764	15.4989	81.7231	4.7225	2.6049	77.0006	7.3274			
	184.3764	13.1159	2.3831	171.2605	15.4989	77.0006	4.8730	2.4544	72.1276	7.3274			
9	222.7284	51.4678	10.5279	171.2605	61.9957	90.7350	18.6074	10.7023	72.1276	29.3097	1,144.5620	346.7599	1,491.3219
	171.2605	13.2854	2.2135	157.9751	15.4989	72.1276	5.0284	2.2991	67.0992	7.3274			
	157.9751	13.4571	2.0418	144.5180	15.4989	67.0992	5.1886	2.1388	61.9106	7.3274			
	144.5180	13.6310	1.8679	130.8870	15.4989	61.9106	5.3540	1.9734	56.5565	7.3274			
	130.8870	13.8072	1.6917	117.0798	15.4989	56.5565	5.5247	1.8027	51.0318	7.3274			
10	171.2605	54.1807	7.8150	117.0798	61.9957	72.1276	21.0957	8.2140	51.0318	29.3097	1,229.5154	261.8066	1,491.3219
	117.0798	13.9857	1.5133	103.0941	15.4989	51.0318	5.7008	1.6266	45.3311	7.3274			
	103.0941	14.1664	1.3325	88.9277	15.4989	45.3311	5.8825	1.4449	39.4486	7.3274			
	88.9277	14.3495	1.1494	74.5781	15.4989	39.4486	6.0700	1.2574	33.3786	7.3274			
	74.5781	14.5350	0.9639	60.0431	15.4989	33.3786	6.2635	1.0639	27.1151	7.3274			
11	117.0798	57.0367	4.9591	60.0431	61.9957	51.0318	23.9168	5.3929	27.1151	29.3097	1,322.2394	169.0825	1,491.3219
	60.0431	14.7229	0.7761	45.3202	15.4989	27.1151	6.4631	0.8643	20.6519	7.3274			
	45.3202	14.9132	0.5858	30.4071	15.4989	20.6519	6.6691	0.6583	13.9828	7.3274			
	30.4071	15.1059	0.3930	15.3012	15.4989	13.9828	6.8817	0.4457	7.1011	7.3274			
	15.3012	15.3012	0.1978	0.0000	15.4989	7.1011	7.1011	0.2263	0.0000	7.3274			
12	60.0431	60.0431	1.9526	0.0000	61.9957	27.1151	27.1151	2.1946	0.0000	29.3097	1,423.5840	67.7380	1,491.3219



CHAKOTHI HATTIAN HYDROPOWER PROJECT
Approved Project Cost

Project cost	US\$ Mln
Civil Works Cost	475.000
Electrical & Mechanical equipment	200.050
Infrastructure Cost	49.690
EPC Cost	724.740
Other Project Costs	
Insurance during construction	17.394
Land Acquisition & Resettlement	14.528
Owner's Engineer	14.500
Owner's Advisors/Consultants	8.532
Owner's Administration Cost	16.650
Environment Miltigation Cost	0.472
Sub-Total	72.076
Financing Cost/Charges	23.904
Interest during coonstruction	153.494
Sub-Total	177.398
Total Project Cost	974.214



CHAKOTHI HATTIAN HYDROPOWER PROJECT
Approved Annual O&M Cost

Project annual O & M Cost	US\$ Mln	Rs/kW/Month
Fixed Local Component	5.400	88.2000
Fixed Foreign Component	3.600	58.8000
Insurance Expense	7.247	118.3742
		Rs/kWh
Variable Local Component	6.000	0.2440

