



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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Registrar

No. NEPRA/R/TRF-81/SHYDO-2007/8228-30
Dated: June 12, 2008

Subject: **Determination of the Authority in the matter of Tariff Petition filed by SHYDO for its Malakand-III Hydropower project (Case No. NEPRA/TRF-81/SHYDO-2007).**

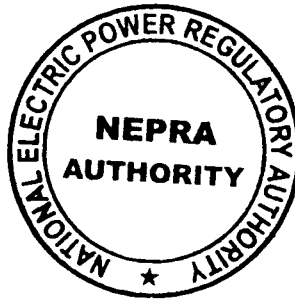
Dear Sir,

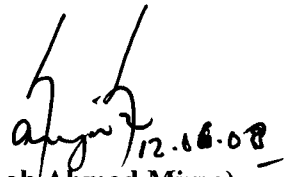
In continuation of this office letter No. NEPRA/R/TRF-81/SHYDO-2007/7021-23 dated 2nd April 2008, whereby Determination of the Authority in respect of Tariff Petition of Sarhad Hydel Development Organization (SHYDO) for Malakand-III Hydropower project was sent, enclosed please find herewith the following corrigendum/addendum.

1. The figure of 61 given in the formula for 'Fixed O&M' under 'Indexations' item (a) (i) at Page 16 of the Determination of the Authority, be replaced with the figure 60.
2. The figure of 61 given in the formula for 'Variable O&M' under 'Indexations' item (a) (ii) at Page 16 of the Determination of the Authority, be replaced with the figure 60.
3. The figure of 61 given in the formula for 'Insurance' under 'Indexations' item (c) at Page 17 of the Determination of the Authority, be replaced with the figure 60.

In view of above mentioned amendments, the revised order of the Authority for the purpose of clarity is also sent herewith for notification in the official gazette.

The Secretary
Cabinet Division
Government of Pakistan
Islamabad




(Mahjoob Ahmad Mirza)

Copy to;

1. Secretary, Ministry of Water & Power, Islamabad.
2. Secretary, Ministry of Finance, Islamabad.

ORDER OF THE AUTHORITY
IN CASE NO. NEPRA/TRF-81/SHYDO-2007
TO BE NOTIFIED IN THE OFFICIAL GAZETTE

Pursuant to Rule-6 of the NEPRA Licensing (Generation) Rules 2000, Sarhad Hydel Development Organisation (hereinafter "SHYDO") is allowed to charge for its Malakand-III Hydropower, the following specified/approved tariff for delivery of electricity to the Central Power Purchase Agency (hereinafter "CPPA").

Tariff Components	Year 1-7 Rs/kWh	Year 8-10 Rs/kWh	Year 11-25 Rs/kWh	Indexation
Fixed Charges				
Fixed O&M Local	0.0723	0.0723	0.0723	WPI
Fixed O&M Foreign	0.2169	0.2169	0.2169	US\$/PKR & US CPI
Insurance	0.1164	0.1164	0.1164	US\$/PKR
Debt Service	1.5692	1.4179	-	KIBOR
Return on Equity	0.7868	0.7868	0.7868	US\$/PKR
ROE during Construction	0.3606	0.3606	0.3606	US\$/PKR
Variable Charge				
Variable O&M	0.1000	0.1000	0.1000	US\$/PKR & US CPI
Water Use Charge	0.1500	0.1500	0.1500	WPI
Total	3.3722	3.2209	1.8030	

- i) The reference tariff has been calculated on the basis of benchmark annual energy production of 553.160 GWh.
- ii) Payment on account of hydrological risk shall be made by the Power Purchaser on the basis of benchmark monthly energy production based on the average historic hydrology for that particular month.
- iii) In the above tariff no adjustment for CERs has been accounted for. However, upon actual realization of CERs, the same shall be distributed between the Power Purchaser and SHYDO in accordance with the approved mechanism as given in the Federal Government's Policy for Renewables.
- iv) The above tariff is applicable for a period of twenty five (25) years commencing from the date of COD.
- v) The component wise tariff is indicated at Annex-1. Debt Service Schedule is attached as Annex-II.

The following indexations shall be applicable to reference tariff;



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I. One Time Adjustment

(i) Cost of Debt

- a. The Principal repayment and the cost of debt shall be adjusted at Financial Closing as per actual borrowing composition i.e Local and/or Foreign as the case may be.
- b. Interest During Construction (IDC) shall be adjusted at COD according to actual disbursement of loan and Interest.
- c. After COD, Interest part of the tariff component shall be adjusted on quarterly basis for variation in Karachi Inter Bank Offer Rate (KIBOR).

(ii) Adjustment for variation during construction

Debt Service, ROE and ROE during construction shall be adjusted on account of actual variation in interest on the basis of actual drawdown for the period during construction at the COD. SHYDO shall submit relevant documents to NEPRA within seven (7) days of COD for adjustment of relevant tariff components.

II. Pass-Through Items

No provision for income tax has been accounted for in the tariff. If SHYDO is obligated to pay any tax, the exact amount paid by the company shall be reimbursed by the Power Purchaser to SHYDO on production of original receipts. This payment should be considered as pass-through payment (as Rs./kWh) spread over a twelve (12) months period in addition to fixed charges proposed in the Reference Tariff. Furthermore, in such a scenario, SHYDO may also submit to the Power Purchaser details of any tax savings and Power Purchaser will deduct the amount of these savings from its payment to SHYDO on account of taxation.

Withholding tax 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 reference equity. 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

$ROEDC_{(Ref)}$ = Reference Return on Equity During Construction

In case Company does not declare a dividend in a 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 from the Power Purchaser in future on the basis of the total dividend pay out.

III. Hydrological Risk

Hydrological risk will be borne by the Power Purchaser and shall be paid on the following basis.

The investor/sponsor shall receive an assured minimum amount every month from the Power Purchaser to cover its fixed costs (Fixed O&M, debt servicing, insurance charge and ROE etc) in case the plant is available but sufficient water is not available to generate electricity at least equal to the average historic hydrology for a particular month.

IV. Indexations:

The following indexation shall be applicable to the reference tariff;

(a) Indexation applicable to O&M

The local part of O&M cost will be adjusted on account of Inflation (WPI) and O&M foreign component will be adjusted on account of variation in dollar/Rupee exchange rate 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 (notified by the Federal Bureau of Statistics), US CPI (notified by US Bureau of Labor Statistics) and revised TT & OD Selling rate of US Dollar as notified by the National Bank of Pakistan. The mode of indexation will be as under:

(i) Fixed O&M

$$F O\&M_{(LREV)} = 0.0723 * WPI_{(REV)} / 124.36$$

$$F O\&M_{(FREV)} = 0.2169 * US\ CPI_{(REV)} / 208.49 * ER_{(REV)} / 60$$

Where:

$F O\&M_{(LREV)}$ = the revised applicable Fixed O&M Local Component of the Fixed Charges indexed with WPI



$F O\&M_{(FREV)}$ = the revised applicable Fixed O&M Foreign Component of the Fixed Charges indexed with US CPI and Currency fluctuation

$WPI_{(REV)}$ = the Revised wholesale Price Index (manufactures)

$WPI_{(REF)}$ = 124.36 wholesale price index (manufactures) of September 2007 notified by the Federal Bureau of Statistics

$US\ CPI_{(REF)}$ = 208.49 US CPI notified by bureau of labor statistics (All urban consumers) for the month of September 2007.

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

(ii) Variable O&M

The formula for indexation of Variable O & M component will be as under:

$$V O\&M_{(FREV)} = 0.1000 * US\ CPI_{(REV)}/208.49 * ER_{(REV)}/60$$

Where:

$VO\&M_{(FREV)}$ = The revised applicable Variable O&M Foreign component indexed with US CPI and currency fluctuation.

$US\ CPI_{(REF)}$ = 208.49 US CPI for the month of September 2007

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

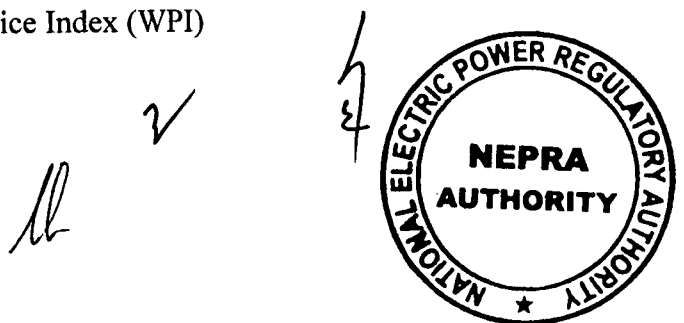
(b) Water Use Charge

Water Use Charge will be paid on units delivered basis and will be indexed with Wholesale Price Index (WPI) annually from date of COD. The first such adjustment shall be made after one year of commercial operation from COD.

$$WUC_{(REV)} = 0.1500 * WPI_{(REV)}/WPI_{(REF)}$$

Where;

$WUC_{(REV)}$ = The revised Water Use Charge component indexed with Whole Sale Price Index (WPI)



$WPI_{(REV)}$ = The Revised wholesale Price Index (manufactures)
 $WPI_{(REF)}$ = Reference wholesale price index (manufactures) of the latest available month preceding to the date of COD as notified by the Federal Bureau of Statistics

(c) Insurance

Insurance cost component of tariff will be adjusted on account of US\$/PKR exchange rate variation at COD and thereafter on annual basis as per the following formula:

$$I_{(REV)} = 0.1164 * ER_{(REV)}/60$$

Where;

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

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

(d) 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 interest rate as a result of quarterly variation in three (3) month KIBOR, while premium over KIBOR remaining the same i.e 1.4% for Debt-I and 3% for Debt-II, according to the following formula:


$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 10.00\%) / 4$$

Where:

ΔI = the variation in interest charges applicable corresponding to variation in three month KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(REV)} >$ or $<$ 10.00%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

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Note:-

- i). In case of Foreign borrowing LIBOR adjustment will be made on quarterly basis according to the above mentioned mechanism.
- ii). Adjustment on account of inflation, local inflation, foreign exchange variation and LIBOR/KIBOR variation will be approved and announced by the Authority within seven working days after receipt of SHYDO's request for adjustment in accordance with the requisite indexation mechanism stipulated hereinabove.

V. 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.

Delivery Point:

As per Article 11 of the Generation Licence, SHYDO shall deliver power at 132 kV at the door step of its generating facility. Up-gradation of generation voltage up to 132 kV will be the responsibility of SHYDO.

Emissions Trading/Carbon Credits:

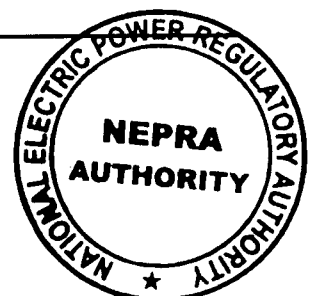
SHYDO would process and obtain emissions/carbon credits expeditiously and credit the proceeds to the Power Purchaser as per the policy issued by the Federal Government and agreed terms between the generator and the purchaser.

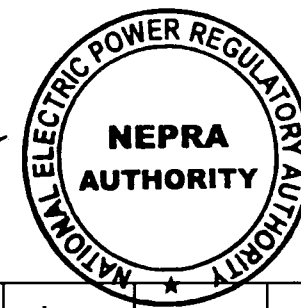
The above tariff and terms and conditions will be incorporated as the specified tariff approved by the Authority pursuant to Rule-6 of NEPRA Licencing (Generation) Rules, in the Power Purchase Agreement between SHYDO and CPPA. The tariff and terms and conditions along with reference tariff table and debt service schedule as attached thereto are recommended for notification by the Federal Government in the official gazette in accordance with the Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

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Annex-I

(SHYDO) MALAKAND-III HYDROPOWER
REFERENCE TARIFF

Year	Variable O&M	Water Use Charge	Fixed O&M Local	Fixed O&M Foreign	Insurance	Return on Equity	ROE During Construction	Withholding Tax @7.5%	Loan Repayment	Interest Charges	Tariff *	
	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	¢ / kWh
1	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.4861	1.0832	3.4583	5.6694
2	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.5511	1.0181	3.4583	5.6694
3	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.6249	0.9443	3.4583	5.6694
4	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.7086	0.8606	3.4583	5.6694
5	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.8036	0.7656	3.4583	5.6694
6	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.9113	0.6579	3.4583	5.6694
7	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	1.0335	0.5358	3.4583	5.6694
8	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	1.0141	0.4038	3.3070	5.4213
9	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	1.1525	0.2654	3.3070	5.4213
10	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	1.3098	0.1081	3.3070	5.4213
11	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
12	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
13	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
14	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
15	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
16	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
17	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
18	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
19	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
20	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
21	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
22	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
23	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
24	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
25	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	-	-	1.8891	3.0969
Levelized Tariff	0.1000	0.1500	0.0723	0.2169	0.1164	0.7868	0.3606	0.0861	0.5356	0.5054	2.9301	4.8034

* The above rate is limited to an annual energy production up to 553.160 GWh. Any generated energy beyond 553.160 GWh in a year will be charged at 10% of the Reference Tariff for that year.

(SHYDO) MALAKAND-III HYDROPOWER
Debt Servicing Schedule

Period	Local Debt-II					Local Debt-I					Annual Principal Repayment Rs Min	Annual Interest Rs. Min	Annual Debt Servicing Rs. Min
	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$			
	71.39	0.89	2.32	70.49	3.2145	6.56	0.16	0.19	6.40	0.3431			
	70.49	0.92	2.29	69.57	3.2145	6.40	0.16	0.18	6.24	0.3431			
	69.57	0.95	2.26	68.62	3.2145	6.24	0.17	0.18	6.08	0.3431			
	68.62	0.98	2.23	67.63	3.2145	6.08	0.17	0.17	5.91	0.3431			
1	71.39	3.76	9.10	67.63	12.8578	6.56	0.65	0.72	5.91	1.3723	268.8642	599.1759	868.0401
	67.63	1.02	2.20	66.62	3.2145	5.91	0.17	0.17	5.73	0.3431			
	66.62	1.05	2.17	65.57	3.2145	5.73	0.18	0.16	5.55	0.3431			
	65.57	1.08	2.13	64.48	3.2145	5.55	0.18	0.16	5.37	0.3431			
	64.48	1.12	2.10	63.36	3.2145	5.37	0.19	0.15	5.18	0.3431			
2	67.63	4.27	8.59	63.36	12.8578	5.91	0.73	0.64	5.18	1.3723	304.8613	563.1788	868.0401
	63.36	1.16	2.06	62.21	3.2145	5.18	0.20	0.15	4.98	0.3431			
	62.21	1.19	2.02	61.02	3.2145	4.98	0.20	0.14	4.78	0.3431			
	61.02	1.23	1.98	59.79	3.2145	4.78	0.21	0.14	4.57	0.3431			
	59.79	1.27	1.94	58.51	3.2145	4.57	0.21	0.13	4.36	0.3431			
3	63.36	4.85	8.01	58.51	12.8578	5.18	0.82	0.56	4.36	1.3723	345.6882	522.3519	868.0401
	58.51	1.31	1.90	57.20	3.2145	4.36	0.22	0.12	4.14	0.3431			
	57.20	1.36	1.86	55.85	3.2145	4.14	0.23	0.12	3.92	0.3431			
	55.85	1.40	1.81	54.45	3.2145	3.92	0.23	0.11	3.68	0.3431			
	54.45	1.44	1.77	53.00	3.2145	3.68	0.24	0.10	3.45	0.3431			
4	58.51	5.51	7.35	53.00	12.8578	4.36	0.91	0.46	3.45	1.3723	391.9944	476.0457	868.0401
	53.00	1.49	1.72	51.51	3.2145	3.45	0.24	0.10	3.20	0.3431			
	51.51	1.54	1.67	49.97	3.2145	3.20	0.25	0.09	2.95	0.3431			
	49.97	1.59	1.62	48.38	3.2145	2.95	0.26	0.08	2.69	0.3431			
	48.38	1.64	1.57	46.74	3.2145	2.69	0.27	0.08	2.42	0.3431			
5	53.00	6.26	6.59	46.74	12.8578	3.45	1.02	0.35	2.42	1.3723	444.5165	423.5236	868.0401
	46.74	1.70	1.52	45.04	3.2145	2.42	0.27	0.07	2.15	0.3431			
	45.04	1.75	1.46	43.29	3.2145	2.15	0.28	0.06	1.87	0.3431			
	43.29	1.81	1.41	41.48	3.2145	1.87	0.29	0.05	1.58	0.3431			
	41.48	1.87	1.35	39.62	3.2145	1.58	0.30	0.04	1.28	0.3431			
6	46.74	7.12	5.74	39.62	12.8578	2.42	1.14	0.23	1.28	1.3723	504.0906	363.9495	868.0401
	39.62	1.93	1.29	37.69	3.2145	1.28	0.31	0.04	0.97	0.3431			
	37.69	1.99	1.22	35.70	3.2145	0.97	0.32	0.03	0.66	0.3431			
	35.70	2.05	1.16	33.65	3.2145	0.66	0.32	0.02	0.33	0.3431			
	33.65	2.12	1.09	31.52	3.2145	0.33	0.33	0.01	-	0.3431			
7	39.62	8.09	4.77	31.52	12.8578	1.28	1.28	0.09	-	1.3723	571.6651	296.3749	868.0401
	31.52	2.19	1.02	29.33	3.2145	0	0	0	0	0			
	29.33	2.26	0.95	27.07	3.2145	0	0	0	0	0			
	27.07	2.33	0.88	24.74	3.2145	0	0	0	0	0			
	24.74	2.41	0.80	22.33	3.2145	0	0	0	0	0			
8	31.52	9.20	3.66	22.33	12.8578	0	0	0	0	0	560.9566	223.3706	784.3272
	22.33	2.49	0.73	19.84	3.2145	0	0	0	0	0			
	19.84	2.57	0.64	17.27	3.2145	0	0	0	0	0			
	17.27	2.65	0.56	14.62	3.2145	0	0	0	0	0			
	14.62	2.74	0.48	11.88	3.2145	0	0	0	0	0			
9	22.33	10.45	2.41	11.88	12.8578	0	0	0	0	0	637.5136	146.8135	784.3272
	11.88	2.83	0.39	9.05	3.2145	0	0	0	0	0			
	9.05	2.92	0.29	6.13	3.2145	0	0	0	0	0			
	6.13	3.02	0.20	3.11	3.2145	0	0	0	0	0			
	3.11	3.11	0.10	(0.00)	3.2145	0	0	0	0	0			
10	11.88	11.88	0.98	(0.00)	12.8578	0	0	0	0	0	724.5189	59.8083	784.3272

