



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

Registrar

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No.NEPRA/R/TRF-90/FPCDL-2007/8298-8300
June 13, 2008

Subject: **Determination of the Authority in the Matter of Generation Tariff Petition filed by Foundation Power Company (Daharki) Ltd. (FPCDL) (Case # NEPRA/TRF-90/FPCDL-2007)**
Intimation of Determination of Tariff pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997)

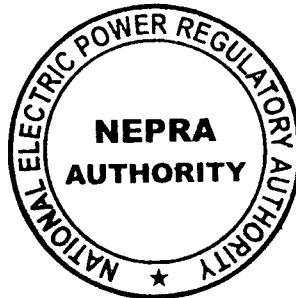
Dear Sir,


Please find enclosed the subject Determination of the Authority along with Annexure-I & II (28 pages) in Case No. NEPRA/TRF-90/FPCDL-2007.

2. The Determination is being intimated to the Federal Government for the purpose of notification of the approved tariff in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997) and Rule 16(11) of the National Electric Power Regulatory Authority Tariff (Standards and Procedure) Rules, 1998.

3. Please note that only Order of the Authority at para 19 of the Determination relating to the reference tariff, adjustments & indexation along with Annexure-I & II needs to be notified in the official gazette. The Order is reproduced for the purpose of clarity and is attached herewith.

Enclosure: As above




13.06.08
(Mahjoob Ahmad Mirza)

The Secretary
Cabinet Division
Government of Pakistan
Cabinet Secretariat
Islamabad

CC:

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

ORDER OF THE AUTHORITY
IN CASE NO. NEPRA/TRF-90/FPCDL-2007
TO BE NOTIFIED IN THE OFFICIAL GAZETTE

Pursuant to Rule 6 of the NEPRA Licensing (Generation) Rules 2000, Foundation Power Company (Daharki) Limited (FPCDL) is allowed to charge, subject to adjustment of Capacity Purchase Price on account of net dependable capacity as determined by test jointly carried out by Central Power Purchasing Agency (CPPA) and the petitioner, the following specified tariff for delivery of electricity to CPPA of NTDC for procurement on behalf of Ex-WAPDA Distribution Companies:

Specified Reference Tariff

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
Capacity Charge (PKR/kW/Hour)			
Fixed - O&M Foreign	0.0815	0.0815	US\$/PKR & US CPI
Fixed - O&M Local	0.0855	0.0855	WPI
Insurance	0.0700	0.0700	US\$/PKR
Working Capital	0.0320	0.0320	KIBOR
Debt Service	1.2882	-	KIBOR
Return on Equity	0.3520	0.3520	US\$/PKR
ROE during Construction	0.0408	0.0408	US\$/PKR
Total Capacity Charge	1.9500	0.6618	
Energy Charge Rs. / kWh			
Fuel Cost Component	2.0494	2.0494	Mari Gas Price
Variable O&M – Foreign	0.1739	0.1739	US\$/PKR & US CPI
Variable O&M – Local	0.0374	0.0374	WPI

Note:

- i) Component wise tariff is indicated at Annex-I
- ii) Debt Servicing Schedule is attached as Annex-II

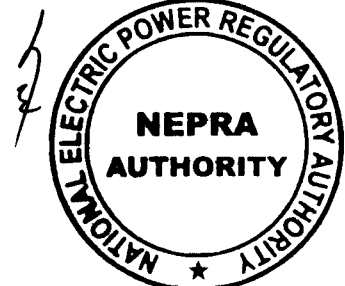
I. One Time Adjustment

- i) Adjustment due to variation in Net Capacity

The reference tariff has been determined on the basis of minimum net capacity of 176.655 MW at delivery point at mean site conditions. All the tariff components except

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fuel cost component shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) tests to be carried out for determination of contracted capacity. Adjustment shall not be made if IDC is established less than 176.655 MW. The adjustments shall be made according to the following formula:

$$CC_{(Adj)} = CC_{(Ref)} \times 176.655 \text{ MW} / NC_{(IDC)}$$

Note; Above formula shall be applicable to all the individual relevant components of Capacity Charge.

Where;

$CC_{(Adj)}$ = Adjusted relevant Capacity Charge component of tariff

$CC_{(Ref)}$ = Reference relevant Capacity Charge component of tariff

$NC_{(IDC)}$ = Net Capacity at reference site conditions established at the time of IDC test.

ii) Adjustment due to variation in Net Efficiency

The reference tariff has been determined on the basis of minimum net efficiency of 48.84%. The reference fuel cost component of tariff (Rs. 2.0494/kWh) shall be revised at the time of COD based upon the heat rate test of the complex to be carried out jointly by Central Power Purchasing Agency (CPPA) and the Petitioner. Adjustment will not be made if net efficiency is established less than 48.84% (6986 Btu/kWh). The adjustment shall be made according to the following formula;

$$FC_{(Adj)} = \text{Rs. 2.0494 per kWh} \times NE_{(IDC)} / 6986 \text{ Btu per kWh}$$

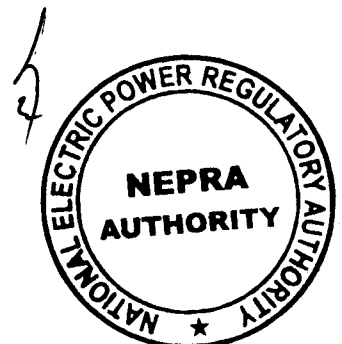
Where;

$FC_{(Adj)}$ = Adjusted net efficiency of the complex

$NE_{(IDC)}$ = Net Efficiency in Btu per kWh established at the time of Heat rate Test.

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iii) Adjustment based on actual Interest During Construction

Debt Service, Return on Equity and ROE during construction shall be made on account of actual variation in drawdown and Interest During Construction with reference to the estimated figures of USD 20.566 million.

iv) Lender's Arrangement Fee

Lender's Arrangement Fee shall be adjusted according to actual amount of borrowing subject to maximum of 1% of total borrowing on production of documentary evidence at the time of COD.

v) Adjustment due to Custom Duties and Taxes

Debt Service, Return on Equity and ROE during construction shall be adjusted on account of actual variation in drawdown and Interest During Construction with reference to the estimated figure of USD 5.500 million. The impact of withholding tax on local services is not known at this point of time. However, this will be adjusted along with other duties and taxes as per the actual on provision of documentary evidence at COD.

vi) Adjustment for variation in Rupee/Dollar parity

Relevant reference tariff components shall be adjusted at COD on account of variation in PKR/US\$ parity.

II. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1.35% of the EPC cost will be treated as pass-through. Insurance component of reference tariff shall be adjusted as per actual on yearly basis upon production of authentic documentary evidence by FPCDL according to the following formula:

$$\text{Insurance}_{(\text{Rev})} = \text{AIC} / (1.35\% \times \text{US\$ } 1.617 \text{ million}) \times \text{AP}$$

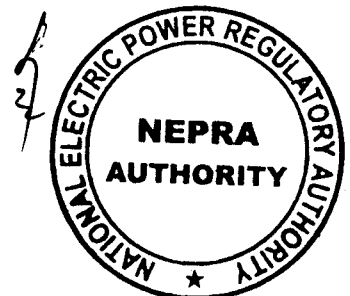
Where;

$$\text{AIC} = \frac{\text{Adjusted Insurance Component (Rs. kW/hr) as per IDC Test}}{1.35\% \times \text{US\$ } 1.617 \text{ million}}$$

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AP = Actual Premium subject to maximum of 1.35% of the EPC cost.

III. Adjustment in Return on Equity (ROE)

Return on Equity will be quarterly adjusted on account of variation in PKR/US\$ parity according to the following formula;

$$\text{ROE (Rev)} = \text{ROE (Ref)} \times \text{ER (Ref)} / 67$$

Where;

ROE (Rev) = Revised Return on Equity

ROE (Ref) = Reference Return on Equity

ER (Rev) = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan.

IV. Adjustment in Return on Equity during Construction (ROEDC)

Return on Equity during Construction will be quarterly adjusted on account of variation in PKR/US\$ parity according to the following formula;

$$\text{ROEDC (Rev)} = \text{ROEDC (Ref)} \times \text{ER (Rev)} / 67$$

Where;

ROEDC (Rev) = Revised Return on Equity during Construction

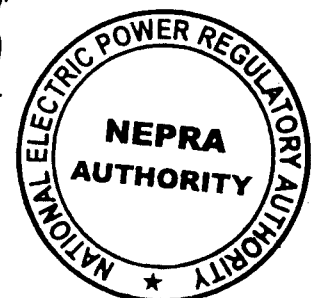
ROEDC (Ref) = Reference Return on Equity during Construction

ER (Rev) = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

V. Adjustment of Withholding Tax

Withholding tax will be adjusted on account of exchange rate variation according to the following formula;

$$\text{WT (Rev)} = \text{WT (Ref)} \times \text{ER (Rev)} / 67$$



Where;

WT_(Rev) = Withholding tax revised

WT_(Ref) = Reference Withholding tax

ER_(Rev) = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

VI. Pass-Through Items

- i) No provision for income tax, workers profit participation fund and workers welfare fund, any other tax, excise duty or other duty, levy, charge, surcharge or other governmental impositions, payable on the generation, sales, exploration has been accounted for in the tariff. If FPCDL is obligated to pay any tax on the income purely generated from its operation i.e Electricity Generation of power producer, the exact amount should be reimbursed by CPPA on production of original receipts. This payment may be considered as pass-through (as Rs./kW/hour) hourly payment spread over a 12 months period in addition to the capacity purchase price in the Reference Tariff. Furthermore, in such a scenario, FPCDL may also submit to CPPA details of any tax shield savings and CPPA will deduct the amount of these savings from its payment to FPCDL on account of taxation.
- ii) Withholding Tax on dividend is also a pass through item just like other taxes as indicated in the government guidelines for determination of tariff for new IPPs. In a reference tariff table withholding tax number is indicated as reference and CPPA shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% of 15% reference equity i.e. hourly payment (Rs/kW/hour) spread over a 12 month period according to the following formula;

$$\text{Withholding Tax Payable} = [\{15\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] * 7.5\%$$

Where:

E_(Ref) = Adjusted Reference Equity at COD

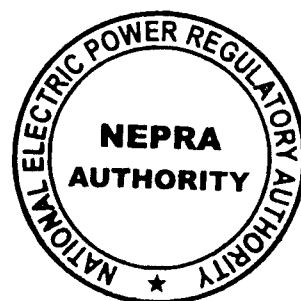
E_(Red) = Equity Redeemed

ROEDC_(Ref) = Reference Return on Equity During Construction

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- iii) 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 is 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 in hourly payments spread over 12 months period as a pass-through from the Power Purchaser in future on the basis of the total dividend pay out.

VII. Indexations

The following indexations shall be applicable to reference tariff.

a) Indexation applicable to O&M

The Local component of Fixed O&M part of Capacity Charge will be adjusted on account of local Inflation (WPI) and foreign component on account of US CPI and Dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to WPI notified by the Federal Bureau of Statistics (FBS), US CPI issued 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;

(i) Fixed O&M

$$F O\&M_{(LREV)} = \text{Rs. } 0.0855/\text{kW/Hour} * WPI_{(REV)} / 132.95$$

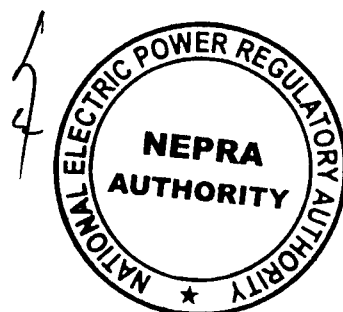
$$F O\&M_{(FREX)} = \text{Rs. } 0.0815/\text{kW/Hour} * US CPI_{(REV)} / 214.82 * ER_{(REV)} / 67$$

Where:

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

$F O\&M_{(FREX)}$ = The revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI (All Urban) and Exchange Rate variations.

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$WPI_{(REV)}$	= The revised wholesale Price Index (manufacturers)
Reference WPI	= 132.95 wholesale price index (manufacturers) of April 2008 as notified by Federal Bureau of Statistics
US CPI _(REV)	= The revised US CPI (All Urban Consumers)
US CPI _(REF)	= 214.82 US CPI (All Urban Consumers) for the month of April 2008 as notified by the US Bureau of Labor and Statistics
ER _(REV)	= The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised Numbers after incorporating the required adjustments at COD.

ii) Variable O&M

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

$$V O\&M_{(FREV)} = \text{Rs. } 0.1739 \text{ per kWh} * US CPI_{(REV)} / 214.82 * ER_{(REV)} / 67$$

$$V O\&M_{(LREV)} = \text{Rs. } 0.0374 \text{ per kWh} * WPI_{(REV)} / 132.95$$

Where:

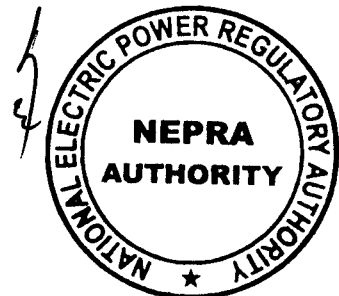
$V O\&M_{(FREV)}$ = The revised applicable Variable O&M Component of the Energy Charge indexed with US CPI and Exchange rate variations.

$V O \& M_{(LREV)}$ = The revised applicable local variable O&M component Indexed with the revised wholesale price index

US CPI_(REV) = The revised US CPI (All Urban Consumers)

US CPI_(REF) = 214.82 US CPI (All Urban Consumers) for the month of April 2008, as notified by the US Bureau of Labor Statistics.

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

Note: The reference VO&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC Test.

iii) Adjustment for KIBOR variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variations in interest rate as a result of variation in quarterly KIBOR according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 10.4\%) / 4$$

Where:

ΔI = The variation in interest charges on local loan applicable corresponding to variation in quarterly KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(REV)}$ is $>$ or $<$ 10.4%. 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) 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.

Note:

- i) Cost of working capital component of tariff will be adjusted on quarterly basis after COD for any variation in quarterly KIBOR.
- ii) In case of foreign loan, variation in LIBOR shall be adjusted according to the above formula.

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iv) Fuel Price Variation

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations as and when notified by the relevant authority, which in the instant case is the Oil & Gas Regulatory Authority (OGRA). In this regard, the variation in FPCDL's allowed rate relating to fuel cost shall be revised according to the following formula:

$$FC_{(Rev)} = FC_{(Adj)} \text{ per kWh} * FP_{(Rev)} / \text{Rs. 293.41 per MMBTU}$$

Where:

$FC_{(Rev)}$ = The revised fuel cost component of Variable Charge on Mari low BTU gas.

$FP_{(Rev)}$ = The new price of gas as notified by the relevant Authority per MMBTU of fuel adjusted for LHV-HHV factor.

$FC_{(Adj)}$ = Adjusted fuel cost component subsequent to heat rate test at COD

Adjustment on account of local inflation, foreign inflation, foreign exchange variation, KIBOR variation and fuel price variation will be approved and announced by the Authority for immediate application within seven working days after receipt of FPCDL's request for adjustment in accordance with the requisite indexation mechanism stipulated herein.

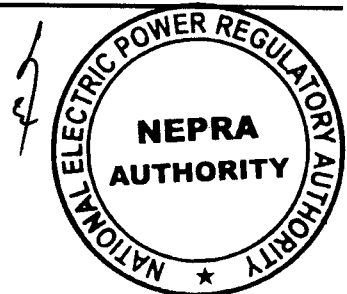
VIII. Terms and Conditions of Tariff

- 1) Use of Low BTU Gas from Mari is allowed as single fuel for operation of the plant.
- 2) All new equipment will be installed and the plant will be of standard configuration.
- 3) General assumptions of FPCDL which are not covered in this determination may be dealt with in the PPA according to its standard terms.

The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between FPCDL and CPPA.

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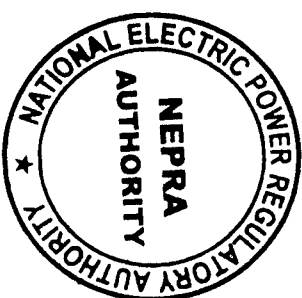
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FOUNDATION POWER COMPANY (DAHARKI) Ltd
Specified Reference Tariff

Annexure I

Year		Variable Charge (PKR/kWh)			Capacity Charge (PKR/kWh/Year)							Total				
		Fuel	Variable O&M Local	Variable O&M Foreign	Total	Fixed O&M Local	Fixed O&M Foreign	Insurance	Working Capital	Return on Equity	Return on Equity during Construction	Withholding Tax @7.5%	Loan Repayment	Interest Charges	Total	Fixed Cost at 60% Plant Factor Rs./kWh
1	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.3625	0.9257	1.9795	5.5598	8.2982
2	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4136	0.8746	1.9795	5.5598	8.2982
3	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4718	0.8163	1.9795	5.5598	8.2982
4	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.5383	0.7498	1.9795	5.5598	8.2982
5	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.6142	0.6740	1.9795	5.5598	8.2982
6	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.7007	0.5875	1.9795	5.5598	8.2982
7	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.7994	0.4888	1.9795	5.5598	8.2982
8	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.9120	0.3761	1.9795	5.5598	8.2982
9	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	1.0405	0.2477	1.9795	5.5598	8.2982
10	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	1.1871	0.1011	1.9795	5.5598	8.2982
11	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
12	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
13	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
14	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
15	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
16	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
17	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
18	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
19	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
20	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
21	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
22	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
23	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
24	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
25	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
Levelized Tariff (1-25 Years)				2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4302	0.4418	1.5633	4.8662	7.2630

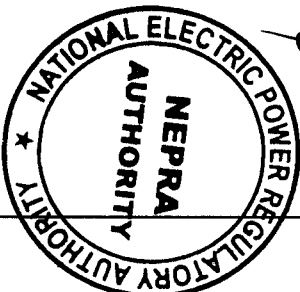


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FOUNDATION POWER COMPANY (DAHARKI) Ltd
Debt Servicing Schedule

KIBOR 10.40%
Premium 3.00%

Period	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$	Annual Principal Repayment \$ Million	Annual Interest \$ Million	Annual Principal Repayment Rs. Million	Annual Interest Rs. Million	Principal Repayment Rs./kw/ hr	Interest Rs./kw/hr	Annual Debt Servicing Rs/kw/hr
1	162.6053	1.9909	5.4473	160.6144	7.4382							
2	160.6144	2.0576	5.3806	158.5568	7.4382							
3	158.5568	2.1265	5.3117	156.4303	7.4382							
4	156.4303	2.1977	5.2404	154.2325	7.4382	8.3727	21.3799	560.9725	1,432.4549	0.3625	0.9257	1.2882
5	154.2325	2.2714	5.1668	151.9612	7.4382							
6	151.9612	2.3475	5.0907	149.6137	7.4382							
7	149.6137	2.4261	5.0121	147.1876	7.4382							
8	147.1876	2.5074	4.9308	144.6802	7.4382	9.5523	20.2003	640.0052	1,353.4222	0.4136	0.8746	1.2882
9	144.6802	2.5914	4.8468	142.0888	7.4382							
10	142.0888	2.6782	4.7600	139.4106	7.4382							
11	139.4106	2.7679	4.6703	136.6427	7.4382							
12	136.6427	2.8606	4.5775	133.7821	7.4382	10.8981	18.8546	730.1724	1,263.2550	0.4718	0.8163	1.2882
13	133.7821	2.9665	4.4817	130.8257	7.4382							
14	130.8257	3.0555	4.3827	127.7702	7.4382							
15	127.7702	3.1579	4.2803	124.6123	7.4382	12.4335	17.3192	833.0429	1,160.3845	0.5383	0.7498	1.2882
16	124.6123	3.2637	4.1745	121.3466	7.4382							
17	121.3466	3.3730	4.0652	117.9757	7.4382							
18	117.9757	3.4860	3.9522	114.4897	7.4382							
19	114.4897	3.6028	3.8354	110.8869	7.4382							
20	110.8869	3.7234	3.7147	107.1635	7.4382	14.1852	15.5675	950.4062	1,043.0212	0.6142	0.6740	1.2882
21	107.1635	3.8482	3.5900	103.3153	7.4382							
22	103.3153	3.9771	3.4611	99.3382	7.4382							
23	99.3382	4.1103	3.3278	95.2279	7.4382							
24	95.2279	4.2480	3.1901	90.9798	7.4382	16.1836	13.5690	1,084.3043	909.1230	0.7007	0.5875	1.2882
25	90.9798	4.3903	3.0478	86.5895	7.4382							
26	86.5895	4.5374	2.9007	82.0521	7.4382							
27	82.0521	4.6894	2.7487	77.3627	7.4382							
28	77.3627	4.8465	2.5916	72.5161	7.4382	18.4637	11.2890	1,237.0667	756.3607	0.7994	0.4888	1.2882
29	72.5161	5.0089	2.4293	67.5073	7.4382							
30	67.5073	5.1767	2.2615	62.3306	7.4382							
31	62.3306	5.3501	2.0881	56.9805	7.4382	21.0649	8.6877	1,411.3510	582.0764	0.9120	0.3761	1.2882
32	56.9805	5.5293	1.9088	51.4512	7.4382							
33	51.4512	5.7145	1.7236	45.7367	7.4382							
34	45.7367	5.9060	1.5322	39.8307	7.4382							
35	39.8307	6.1038	1.3343	33.7268	7.4382							
36	33.7268	6.3083	1.1298	27.4185	7.4382	24.0327	5.7200	1,610.1894	383.2380	1.0405	0.2477	1.2882
37	27.4185	6.5196	0.9185	20.8989	7.4382							
38	20.8989	6.7380	0.7001	14.1608	7.4382							
39	14.1608	6.9638	0.4744	7.1971	7.4382							
40	7.1971	7.1971	0.2411	0.0000	7.4382	27.4185	2.3341	1,837.0412	156.3862	1.1871	0.1011	1.2882



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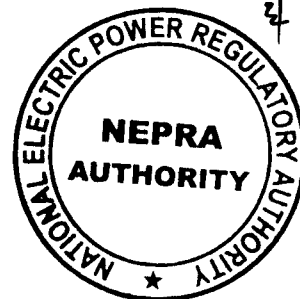
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**NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
(NEPRA)**

NO. NEPRA/TRF-90/FPCDL-2007

**DETERMINATION
OF
TARIFF PETITION**

Filed by



**FOUNDATION POWER COMPANY
(DAHARKI) LIMITED (FPCDL)**

**NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
(NEPRA)**

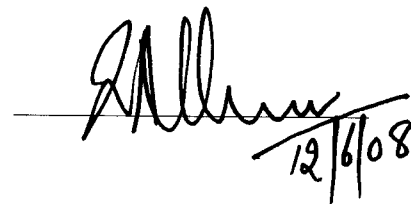
Case No. NEPRA/TRF-90/FPCDL-2007
June 12, 2008

Petitioner

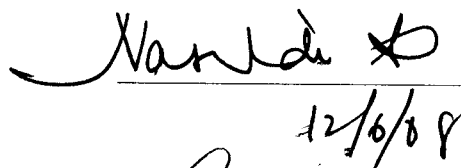
Foundation Power Company (Daharki) Limited (FPCDL)

Authority

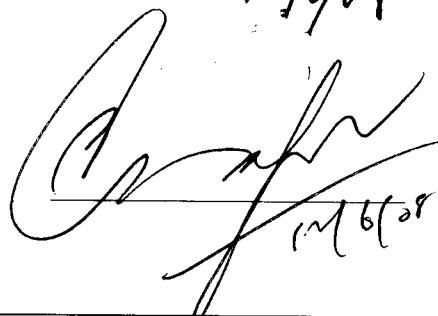
Zafar Ali Khan
Vice Chairman


12/6/08

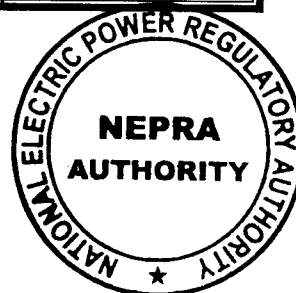
Nasiruddin Ahmed
Member


12/6/08

Khalid Saeed
Chairman


12/6/08





Determination of the Authority in the matter of Tariff Petition filed by Foundation Power Company (Daharki) Ltd (Case No. NEPRA/TRF-90/FPCDL-2007)

Foundation Power Company (Daharki) Ltd (hereinafter “the Petitioner”) filed a tariff petition on 18th December 2007 for revision of its generation tariff. The petition was admitted by the Authority for consideration on 27th December 2007. Notice for admission was published in the daily newspapers on 5th January 2008 soliciting comments of the main stakeholders and invitation for participation in the case proceeding by the general public. We received written comments from the CPPA which were sent to the Petitioner for a suitable response. Public hearing of the case was held on 22nd January 2008, which was attended by representatives of the ministries, the power purchaser, the Petitioner and the general public.

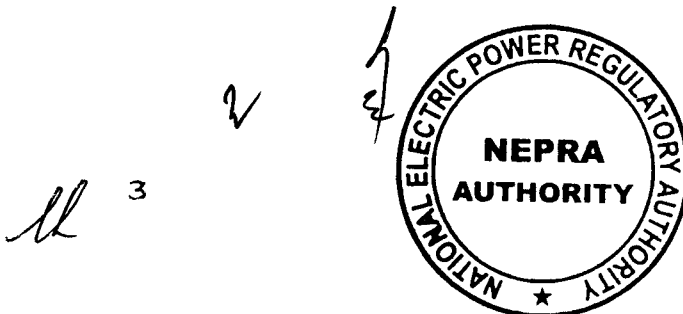
2. The petitioner in its revised tariff petition has submitted that its EPC and other cost components have increased due to delay in issuance of Notice To Proceed to the EPC Contractor and also due to other factors beyond its control, which necessitated filing of a fresh tariff petition. Brief background of the case is as follows:-

Background

3. FPCDL’s original tariff determination was made on 21st October 2006 based on the following basic parameters.

Plant Configuration/Technology	GE 9171 (9) E Gas Turbine + I Steam Turbine +I HRSG
Gross Capacity (ISO)	202 MW
Net Capacity on site	171.483 MW
Net Efficiency of the plant	50%
EPC Component US\$	150.700 million
Gas Pipeline cost	6.400 million
Custom duty & Taxes	5.500 million
Project Development	5.800 million
Other non-EPC cost/Services	6.000 million
Financing fee	1.506 million
Interest During Construction (IDC)	<u>20.655</u> million
Total Project Cost US\$	<u>196.472</u> million
Project cost per kW US\$	<u>973</u>

Levelized Tariff (1-25 years) US Cents/kWh=7.2400 at PKR/US\$ exchange rate of Rs. 60.00



4. Now as per revised tariff petition, FPCDL has submitted the technical and financial information as tabulated hereunder:

Description	Existing	Proposed	Inc/(Dec)
Net Output of the complex (MW)	171.483	176.655	5.172
Net Efficiency (%)	50	48.84	(1.16)
Debt/Equity	75/25	75/25	-
Cost Component	US\$ (million)	US\$ Million	US\$ Million
EPC Cost	143.700	164.200	20.500
Non-EPC Cost	26.706	35.077	8.371
Custom Duties	5.500	5.500	0
Cost before IDC	175.906	204.777	28.871
IDC (estimated)	20.566	20.566	0
Total Project cost	196.472	225.343	28.871
Levelized Tariff	7.2400	7.7037	0.4637
PKR/US\$ exchange rate	60.00	60.00	-

5. The Petitioner has mentioned the following factors which attributed to the increase in EPC and other cost estimates.

- i) Delay in issuance of Notice To Proceed to the EPC contractor, caused by factors attributable to GoP beyond petitioner's control, which resulted increase in the EPC Cost in view of the following:-

- a) EPC contractor's claims in the Offshore and Onshore EPC contracts, due to;

- Exchange rate fluctuations.
- Raw material Costs
- Plant and Equipment prices.
- Warranty Extension Costs
- Order Suspension costs
- EPC contractor's Guarantee Extension costs
- Administration costs
- Transportation costs
- Modification in design of plant due to change of gas specifications.

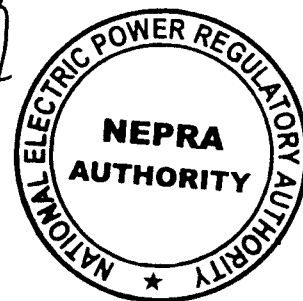
- b) Petitioner's EPC Works

- According to the original tariff determination the amount of EPC work on the part of the petitioner was estimated as US\$ 4.7 million, which due to delay in issuance of NTP have increased to US\$ 7.74 million

- ii) Cost of Gas Transmission Line has increased from US\$ 6.4 million approved in the original determination to US\$ 7.4 million as per the following:

Gas transmission line contract	US\$ 5.500 Million
Right of way	0.500

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Gas metering system, chromatograph	1.400
Total	US\$ 7.400 Million

iii) Fuel Cost for Testing and Commissioning

In the original tariff determination US\$ 0.500 million was provided for fuel cost during testing and commissioning prior to COD. According to the petitioner, it has to carry out various tests at full speed at no load on HSD owing to design limitations of Gas Turbine to ensure performance, reliability and possible conversion on HSD in case of non-availability of gas in future. This amounts to US\$ 7.47 million.

6. In addition to the above, FPCDL has requested for compensation/provision of the following costs.

- Start-up, Shut-down and Loading charges
- Cost of Flared Gas due to complex/system disturbances
- O&M Cost of the Gas Transmission Line.
- Duties and Taxes on Import of Inventory/spare parts
- Increase in Insurance Expense for the construction and operational phase.
- Lenders' Arrangement Fee
- Bank Commission on Security Deposit/bank guarantee equivalent to 4 months of gas (US\$ 16 mln) as per provisions of Gas Supply Agreement (GSA) with Mari Gas Company
- Federal Excise Duty 1% on total value of imported plant & equipment as levied by GoP in 2007.

7. In light of the comments of stakeholders, information provided by the petitioner and proceedings of the case, the following main issues have been framed and discussed for consideration of the Authority.

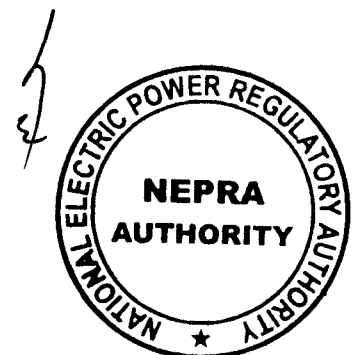
ISSUES

- A) Net Plant Capacity and Efficiency
- B) EPC Cost of the Project
- C) Non-EPC Costs
- D) Operational costs-Provisions/Adjustments

A) **Net Plant Capacity and Efficiency**

8. The Petitioner has stated that due to change in gas specifications by the gas supplier (Mari Gas Company) the net efficiency and output of combined cycle power plant has been revised from 50% and 171.483 MW originally determined by the Authority to 48.84% and 176.655MW respectively.

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- 8.1 The Petitioner has further stated that due to change in gas specifications by the gas supplier (Mari Gas Company) communicated to the petitioner in February 2007, the net output of its combined cycle power plant has been increased from 171.483 MW to 176.655 MW, whereas the net efficiency has been decreased from 50% already determined by the Authority, to 48.84%. The main reason for change in net output and efficiency has been attributed to increase in BTU value (calorific value) of gas from Mari Gas Field. Original tariff determination was based on net calorific value in the range of 517-540 Btu/Scf. Now, the revised calorific value as communicated by the gas supplier (Mari Gas Company) is in the range of 530-590 Btu/Scf.
- 8.2 It has also been mentioned in the tariff petition that the EPC Contractor after carrying out detailed engineering based on revised calorific value of low BTU Mari Gas, has guaranteed the net output of the complex as 176.655 MW, while net heat rate of the complex has been increased from 7154.8 kilojoules/kWh (originally determined) to 7370 kilojoules/kWh, thus leading to an overall decrease in efficiency of the complex from 50% to 48.84%.
- 8.3 Comparison of net efficiency and net output of the complex as revised by the Petitioner from time to time at different stages is given hereunder:

Stage	Net Efficiency	Net Output
Given in the Feasibility	48.63%	180.1 MW
Initial Submissions (Tariff Petition)	48.63%	180.1 MW
Revised during case proceedings	50%	171.483 MW
Determined by the Authority	50%	171.483 MW
Revised Petition	48.84%	176.655 MW

- 8.4 The issue of revised net efficiency and output of the complex was discussed in the Authority meeting held on 28th April 2008. The Authority observed that the ground on the basis of which the petitioner has claimed revised net efficiency and out put of the complex is not very convincing. The Power Purchaser in its comments has also showed its concern with respect to revision in the net efficiency based on change in calorific value of gas. In order to reasonably assess the quantum and effect of change in gas specification over the net efficiency and output of the complex, the Authority decided to hire the services of external experts. The experts have submitted their report on the issue of net efficiency and output of the complex with certain qualifications. According to the experts they have not been provided the required complete information and backup calculations by the petitioner. A meeting of the

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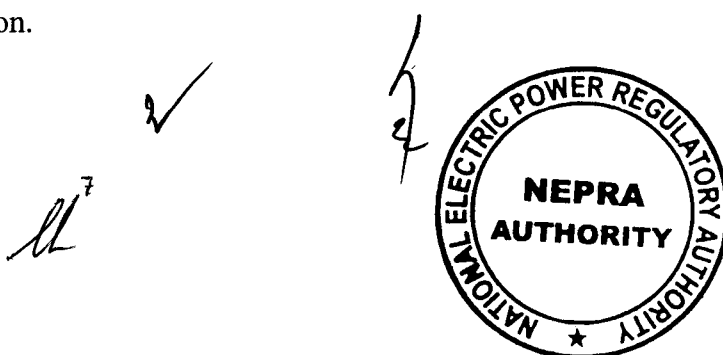


experts with the representatives of the petitioner was also arranged on 30th May 2008 for discussion and clarification of certain queries raised by the experts as well as provision of additional information, which the Petitioner, in the opinion of the experts, was unable to provide.

- 8.5 In view of the aforementioned reasons and also to avoid further delay in the matter, the Authority is constrained to accept minimum net efficiency of 48.84% and net output of the complex as 176.655 MW as claimed by the petitioner, subject to upward adjustment based upon heat rate test and IDC test at the time of the COD.

(B) EPC Cost of the Project

9. The Petitioner has submitted that its EPC cost has increased from US\$ 143.7 million originally determined by the Authority, to US\$ 164.2 million and requested for additional US\$ 20.50 million under this head. According to the petitioner, increase in EPC cost has resulted on account of various claims of the EPC Contractor due to five (5) months delay in issuance of **Notice To Proceed** (hereinafter "NTP") to the EPC contractor from the stipulated date of 20th April 2007, which delay was beyond its control and purely attributable to GoP. According to FPCDL, the validity date for issuance of NTP was 20th April 2007, which it could not meet as the IA and PPA were not signed pending critical gas reservoir guarantee issues with GoP. The IA and PPA were eventually signed on 29th and 30th August 2007, after settlement of gas issues and, thereafter, the company achieved financial close on 10th September 2007, and also issued NTP to the EPC Contractor on the same day. The resultant delay of 5 months (April-September 2007) caused EPC Contractor to revise its EPC price through various claims on account of the following;
- a) Increase in the raw materials costs (copper, aluminum and steel etc.).
 - b) Equipment price - The price of plant & equipment fixed by the EPC Contractor with the plant manufacturers was valid till issuance of NTP (20th April 2007). As a result of the delay in issuance of NTP, the EPC Contractor's sub-contractors were unable to maintain the original prices quoted by them due to the exchange rate fluctuation and increase in market costs during the period of delay.
 - c) Change in the Gas specifications - The EPC Contractor has made a claim against the petitioner on costs on account of the modification of plant, equipment and machinery and the redesign cost impact arising from the change in gas specification.

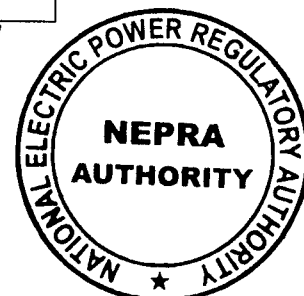


- d) **Warranty Extension Costs** - The EPC Contractor ordered the equipment (gas turbine, steam turbine and all the balance of plant & equipment) in February 2007 on the assumption that NTP date would occur on or before 20th April 2007. As a result of delayed issuance of NTP, the EPC Contractor had to instruct its suppliers of the equipment to extend the warranty period set out in the EPC contract.
- e) **Order Suspension Costs** – the EPC Contractor placed advance orders for raw materials such as steel plates for tanks and pipes, tubes and fittings for HRSG. Delayed NTP issuance forced the EPC contractor to suspend the aforementioned advance orders until the actual NTP issuance (approximately 5 months later). The EPC Contractor's suppliers for the said items raised a financial claim, resulting from such suspension, which has been passed on to the petitioner by the EPC Contractor
- f) **Administration and Transportation costs** - The Administration and freight costs of the EPC Contractor have been increased due to delay in issuance of NTP for which the EPC contractor has raised its claim on the petitioner.

9.1 The petitioner was asked, through our information direction, to separately quantify the impact of the EPC Contractor's above claims and provide breakup of various EPC cost components. In response it has provided the following information.

EPC Cost Increase-Contractor's Claims

S. NO.	Description	Amount (US\$ Million)
	Off Shore	
1	Currency Fluctuation	0.913
2	Raw Material Costs	0.742
3	Packaged Equipment Cost	9.835
4	Change in Gas specification (re-designing+change in equipment specifications)	0.659
5	Suspension and reallocation of orders	
	Warranty extension	0.235
	Order suspension	0.343
	Extension in Guarantees	0.050
6	Administrative Costs	0.400
7	Transportation Costs	2.200
	Sub-Total	15.377
	On Shore	
8	Raw Material Price	0.950
9	Impact of soil conditions on the pile work	1.100
	Sub-Total	2.050
	Total	17.427



EPC Cost- Petitioner's responsibility

9.2 In addition to above, the EPC works to be carried out by the Petitioner itself, which are not part of the EPC Contract amounted to US\$ 4.7 million. The scope of work at petitioner's responsibility included constructing, furnishing and providing necessary equipment for an administration building, workshop, labs, stores etc. The Petitioner has stated that after execution of the EPC Contract, it commenced negotiating the cost escalation of the EPC Contract resulting from the EPC contractor's claims as discussed above. In order to minimize the cost impact of the said claims, the Petitioner agreed to further exclude certain items of works from the scope of the EPC Contractor which included construction of evaporation ponds and associated medium voltage switch gear, pumps, cables etc for the evaporation ponds and housing colony. These additional items have now been included in the scope of works to be performed by the Petitioner. Therefore, the amount of works to be performed by the Petitioner, coupled with local inflation, escalation in prices of steel, cement and other construction material, have been increased to US\$ 7.74 million.

9.3 The comparative table showing the EPC Cost, as allowed in the original determination and now requested in the revised tariff petition is given hereunder.

(US\$ million)

Description	Original Determination	Revised Petition	Variance
EPC Cost	139.000		
Off-Shore Contract		111.000	
On-Shore Contract		28.000	
Revisions- Contractors claims			
Off-Shore		15.377	
On-Shore		2.074	
EPC works –Petitioner's responsibility	4.700	7.740	
Total EPC Cost	143.700	164.191	20.491

9.4 The Petitioner has submitted copies of Off-Shore and On-Shore EPC Contracts, duly signed by their EPC Contractor Doosan Heavy Industries and Construction Company Ltd. Korea. As per the Off-Shore contract, US\$ 111.000 million was fixed by the EPC contractor for performance of off-shore works, which after incorporating cost increases of US\$ 15.377 million, due to delay in issuance of NTP, amounts to US\$ 126.377 million. The Off-Shore contract comprises of works to be performed by the

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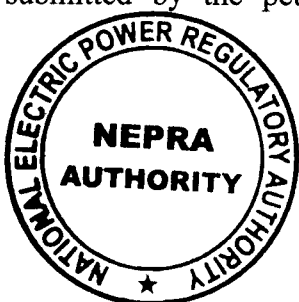
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- EPC Contractor outside Pakistan such as, design, fabrication and supply of all plant and equipment, freight, marine insurance etc.
- 9.5 The On-Shore contract price was Rs 1696.108 million (equivalent to US\$ 28.0 million). The revised On-Shore Contract price after subsequent revisions of Rs. 124.455 million (US\$ 2.074 million) amounts to Rs. 1820.000 million (US\$ 30.074 million). The total EPC Contract cost, therefore, is US\$ 156.451 million.
- 9.6 The Authority considers that delay in issuance of NTP to the EPC contractor is not entirely attributable to GoP as claimed by the petitioner, rather in our considered opinion is also partly attributable to decision of the company management for setting unachievable milestones (date of NTP). The Authority considers that it was for the company management to match various project milestones with the time allowed to it under the Letter of Support (hereinafter "LOS") issued by PPIB/GoP. Similar comments were offered by PPIB in response to our letter dated 7th January 2008.
- 9.7 However, the Authority is also cognizant of the fact that any delay in the project execution, due to whatever reasons, is bound to further escalate project cost on account of inflation and rising prices of the plant and equipment in international market. The Authority, therefore, considering the importance of this project, in view of current energy crisis in the country, accepts petitioner's claim of additional US\$ 17.451 million.

EPC Cost– Petitioner's Responsibility

10. According to information submitted by the Petitioner, the amount of EPC works undertaken by itself was US\$ 4.70 million which have been increased to US\$ 7.740 million. The Petitioner has submitted that due to increase in steel and other construction costs and reduction in the scope of work of the EPC contractor, the amount of works to be performed by the Petitioner, which are not covered in the EPC Contract, have been increased to US\$ 7.740 million.
- 10.1 Scrutiny of information, submitted by the Petitioner, reveals that cost for some of the works such as SCADA/PLC Cost, Interface with NPCC/WAPDA, purchase of safety equipment and Site Embankment are already included in the EPC Contract price, therefore, can not be allowed here separately. For other works such as civil works for construction of Administration building, Store, Laboratories etc, the cost estimates submitted by the petitioner are on the higher side and therefore, require cost



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adjustments. Accordingly, after making necessary adjustments, the amount of EPC works to be performed by the petitioner have been assessed US\$ 5.250 million and are approved by the Authority.

- 10.2 The Authority in its earlier determination had allowed US\$ 1.5 million for cost of access road. The scrutiny of information provided by the Petitioner revealed that such cost is not covered in the scope of works under its responsibility. The petitioner has not been able to provide any documentary evidence or substantiate its claim for the aforementioned cost, which means such cost is already covered in the scope of EPC contract, therefore, can not be allowed separately.
- 10.3 Based on approved cost in the foregoing paragraphs, the EPC Cost of the project amounts to US\$ 161.701 million, the comparison of which is given hereunder.

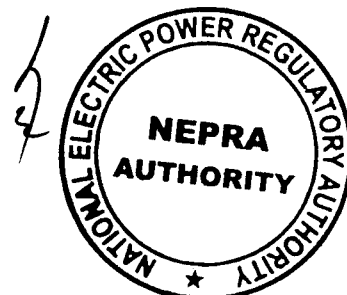
	(US\$ Million)	
<u>Component</u>	<u>Requested</u>	<u>Approved</u>
Off-Shore Contract Price	111.000	111.000
Cost amendments	15.377	15.377
ON-Shore Contract Price	28.000	28.000
Cost amendments	<u>2.074</u>	<u>2.074</u>
EPC Contract Price	156.451	156.451
Petitioner's EPC Cost	<u>7.740</u>	<u>5.250</u>
Total EPC Cost	<u>164.191</u>	<u>161.701</u>

C) Non-EPC Costs

Cost of Gas Transmission Line

11. The Petitioner was allowed US\$ 6.4 million in the earlier determination of the Authority for construction of gas transmission pipeline. The Petitioner has stated that it is required to construct and operate a gas transmission pipeline having a length of 15 km from Mari Deep Well No. 6 to the complex. In addition, the petitioner is also required to lay a water pipeline for the project. In order to lay such pipelines 'Right of Way' is needed for the 18 km length and 15 meters width for which the estimated cost is US\$ 0.5 million.
- 11.1 The Petitioner has further stated that it has recently awarded contract for the construction of gas transmission pipeline at a cost of US\$ 5.5 million, while the back up gas metering system including gas chromatograph would cost approximately US\$

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1.4 million. Accordingly, the aggregate cost associated with the pipelines is US\$ 7.4 million. The Petitioner has, therefore, requested that additional US\$ 1.0 million, over already determined by the Authority US\$ 6.4 million, for gas transmission pipeline may be allowed.

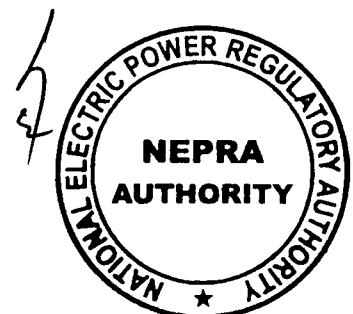
- 11.2 The petitioner was asked to supply a copy of the contract for gas transmission pipeline to substantiate its claim for US\$ 1.0 million increase in the cost of gas transmission pipeline. It has provided a copy of contract for construction of gas transmission line with Marathon Construction Company (Pvt) Ltd. Based on documentary evidence provided by the petitioner, its claim for increase in cost of gas transmission pipeline by US\$ 1.0 million (total US\$ 7.4 million) is accepted.

Fuel Cost During Testing and Commissioning

12. The Petitioner has stated that under the Power Purchase Agreement (PPA), the power purchaser is obliged to pay for the fuel component of the energy price for the power generated during the testing and commissioning of the complex. All associated costs of testing and commissioning prior to synchronization of the complex are to be borne by the Petitioner. Such tests at full speed no load and all other tests prior to synchronization and initial loading are to be conducted on gas as well as HSD owing to the design limitations of the combustion turbine. The additional net fuel cost for testing and commissioning of power plant including 20 days reliability run test amounts to US\$ 5.5 million.
- 12.1 In addition to above, the petitioner has demanded US\$ 1.97 million for 72 hours testing on HSD under the EPC Contract to precisely determine the performance of the complex having the capability to operate on dual fuel at the required standard for possible conversion on HSD at any time in the future, as set out in IA.
- 12.2 The cost of testing of plant and equipment on HSD US\$ 1.72 million for 72 hours to check its performance on HSD for possible conversion in future is exclusively petitioner's requirement and not required by the power purchaser or under the terms of PPA. The cost of such tests will, however, be considered in case of actual conversion in the future and, therefore, can not be allowed at this stage.
- 12.3 The cost of testing and commissioning of power plant prior to synchronization is normally EPC Contractor's responsibility and covered under the EPC contract price. In the instant case, this cost is to be borne by the petitioner as per terms of the EPC

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Contract. According to the terms of EPC Contract, the Petitioner has to provide at its expense the following quantities of fuel to the EPC Contractor;

HSD required quantity=900 tons

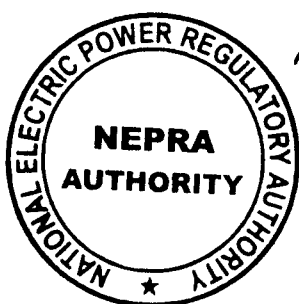
Power from WAPDA to run motors and pumps=5.1 mkWh

BTU of gas (LHV)=808000 million

- 12.4 The cost of above fuel after adjustment of revenue to be received from the power purchaser for the 60% power generated from use of above fuels works out to be US\$ 3.674 million. The Petitioner has already been allowed US\$ 0.5 million for testing & commissioning, US\$ 0.5 million for first fill of lubes and US\$ 0.2 million for utility charges in the original determination. Documentary evidence provided by the Petitioner revealed that costs for first fill of lubes US\$ 0.5 million and utility charges US\$ 0.2 million are covered under the EPC Contract price. After making necessary adjustments the net increase in fuel cost during testing and commissioning works out to be US\$ 2.974 million.
- 12.5 In view of sufficient documentary evidence provided by the Petitioner that the fuel cost during testing and commissioning of the power plant is not included in the EPC Contract, the Authority, therefore, allows US\$ 2.974 million for fuel cost during testing and commissioning.

Insurance cost during construction

13. The Petitioner has stated that due to increased cost of insurance premium and also additional cost of procuring terrorism insurance cover, its insurance cost during the construction phase has increased from US\$ 1.500 million to US\$1.860 million which may be allowed.
- 13.1 In practice, Insurance of plant and equipment during the construction phase is EPC Contractor's responsibility. The same was also included in the original EPC Contract. The Petitioner was asked to provide justification for this increase in cost. The petitioner in response has provided documentary evidence, whereby the item of insurance during construction has been reduced from the scope of EPC Contract and made petitioner's responsibility to arrange insurance cover for plant & equipment during construction of the project.



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- 13.2 The Petitioner has already been allowed US\$ 1.5 million in the original determination. However, based on documentary evidence (Invoice of efu insurance company) US\$ 0.36 million as additional cost of insurance expense during the project construction is allowed as requested by the petitioner.

Lender's Arrangement Fee

14. The Petitioner has stated that it was allowed lenders arrangement fee @ 1% of the amount of total debt in its original determination. The petitioner has requested that due to increase in total project cost, lender's arrangement fee may also be increased proportionately.
- 14.1 The Authority considers that the petitioner's request is genuine and, therefore, allows lender's arrangement fee @1% of the total amount of debt, which shall however, be adjusted according to the actual amount and borrowing composition at the time of COD.

Total Project Cost

15. Recapitulating, the approved cost for various project components is given as hereunder:

Summary – Project Cost

Cost Component	Approved (US\$ Million)
EPC Cost	
Off-shore and On-shore EPC Contract	139.000
Revisions/amendments in the Off & On shore contract	17.451
EPC works-Petitioner's responsibility	5.250
Gas transmission pipeline cost	7.400
Housing Colony	5.500
Total EPC Cost	174.601
Project Development cost	5.800
Custom duty on imported plant & equipment	5.500
Other Non-EPC costs	
Construction Management	0.580
Fixed O&M Costs	1.220
Insurance Cost during construction	1.860
Utilities Cost	0.200
Fuel cost during testing	2.974
First fill of lubes, chemicals & diesel	0.500
Lenders fee	1.500
Financing fee	1.506
Interest During Construction (IDC)	20.566
Total Project Cost	216.807

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D) Operational costs-Provisions/adjustments

16. The Petitioner has requested for provision/adjustment of the following cost items in the Authority's determination.

- i) Start-up, Shut-down and the loading charges
- ii) Insurance expense during operational phase
- iii) Cost of flared gas due to complex/system disturbances
- iv) O&M cost of the Gas Transmission Line
- v) Foreign Equity
- vi) Security Deposit

17. The above issues have been discussed item-wise in the following Paragraphs.

i) Start-up, Shut-down and the loading charges

The issue of start-up and shut-down charges has been resolved in the PPA of other IPPs signed with the power purchaser. The matter of start-up and shut-down charges, therefore, can be resolved in the PPA according to the project specific requirements with mutual consent of the power purchaser.

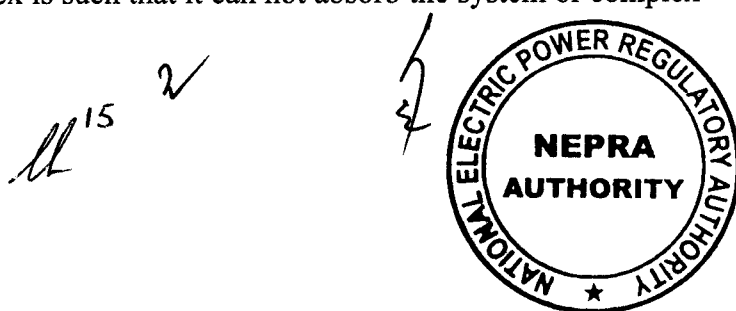
ii) Insurance expense during operational phase

The Petitioner has stated that it was allowed US\$ 1.437 million (1% of EPC cost) as annual insurance expense in the original determination subject to maximum of 1.35% of the EPC Cost to be adjusted at COD on production of documentary evidence. It has requested that insurance cost be computed at aforesaid permissible rates on the actual amount of EPC cost prevailing at COD.

In line with decision of the Authority in other similar cases, the request of the petitioner is accepted and therefore, allowed US\$ 1.617 million as insurance expense which is 1% of its EPC Cost. The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1.35% of the EPC cost will be treated as pass-through.

iii) Cost of flared gas due to complex/system disturbances

The Petitioner has stated that its project will be supplied gas from Mari gas fields through a dedicated pipeline exclusively for the petitioner. The length of the gas transmission line for the complex is such that it can not absorb the system or complex



load rejections/disturbances and will therefore necessarily result in flaring of gas for 20-30 minutes until the gas wells are shut-down safely. The Petitioner has requested for provision of cost adjustment on actual basis in the Authority's determination.

The Petitioner has provided a copy of Gas Supply Agreement whereby the aforementioned cost due to flaring of gas is to be borne by the power producer/power purchaser. The Authority considers that this is a project specific requirement as provided in the Gas Supply Agreement signed between FPCDL and Mari Gas Company and therefore, needs to be considered in view of the actual system requirements. The Authority has therefore, decided that in the event of such happening, the actual cost of flared gas, be reimbursed to the Petitioner by the Power Purchaser. For this purpose, the mechanism for billing and eligibility criteria according to system requirements, at mutually agreed terms may be incorporated in the PPA of FPCDL.

iv) O&M cost of the Gas Transmission Line

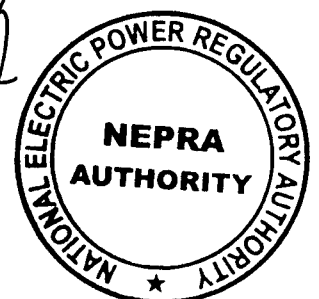
The Petitioner has stated that O&M cost of the gas transmission during operational life of the project is its responsibility and this cost was not included in the original determination of the Authority. Accordingly, the Petitioner has requested that US\$ 0.450 million per annum may be allowed.

In order to ascertain the cost and actual scope of work covered under the O&M contract, the Petitioner was asked to provide a copy of the O&M Contract duly signed with the O&M contractor. The Petitioner has not been able to provide a copy of the O&M contract, therefore, not accepted by the Authority.

vi) Security Deposit

The Petitioner has stated that under the terms of the Gas Supply Agreement, it is required to provide a 'security deposit' to the gas supplier equivalent to a four (4) month supply of gas, by means of a bank guarantee in an amount of approximately US\$ 16 million (Cost of 4 months gas supply). The Petitioner has, therefore, requested that original determination may be revised to enable the petitioner to absorb the amount of bank commission payable on the guarantee.

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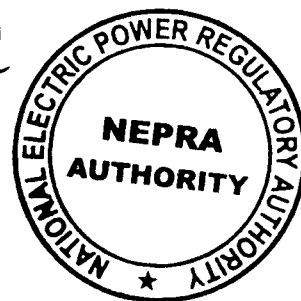


The Authority considers that provision of the aforementioned security deposit in the Gas Supply Agreement is a specific arrangement mutually agreed with the Gas Supplier and therefore, petitioner's responsibility, the burden of which should not be borne by the power purchaser. No other IPP with similar technology has raised such issue before the Authority. In view of this, the petitioner's request is not accepted.

18. Based on approved cost for various components of tariff in the preceding paragraphs, the revised tariff table for FPCDL has been developed based on the following reference parameter/numbers:

Net Plant Efficiency	48.84%
Net Output of the complex	176.655 MW
Reference Gas Price (LHV)	293.358 Rs/MMBtu
HHV/LHV Conversion Factor	1.107553
Debt/Equity	75/25
Markup	KIBOR (10.4% +3% Premium)
Reference PKR/US\$ Exchange rate	Rs. 67.00

The revised tariff table is attached to this determination as Annex-I



Order

19. Pursuant to Rule 6 of the NEPRA Licensing (Generation) Rules 2000, Foundation Power Company (Daharki) Limited (FPCDL) is allowed to charge, subject to adjustment of Capacity Purchase Price on account of net dependable capacity as determined by test jointly carried out by Central Power Purchasing Agency (CPPA) and the petitioner, the following specified tariff for delivery of electricity to CPPA of NTDC for procurement on behalf of Ex-WAPDA Distribution Companies:

Reference Tariff

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
Capacity Charge (PKR/kW/Hour)			
Fixed - O&M Foreign	0.0815	0.0815	US\$/PKR & US CPI
Fixed - O&M Local	0.0855	0.0855	WPI
Insurance	0.0700	0.0700	US\$/PKR
Working Capital	0.0320	0.0320	KIBOR
Debt Service	1.2882	-	KIBOR
Return on Equity	0.3520	0.3520	US\$/PKR
ROE during Construction	0.0408	0.0408	US\$/PKR
Total Capacity Charge	1.9500	0.6618	
Energy Charge Rs. / kWh			
Fuel Cost Component	2.0494	2.0494	Mari Gas Price
Variable O&M – Foreign	0.1739	0.1739	US\$/PKR & US CPI
Variable O&M – Local	0.0374	0.0374	WPI

Note:

- Component wise tariff is indicated at Annex-I
- Debt Servicing Schedule is attached as Annex-II

I. One Time Adjustment

- Adjustment due to variation in Net Capacity

The reference tariff has been determined on the basis of minimum net capacity of 176.655 MW at delivery point at mean site conditions. All the tariff components except fuel cost component shall be adjusted at the time of COD based upon the

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Initial Dependable Capacity (IDC) tests to be carried out for determination of contracted capacity. Adjustment shall not be made if IDC is established less than 176.655 MW. The adjustments shall be made according to the following formula:

$$CC_{(Adj)} = CC_{(Ref)} \times 176.655 \text{ MW} / NC_{(IDC)}$$

Note; Above formula shall be applicable to all the individual relevant components of Capacity Charge.

Where;

$CC_{(Adj)}$ = Adjusted relevant Capacity Charge component of tariff

$CC_{(Ref)}$ = Reference relevant Capacity Charge component of tariff

$NC_{(IDC)}$ = Net Capacity at reference site conditions established at the time of IDC test.

ii) Adjustment due to variation in Net Efficiency

The reference tariff has been determined on the basis of minimum net efficiency of 48.84%. The reference fuel cost component of tariff (Rs. 2.0494/kWh) shall be revised at the time of COD based upon the heat rate test of the complex to be carried out jointly by Central Power Purchasing Agency (CPPA) and the Petitioner. Adjustment will not be made if net efficiency is established less than 48.84% (6986 Btu/kWh). The adjustment shall be made according to the following formula;

$$FC_{(Adj)} = \text{Rs. 2.0494 per kWh} \times NE_{(IDC)} / 6986 \text{ Btu per kWh}$$

Where;

$FC_{(Adj)}$ = Adjusted net efficiency of the complex

$NE_{(IDC)}$ = Net Efficiency in Btu per kWh established at the time of Heat rate test

iii) Adjustment based on actual Interest During Construction

Debt Service, Return on Equity and ROE during construction shall be made on account of actual variation in drawdown and Interest During Construction with reference to the estimated figures of USD 20.566 million.

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iv) Lender's Arrangement Fee

Lender's Arrangement Fee shall be adjusted according to actual amount of borrowing subject to maximum of 1% of total borrowing on production of documentary evidence at the time of COD.

v) Adjustment due to Custom Duties and Taxes

Debt Service, Return on Equity and ROE during construction shall be adjusted on account of actual variation in drawdown and Interest During Construction with reference to the estimated figure of USD 5.500 million. The impact of withholding tax on local services is not known at this point of time. However, this will be adjusted along with other duties and taxes as per the actual on provision of documentary evidence at COD.

vi) Adjustment for variation in Rupee/Dollar parity

Relevant reference tariff components shall be adjusted at COD on account of variation in PKR/US\$ parity.

II. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1.35% of the EPC cost will be treated as pass-through. Insurance component of reference tariff shall be adjusted as per actual on yearly basis upon production of authentic documentary evidence by FPCDL according to the following formula:

$$\text{Insurance}_{(\text{Rev})} = \text{AIC} / (1.35\% \times \text{US\$ } 1.617 \text{ million}) \times \text{AP}$$

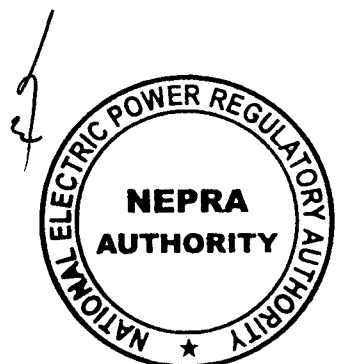
Where;

AIC = Adjusted Insurance Component (Rs. kW/hr) as per IDC Test

AP = Actual Premium subject to maximum of 1.35% of the EPC cost.

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III. Adjustment in Return on Equity (ROE)

Return on Equity will be quarterly adjusted on account of variation in PKR/US\$ parity according to the following formula;

$$\text{ROE (Rev)} = \text{ROE (Ref)} \times \text{ER(Ref)} / 67$$

Where;

$$\text{ROE (Rev)} = \text{Revised Return on Equity}$$

$$\text{ROE (Ref)} = \text{Reference Return on Equity}$$

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

IV. Adjustment in Return on Equity during Construction (ROEDC)

Return on Equity during Construction will be quarterly adjusted on account of variation in PKR/US\$ parity according to the following formula;

$$\text{ROEDC}_{(\text{Rev})} = \text{ROEDC}_{(\text{Ref})} \times \text{ER}_{(\text{Rev})} / 67$$

Where;

$$\text{ROEDC}_{(\text{Rev})} = \text{Revised Return on Equity during Construction}$$

$$\text{ROEDC}_{(\text{Ref})} = \text{Reference Return on Equity during Construction}$$

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

V. Adjustment of Withholding Tax

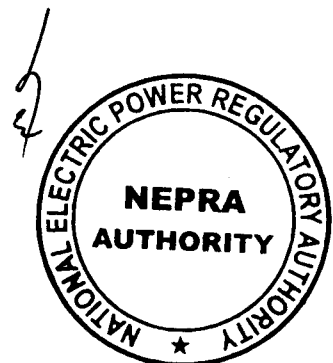
Withholding tax will be adjusted on account of exchange rate variation according to the following formula;

$$\text{WT}_{(\text{Rev})} = \text{WT}_{(\text{Ref})} \times \text{ER}_{(\text{Rev})} / 67$$

Where;

$$\text{WT}_{(\text{Rev})} = \text{Withholding tax revised}$$

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$WT_{(Ref)}$ = Reference Withholding tax

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

VI. Pass-Through Items

- i) No provision for income tax, workers profit participation fund and workers welfare fund, any other tax, excise duty or other duty, levy, charge, surcharge or other governmental impositions, payable on the generation, sales, exploration has been accounted for in the tariff. If FPCDL is obligated to pay any tax on the income purely generated from its operation i.e Electricity Generation of power producer, the exact amount should be reimbursed by CPPA on production of original receipts. This payment may be considered as pass-through (as Rs./kW/hour) hourly payment spread over a 12 months period in addition to the capacity purchase price in the Reference Tariff. Furthermore, in such a scenario, FPCDL may also submit to CPPA details of any tax shield savings and CPPA will deduct the amount of these savings from its payment to FPCDL on account of taxation.
- ii) Withholding Tax on dividend is also a pass through item just like other taxes as indicated in the government guidelines for determination of tariff for new IPPs. In a reference tariff table withholding tax number is indicated as reference and CPPA shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% of 15% reference equity i.e. hourly payment (Rs/kW/hour) spread over a 12 month period according to the following formula;

$$\text{Withholding Tax Payable} = [\{15\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] * 7.5\%$$

Where:

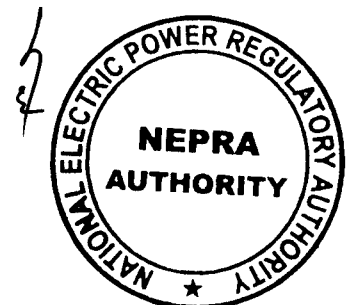
$E_{(Ref)}$ = Adjusted Reference Equity at COD

$E_{(Red)}$ = Equity Redeemed

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

- iii) 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 is

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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 in hourly payments spread over 12 months period as a pass-through from the Power Purchaser in future on the basis of the total dividend pay out.

VII. Indexations

The following indexations shall be applicable to reference tariff.

a) Indexation applicable to O&M

The Local component of Fixed O&M part of Capacity Charge will be adjusted on account of local Inflation (WPI) and foreign component on account of US CPI and Dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to WPI notified by the Federal Bureau of Statistics (FBS), US CPI issued 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;

(i) Fixed O&M

$$F O\&M_{(LREV)} = \text{Rs. } 0.0855/\text{kW/Hour} * WPI_{(REV)} / 132.95$$

$$F O\&M_{(FREX)} = \text{Rs. } 0.0815/\text{kW/Hour} * US CPI_{(REV)} / 214.82 * ER_{(REV)} / 67$$

Where:

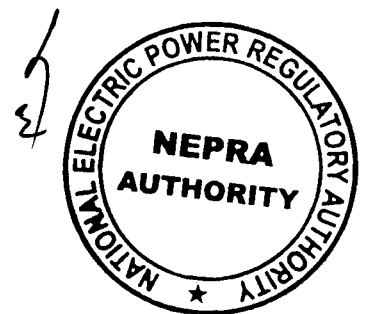
$F O\&M_{(LREV)}$ = The revised applicable Fixed O&M Local Component of the Capacity Charge indexed with WPI

$F O\&M_{(FREX)}$ = The revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI (All Urban) and Exchange Rate variations.

$WPI_{(REV)}$ = The revised wholesale Price Index (manufacturers)

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Reference WPI	= 132.95 wholesale price index (manufacturers) of April 2008 as notified by Federal Bureau of Statistics
US CPI _(REV)	= The revised US CPI (All Urban Consumers)
US CPI _(REF)	= 214.82 US CPI (All Urban Consumers) for the month of April 2008 as notified by the US Bureau of Labor and Statistics
ER _(REV)	= The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised Numbers after incorporating the required adjustments at COD.

ii) Variable O&M

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

$$V O\&M_{(FREV)} = \text{Rs. } 0.1739 \text{ per kWh} * US CPI_{(REV)} / 214.82 * ER_{(REV)} / 67$$

$$V O\&M_{(LREV)} = \text{Rs. } 0.0374 \text{ per kWh} * WPI_{(REV)} / 132.95$$

Where:

V O&M_(FREV) = The revised applicable Variable O&M Component of the Energy Charge indexed with US CPI and Exchange rate variations.

V O & M_(LREV) = The revised applicable local variable O&M component Indexed with the revised wholesale price index

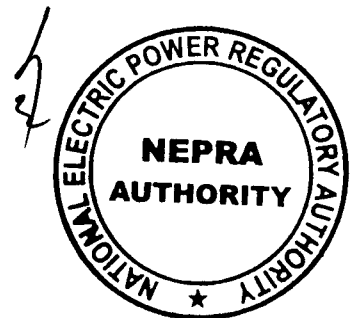
US CPI_(REV) = The revised US CPI (All Urban Consumers)

US CPI_(REF) = 214.82 US CPI (All Urban Consumers) for the month of April 2008, as notified by the US Bureau of Labor Statistics.

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

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Note: The reference VO&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC Test.

iii) Adjustment for KIBOR variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variations in interest rate as a result of variation in quarterly KIBOR according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 10.4\%) / 4$$

Where:

ΔI = The variation in interest charges on local loan applicable corresponding to variation in quarterly KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(REV)}$ is $>$ or $<$ 10.4%. 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) 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.

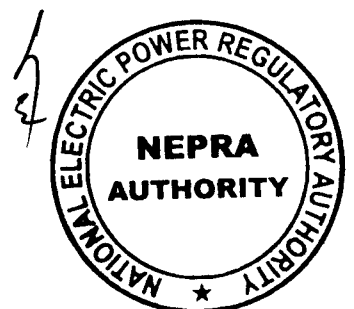
Note:

- i) Cost of working capital component of tariff will be adjusted on quarterly basis after COD for any variation in quarterly KIBOR.
- ii) In case of foreign loan, variation in LIBOR shall be adjusted according to the above formula.

iv) Fuel Price Variation

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations as and when notified by the relevant authority,

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which in the instant case is the Oil & Gas Regulatory Authority (OGRA). In this regard, the variation in FPCDL's allowed rate relating to fuel cost shall be revised according to the following formula:

$$FC_{(Rev)} = FC_{(Adj)} \text{ per kWh} * FP_{(Rev)} / \text{Rs. 293.41 per MMBTU}$$

Where:

$FC_{(Rev)}$ = The revised fuel cost component of Variable Charge on Mari low BTU gas.

$FP_{(Rev)}$ = The new price of gas as notified by the relevant Authority per MMBTU of fuel adjusted for LHV-HHV factor.

$FC_{(Adj)}$ = Adjusted fuel cost component subsequent to heat rate test at COD

Adjustment on account of local inflation, foreign inflation, foreign exchange variation, KIBOR variation and fuel price variation will be approved and announced by the Authority for immediate application within seven working days after receipt of FPCDL's request for adjustment in accordance with the requisite indexation mechanism stipulated herein.

VIII. Terms and Conditions of Tariff

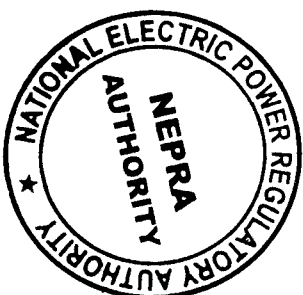
- 1) Use of Low BTU Gas from Mari is allowed as single fuel for operation of the plant.
- 2) All new equipment will be installed and the plant will be of standard configuration.
- 3) General assumptions of FPCDL which are not covered in this determination may be dealt with in the PPA according to its standard terms.

The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between FPCDL and CPPA.



FOUNDATION POWER COMPANY (DAHARKI) Ltd
Specified Reference Tariff

Total																
Year	Variable Charge (PKR/kWh)				Capacity Charge (PKR/kWh/Year)							Fixed Cost at 60% Plant Factor				
	Fuel	Variable O&M Local	Variable O&M Foreign	Total	Fixed O&M Local	Fixed O&M Foreign	Insurance	Working Capital	Return on Equity	Return on Equity during Construction	Withholding Tax @7.5%	Loan Repayment	Interest Charges	Total Rs./kWh		
1	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.3625	0.9257	1.9795	5.5598	8.2982
2	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4136	0.8746	1.9795	5.5598	8.2982
3	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4718	0.8163	1.9795	5.5598	8.2982
4	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.5383	0.7498	1.9795	5.5598	8.2982
5	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.6142	0.6740	1.9795	5.5598	8.2982
6	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.7007	0.5875	1.9795	5.5598	8.2982
7	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.7994	0.4888	1.9795	5.5598	8.2982
8	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.9120	0.3761	1.9795	5.5598	8.2982
9	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	1.0405	0.2477	1.9795	5.5598	8.2982
10	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	1.1871	0.1011	1.9795	5.5598	8.2982
11	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
12	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
13	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
14	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
15	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
16	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
17	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
18	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
19	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
20	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
21	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
22	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
23	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
24	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
25	2.0494	0.0374	0.1739	2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295			0.6913	3.4129	5.0938
Levelized Tariff (1-25 Years)				2.2607	0.0855	0.0815	0.0700	0.0320	0.3520	0.0408	0.0295	0.4302	0.4418	1.5633	4.8662	7.2630



FOUNDATION POWER COMPANY (DAHARKI) Ltd Debt Servicing Schedule

KIBOR 10.40%
Premium 3.00%

Period	Principal Million \$	Repayment Million \$	Mark-Up Million \$	Balance Million \$	Debt Service Million \$	Annual Principal Repayment \$ Million	Annual Interest \$ Million	Annual Principal Repayment Rs. Million	Annual Interest Rs. Million	Principal Repayment Rs./kW/hr	Interest Rs./kW/hr	Annual Debt Servicing Rs./kW/hr
1	162.6053	1.9909	5.4473	160.6144	7.4382							
2	160.6144	2.0576	5.3806	158.5568	7.4382							
3	158.5568	2.1265	5.3117	156.4303	7.4382	8.3727	21.3799	560.9725	1,432.4549	0.3625	0.9257	1.2882
4	156.4303	2.1977	5.2404	154.2325	7.4382							
5	154.2325	2.2714	5.1668	151.9612	7.4382							
6	151.9612	2.3475	5.0907	149.6137	7.4382							
7	149.6137	2.4261	5.0121	147.1876	7.4382							
8	147.1876	2.5074	4.9308	144.6802	7.4382	9.5523	20.2003	640.0052	1,353.4222	0.4136	0.8746	1.2882
9	144.6802	2.5914	4.8468	142.0888	7.4382							
10	142.0888	2.6782	4.7600	139.4106	7.4382							
11	139.4106	2.7679	4.6703	136.6427	7.4382							
12	136.6427	2.8606	4.5775	133.7821	7.4382	10.8981	18.6546	730.1724	1,263.2550	0.4718	0.8163	1.2882
13	133.7821	2.9565	4.4817	130.8257	7.4382							
14	130.8257	3.0555	4.3827	127.7702	7.4382							
15	127.7702	3.1579	4.2803	124.6123	7.4382	12.4335	17.3192	833.0429	1,160.3845	0.5383	0.7498	1.2882
16	124.6123	3.2637	4.1745	121.3486	7.4382							
17	121.3486	3.3730	4.0652	117.9757	7.4382							
18	117.9757	3.4860	3.9522	114.4897	7.4382							
19	114.4897	3.6028	3.8354	110.8869	7.4382	14.1852	15.5675	950.4062	1,043.0212	0.6142	0.6740	1.2882
20	110.8869	3.7234	3.7147	107.1635	7.4382							
21	107.1635	3.8482	3.5900	103.3153	7.4382							
22	103.3153	3.9771	3.4611	99.3382	7.4382							
23	99.3382	4.1103	3.3278	95.2279	7.4382	16.1836	13.5690	1,084.3043	909.1230	0.7007	0.5875	1.2882
24	95.2279	4.2480	3.1901	90.9798	7.4382							
25	90.9798	4.3903	3.0478	86.5895	7.4382							
26	86.5895	4.5374	2.9007	82.0521	7.4382							
27	82.0521	4.6894	2.7487	77.3627	7.4382	18.4637	11.2890	1,237.0667	756.3607	0.7994	0.4888	1.2882
28	77.3627	4.8465	2.5916	72.5161	7.4382							
29	72.5161	5.0089	2.4293	67.5073	7.4382							
30	67.5073	5.1767	2.2615	62.3306	7.4382							
31	62.3306	5.3501	2.0881	56.9805	7.4382	21.0649	8.6877	1,411.3510	582.0764	0.9120	0.3761	1.2882
32	56.9805	5.5293	1.9088	51.4512	7.4382							
33	51.4512	5.7145	1.7236	45.7367	7.4382							
34	45.7367	5.9060	1.5322	39.8307	7.4382							
35	39.8307	6.1038	1.3343	33.7268	7.4382	24.0327	5.7200	1,610.1894	383.2380	1.0405	0.2477	1.2882
36	33.7268	6.3083	1.1298	27.4185	7.4382							
37	27.4185	6.5196	0.9185	20.8989	7.4382							
38	20.8989	6.7380	0.7001	14.1608	7.4382							
39	14.1608	6.9638	0.4744	7.1971	7.4382	27.4185	2.3341	1,837.0412	156.3862	1.1871	0.1011	1.2882
40	7.1971	7.1971	0.2411	0.0000	7.4382							

