



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

2nd Floor, OPF Building, G-5/2, Islamabad  
Ph: 9207200, 9205225 Fax : 9210215  
E-mail: registrar@nepra.org.pk

**Registrar**

No. NEPRA/R/TRF-118/CECPL-2008/393--95  
October 09, 2008

**Subject: Approval of Generation Tariff for Cavalier Energy Corporation (Pvt.) Limited (CECPL) for its 486 MW (Gross ISO) Power Project in the Vicinity of Port Qasim, Karachi, Sindh in accordance with Section 1.10 of the Tariff Guidelines of November 2005 for Determination of Tariff for IPPs.**

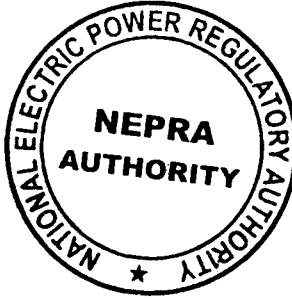
Dear Sir,

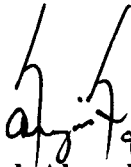
Please find enclosed the subject decision of the Authority along with Annex-I, II & III (13 pages) in Case No. NEPRA/TRF-118/CECPL-2008.

2. The decision 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).

**Enclosure/As above**

Secretary  
Cabinet Division  
Government of Pakistan  
Cabinet Secretariat,  
Islamabad



  
9.10.08  
(Mahjoob Ahmad Mirza)

CC

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



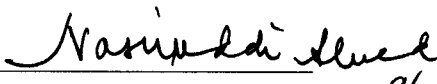
**APPROVAL OF GENERATION TARIFF FOR CAVALIER ENERGY CORPORATION (PVT.) LTD. (CECPL) FOR ITS 486 MW (GROSS ISO) POWER PROJECT IN THE VICINITY OF PORT QASIM, KARACHI, SINDH IN ACCORDANCE WITH SECTION 1.10 OF THE TARIFF GUIDELINES OF NOVEMBER 2005 FOR DETERMINATION OF TARIFF FOR IPPS**

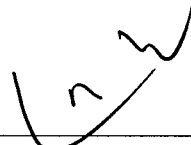
Cavalier Energy & Defence System Group (CE&D) on behalf of their proposed project company Cavalier Energy Corporation (Pvt.) Ltd. (CECPL) has applied to NEPRA for approval of tariff for its 486 MW (Gross ISO) Combined Cycle Power Plant at Port Qasim. CECPL was declared successful bidder consequent to the Competitive Bidding carried out under the Government of Pakistan (GoP) policy on Fast Track Power Generation Projects. Economic Coordination Committee (ECC) vide its decision ECC-146/14/2008 dated September 10, 2008 declared the CECPL as a qualified bidder. Accordingly, PPIB vide letter No. 1(102)PPIB-2027-19/08/PRJ dated September 12, 2008 informed CE&D, to approach NEPRA for approval of tariff. ECC in its decision [para 12(iii)] advised NEPRA to approve the tariff along with assumptions and adjustment in accordance with the GoP guidelines of November 2005 for determination of tariff for IPPs.

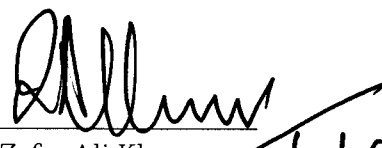
2. The Authority considers that the bidding process has been carried out by PPIB, an agency of the GOP, working under the supervision of the Ministry of Water & Power for attracting and facilitating investment in power generation. The rate has been arrived through a competitive bidding and has been approved by the ECC vide its decision ECC-146/14/2008 dated September 10, 2008.

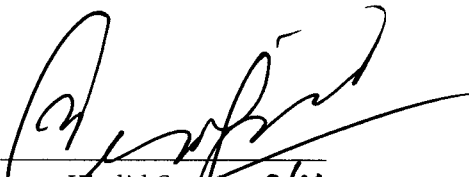
3. In view of the above the Authority hereby allows the applicant to charge the tariff according to Assumptions and Terms and Conditions Annex-I, II & III as approved by the Government of Pakistan read with Sub-para v of Para 12 of the Summary of Fast Track Power Generation Projects Through International Competitive Bidding which is reproduced as under:

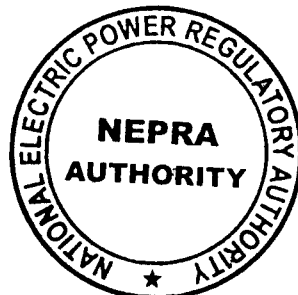
*"In case any of the approved projects under Package A & B fail to achieve crucial milestones as per agreements towards timely project implementation, then the project be immediately cancelled with penalties. The deficit power generation capacity be then expeditiously arranged through addition of IPP/Rental Power Projects both solicited and unsolicited on fast track basis."*

  
Nasiruddin Ahmed  
Member  
9/10/08

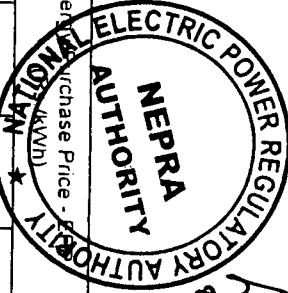
  
Maqbool Ahmad Khawaja  
Member

  
Zafar Ali Khan  
Member/Vice Chairman  
9/10/08

  
Khalid Saeed  
Chairman  
9/10/08







Adjusted Reference Tariff Table for Operation on LPG

Proforma X)

(After Application of Foreign Currency Exchange Rate Multiplier)  
Used for Evaluation/Ranking of Bids

Year	Energy Purchase Price - (KWh)				Capacity Purchase Price - CPP (Rs./KWh/hour)										Capacity Charge at 60% PF		Total Tariff	
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROEDC	ROE	Withholding Tax @ 7.5%	*Adjusted Loan Re-payment	*Adjusted Interest Charges	Total	Rs. Per kWh	Rs Per kWh	US \$ per kWh	
1	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.5154	0.6395	1.8928	3.1547	9.8086	15.1836	
2	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.5792	0.6137	1.9308	3.2181	9.6720	15.2817	
3	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.6510	0.5814	1.9703	3.2838	9.9377	15.3635	
4	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.7316	0.5417	2.0112	3.3520	10.0059	15.4891	
5	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.8222	0.4935	2.0537	3.4228	10.0767	15.5966	
6	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.9241	0.4357	2.0977	3.4962	10.1501	15.7122	
7	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	1.0386	0.3669	2.1434	3.5723	10.2262	15.8301	
8	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	1.1673	0.2856	2.1908	3.6513	10.3052	15.9524	
9	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	1.3120	0.1901	2.2400	3.7333	10.3872	16.0753	
10	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	1.4746	0.0785	2.2910	3.8183	10.4722	16.2109	
11	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.3400	3.9033	10.5572	16.3455	
12	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.3890	3.9983	10.6422	16.4809	
13	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.4380	4.0933	10.7272	16.6163	
14	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.4870	4.1883	10.8122	16.7517	
15	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.5360	4.2833	10.8972	16.8871	
16	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.5850	4.3783	10.9822	17.0225	
17	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.6340	4.4733	11.0672	17.1579	
18	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.6830	4.5683	11.1522	17.2933	
19	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.7320	4.6633	11.2372	17.4287	
20	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.7810	4.7583	11.3222	17.5641	
21	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.8300	4.8533	11.4072	17.6995	
22	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.8790	4.9483	11.4922	17.8349	
23	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.9280	5.0433	11.5772	17.9703	
24	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	2.9770	5.1383	11.6622	18.1057	
25	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	3.0260	5.2333	11.7472	18.2411	
Average Tariff																		
1-10 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.9216	0.4226	2.0822	3.4703	10.1242	15.6721	
11-20 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	0.7379	1.2299	7.8838	12.2040	
21-25 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	0.7379	1.2299	7.8838	12.2040	
1-25 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.3686	0.1691	1.2756	2.1260	8.7600	13.5913	
Adjusted Levelized Tariff																		
1-25 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	0.0000	0.4877	0.0366	0.5696	0.3173	1.6249	2.7081	9.3620	14.4923	

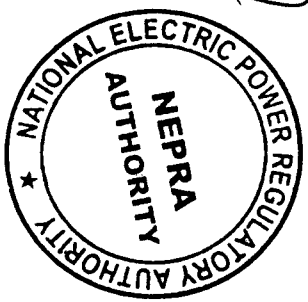
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Proforma XVIII

Plant Capacity 156 MW  
 Plant Factor 60%

Reference Tariff Table for Open Cycle Operation on LPG  
 for Maximum Initial Period of Twelve (12) Months

Year	Energy Purchase Price-EPP (Rs./kWh)				Capacity Purchase Price - CPP (Rs./kWh/Hour)							Capacity Charge at 60% PF	Total Tariff	
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROE	Withholding Tax @ 7.5%	Total		Rs. Per kWh	Rs. Per kWh
1	9.5924	0.0909	0.0909	9.7742	0.1090	0.1090	0.0549	0.1798	0.2438	0.0183	0.7149	1.1914	10.9656	16.9746



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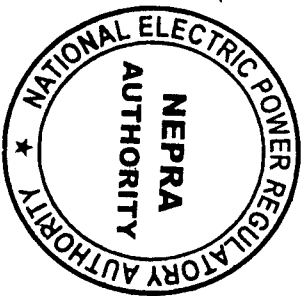
CAVALIER ENERGY & DEFENCE SYSTEMS GROUP  
 Reference Tariff Table for Open Cycle Operation on Gas  
 Approved by NEPRA for incorporation in the PPA

**Proforma XVIII**

Plant Capacity 154 MW  
 Plant Factor 60%

**Reference Tariff Table for Open Cycle Operation on Gas  
 for Maximum Initial Period of Twelve (12) Months**

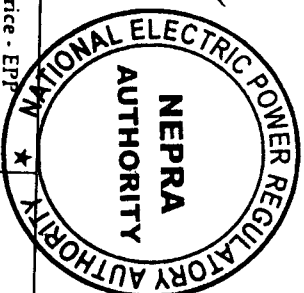
Year	Energy Purchase Price-EPP (Rs./kWh)			Capacity Purchase Price - CPP (Rs./kW/Hour)							Capacity Charge at 60% PF		Total Tariff	
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROE	Withholding Tax @ 7.5%	Total	Rs. Per kWh	Rs. Per kWh	US c per kWh
1	2.7049	0.0920	0.0920	2.8890	0.1105	0.1105	0.0549	0.1821	0.2547	0.0191	0.7317	1.2195	4.1055	6.3599



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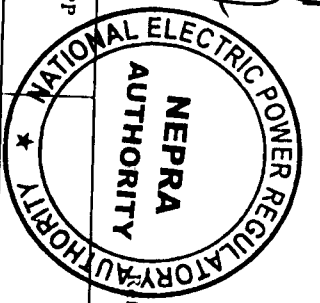
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CAV I IER ENERGY & DEFENCE SYSTEMS GROUP  
 Reference Tariff Table for Combined Cycle Operation on LPG upon CUI  
 (Before application of Foreign Currency Exchange Rate Multipliers)  
 Approved by NEPRA for incorporation in the PPA  
 Revised Proforma XIX

Reference Tariff Table Upon COD for Operation on LPG

Year	Energy Purchase Price - EPP (Rs./kWh)					Capacity Purchase Price - CPP (Rs./kWh/Hour)										Capacity Charge at 60% PF		Total Tariff	
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROEDC	ROE	Withholding Tax @ 7.5%	Loan Re-payment	Interest Charges	Total	Rs. Per kWh	Rs. Per kWh	US c per kWh		
1	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.4823	0.6018	1.8221	3.0368	5.6907	15.0010		
2	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.5241	0.5600	1.8221	3.0368	5.6907	15.0010		
3	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.5697	0.5144	1.8221	3.0368	5.6907	15.0010		
4	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.6194	0.4647	1.8221	3.0368	5.6907	15.0010		
5	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.6736	0.4106	1.8221	3.0368	5.6907	15.0010		
6	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.7326	0.3515	1.8221	3.0368	5.6907	15.0010		
7	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.7971	0.2870	1.8221	3.0368	5.6907	15.0010		
8	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.8674	0.2167	1.8221	3.0368	5.6907	15.0010		
9	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.9442	0.1399	1.8221	3.0368	5.6907	15.0010		
10	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	1.0281	0.0560	1.8221	3.0368	5.6907	15.0010		
11	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
12	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
13	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
14	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
15	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
16	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
17	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
18	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
19	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
20	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
21	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
22	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
23	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
24	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
25	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
Average Tariff	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
1-10 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.7239	0.3603	1.8221	3.0368	5.6907	15.0010		
11-20 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
21-25 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	-	-	1.8221	3.0368	5.6907	15.0010		
1-25 Years	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.2895	0.1441	1.1716	1.9526	5.6065	15.3328		
Levelized Tariff	6.5735	0.0402	0.0402	6.6539	0.0483	0.0483	0.0376	0.0795	-	0.4877	0.0366	0.4588	0.2750	1.4716	2.4530	9.1069	14.0974		



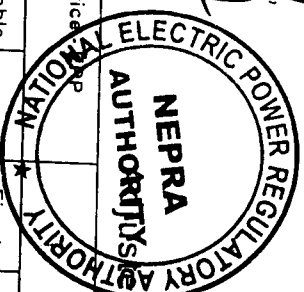
Revised Proforma XX

Reference Tariff Table Upon COD for Operation on Gas

CAVALLIER ENERGY & DEFENCE SYSTEMS GROUP  
 Reference Tariff Table for Combined Cycle Operation on Gas upon (COD)  
 (Before Application of Foreign Currency Exchange Rate Multipliers)  
 Approved by NEPRA for incorporation in the PPA

Year	Energy Purchase Price - EPP (Rs./kWh)										Capacity Purchase Price - CPP (Rs./kWh/Hour)									
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROEDC	ROE	Withholding Tax @ 7.5%	Loan Re-payment	Interest Charges	Total	Capacity Charge at 60% PF	Total Tariff				
1	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.5037	0.6286	1.9014	3.1690	5.1347				
2	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.5474	0.5849	1.9014	3.1690	5.1347				
3	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.5950	0.5373	1.9014	3.1690	5.1347				
4	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.6469	0.4854	1.9014	3.1690	5.1347				
5	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.7035	0.4288	1.9014	3.1690	5.1347				
6	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.7652	0.3671	1.9014	3.1690	5.1347				
7	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.8325	0.2998	1.9014	3.1690	5.1347				
8	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.9060	0.2263	1.9014	3.1690	5.1347				
9	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.9862	0.1461	1.9014	3.1690	5.1347				
10	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	1.0738	0.0585	1.9014	3.1690	5.1347				
11	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
12	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
13	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
14	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
15	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
16	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
17	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
18	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
19	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
20	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
21	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
22	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
23	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
24	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
25	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
Average Tariff	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
1-10 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.7560	0.3763	1.9014	3.1690	5.1347				
11-20 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
21-25 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	1.9014	3.1690	5.1347				
Average Tariff	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.3024	0.1505	1.2220	2.0367	4.0074				
1-25 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.4792	0.2873	1.5356	2.5593	4.5250				
																7.0047				

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Adjusted Reference Tariff Table for Combined Cycle Operation on Gas upon COD  
(After Location of Foreign Currency Exchange Rate Multipliers)  
Used for Evaluation/Ranking of Bids

Proforma X:  
Reference Tariff Table for Operation on Gas

Year	Energy Purchase Price (Rs./kWh)										Capacity Purchase Price - CPP (Rs./kWh/hour)										Total Tariff	
	Fuel	Variable O&M (Foreign)	Variable O&M (Local)	Total	Fixed O&M (Foreign)	Fixed O&M (Local)	Cost of Working Capital	Insurance	ROEDC	ROE	Withholding Tax @ 7.5%	*Adjusted Loan Re-payment	*Adjusted Interest Charges	Total	Rs. Per kWh	Rs. Per kWh	US c per kWh					
1	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.5383	0.6679	1.9753	3.2922	5.2579	8.1391					
2	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.6050	0.6409	2.0150	3.3584	5.3241	8.2416					
3	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.6799	0.6072	2.0562	3.4270	5.3927	8.3479					
4	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.7641	0.5658	2.0990	3.4983	5.4640	8.4582					
5	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.8588	0.5155	2.1433	3.5722	5.5379	8.5726					
6	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.9652	0.4551	2.1893	3.6489	5.6145	8.6912					
7	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	1.0847	0.3832	2.2370	3.7264	5.6941	8.8144					
8	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	1.2192	0.2983	2.2866	3.8109	5.7766	8.9421					
9	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	1.3703	0.1985	2.3379	3.8965	5.8622	9.0746					
10	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	1.5401	0.0819	2.3912	3.9853	5.9510	9.2120					
11	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
12	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
13	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
14	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
15	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
16	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
17	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
18	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
19	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
20	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
21	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
22	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
23	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
24	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
25	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
Average Tariff	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
1-10 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.9626	0.4414	2.1731	3.6218	5.5675	8.6494					
11-20 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	0.7691	1.2818	3.2475	5.0271					
21-25 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	0.7691	1.2818	3.2475	5.0271					
1-25 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	0.3850	0.1766	1.3307	2.2178	4.1835	6.4760					
Adjusted Levelized Tariff	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					
1-25 Years	1.8817	0.0420	0.0420	1.9657	0.0504	0.0504	0.0376	0.0831	-	0.5094	0.0382	-	-	2.3912	3.9853	5.9510	9.2120					

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**TARIFF ASSUMPTIONS AND ADJUSTMENTS FOR IPPS**

A. One Time Adjustments at COD

1. Adjustment in EPC Cost:

The tariff tables as provided by the bidders are quoted in Pak Rupees based on Exchange Rates provided in the RFP issued by PPIB, which are given below for reference:

1.0 US\$ =	<u>PKR 64.60</u>
1.0 EURO =	<u>PKR 100.57</u>
1.0 Pound Sterling =	<u>PKR 127.15</u>
1.0 Japanese Yen =	PKR 0.6206

The bidders have quoted EPC Prices in specific currencies in their bids. As the exact timing of payments to EPC contractor is not known at the time of bidding, and both the disbursement schedule and exchange rates may vary during the project implementation period, an adjustment for relevant foreign currency fluctuation for the portion of payment in the relevant foreign currency will be made. The sponsors will be required to provide all relevant details along with documentary evidences to NEPRA for the adjustments.

The following tariff components will be adjusted at COD due to the aforementioned EPC Cost variations;

**i. Insurance Adjustment Mechanism for EPC Cost Variation:**

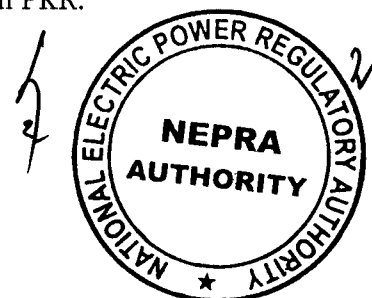
One time adjustment at time of COD will be made in the Insurance Component of the tariff due to EPC Cost variation. The Insurance Component of tariff as per original tariff bid will be divided with the original EPC Cost in PKR and multiplied by adjusted EPC Cost in PKR.

**ii. Return on Equity Adjustment Mechanism for EPC Cost Variation:**

One time adjustment at time of COD will be made in the Return on Equity (ROE) Component of the tariff due to EPC Cost Variation. The ROE Component (in PKR) of tariff as per original tariff bid will be divided with the original Equity amount in PKR and multiplied by revised amount of Equity in PKR.

**iii. ROEDC Adjustment Mechanism for EPC Cost Variation:**

One time adjustment at time of COD will be made in the ROEDC Component of the tariff due to EPC Cost Variation. The ROEDC Component (in PKR) of tariff as per original tariff bid will be divided with the original amount of Equity During Construction in PKR and multiplied by revised amount of Equity During Construction in PKR.



#### **iv. Debt Servicing Adjustment Mechanism for EPC Cost Variation**

One time adjustment at time of COD will be made in the Debt Servicing Component of the tariff due to EPC Cost variation. The Debt Servicing Component of tariff as per original tariff bid will be divided with the original amount of Debt in PKR given in the disbursement schedule by the bidders and multiplied by revised amount of Debt in PKR i.e. (Revised amount of Debt in the Project Cost after incorporating the adjustments of currency fluctuations).

#### **2. Adjustment Based on Actual Interest During Construction:**

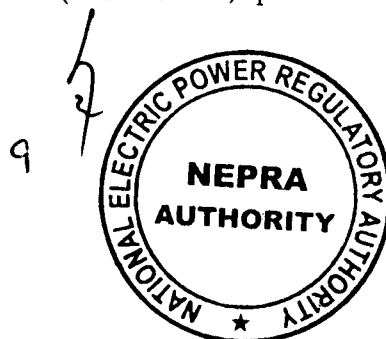
Debt Service, Return on Equity and ROE During Construction component of the tariff will be adjusted on account of variation in actual draw down and Interest During Construction due to variations in KIBOR/LIBOR/Other Interest Rates Benchmarks (as applicable) with reference to the estimated figures provided in the bids.

#### **3. Adjustment due to Custom Duties and Taxes:**

The RFP permits Bidders to include custom duties and taxes on import of plant and equipment not manufactured in Pakistan at the rate of 5% in the Project Cost. In case custom duties & taxes change from 5% as specified in the RFP, the Debt Service, Return on Equity and ROE During Construction will be adjusted on a prorata basis on account of any variation in custom duties & taxes with reference to the estimated figures as provided in the respective bids, on provision of documentary evidence to NEPRA at COD.

#### **B. Pass-through Items**

1. No provision for income tax has been accounted for in the tariff at the time of bidding. If Bidders are obligated to pay any tax on its profits, the exact amount paid by the Bidders may be reimbursed by Power Purchaser to Bidders 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 proposed in Reference Tariff. Furthermore, in such a scenario, Bidders may also submit to Power Purchaser details of any tax shield savings and Power Purchaser will deduct the amount of these savings from its payment to Bidders on account of taxation.
2. 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 reference tariff table withholding tax number is indicated as reference and Power Purchaser shall make payment on account of withholding tax at time of actual payment of dividend subject to maximum 7.5 of 15% reference equity as approved by NEPRA at COD i.e. hourly payment (Rs./kW/hour) spread over 12 month.



3. In case bidders do 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 entitlements as per the 15%, Return on Equity,) would be carried forward and accumulated so that the bidders are 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.

### C. Indexations:

#### I. Fuel Cost Component:

The Fuel Cost Component for RFO/Gas based projects will be adjusted according to the mechanism already approved by NEPRA for RFO/Gas based Power Plants. The tariffs are based on following assumptions;

- i. Reference Fuel Price for RFO = Rs. 22,140 per metric ton ex-Karachi without transportation charges and sales tax.
- ii. Reference Freight Charges for RFO = Rs. 2,350 per metric ton
- iii. Reference LHV Calorific Value of RFO=38,849.5 Btu per kg
- iv. Reference HHV-LHV conversion factor for RFO = 1.05
- v. Reference Fuel Price for Gas on HHV basis = Rs. 240.9185 per MMBTU.
- vi. Reference HHV-LHV conversion factor for gas = 1.107553

For LPG based Projects, the tariffs are based on following assumptions;

- i. Reference Fuel Price for LPG = Rs. 34,571 per metric ton without transportation charges and sales tax, which is based on the Maximum Base-Stock Price of LPG notified by OGRA on June 02, 2007 using FOB Saudi ARAMCO Contract Price for 40% Propane at US\$ 560 per metric ton and 60% Butane at US\$ 575 per metric ton converted to Pak Rs. at exchange rate of 1 US\$ = Rs. 60.7570.
- ii. Reference Freight and Carriage, Port Charges, Royalty, OMC Commission, Terminal Charges, others, etc. for LPG = Rs. 5,491 per metric ton (US\$ 85 per Metric Ton converted at exchange rate of 1US\$=Rs. 64.6)
- iii. Reference LHV Calorific Value of LPG for Cavalier Energy = 43,606 Btu per kg
- iv. Reference LHV Calorific Value of LPG for Progas Energy = 44,500 Btu per kg

*Note: For LPG, Cavalier in their bid quoted CV (LHV) of 43,606 Btu/kg and Progas quoted 44,500 Btu/kg. For the purposes of evaluation and ranking a common CV (LHV) of 43,606 Btu/kg (which is in line with international standards) has been used. However the tariff tables are based on the CV values as committed by the bidder for approval by NEPRA.*

As there is no LPG based Power Plant operating in Pakistan and the price of imported LPG is not regulated by GOP, the mechanism for LPG pricing and its indexation would require to be

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developed in consultation with Ministry of Petroleum and Natural Resources, while finalizing the Power Purchase Agreement.

## **2. Variable O&M:**

The Foreign Currency Portion of Variable O&M Component will be indexed for the followings.

- i. Exchange Rates variation of US\$ to Pak Rupees using Rs. 64.60 as reference rate.
- ii. Changes in US CPI using 30<sup>th</sup> April 2008 as the base date.

The Local Currency Portion of Variable O&M Component will be indexed for Pakistan WPI using 30<sup>th</sup> April 2008 as the base date.

The quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and 1<sup>st</sup> 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.

## **3. Fixed O&M:**

The Foreign Currency Portion of Fixed O&M Component will be indexed for the followings.

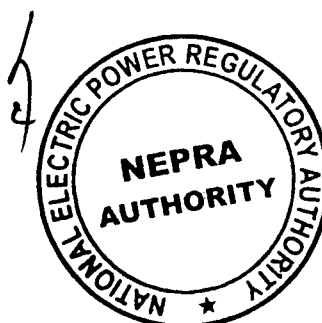
- iii. Exchange Rates variation of US\$ to Pak Rupees using Rs. 64.60 as reference rate.
- iv. Changes in US CPI using 30<sup>th</sup> April 2008 as the base date.

The Local Currency Portion of Fixed O&M Component will be indexed for Pakistan WPI using 30<sup>th</sup> April 2008 as the base date.

The quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and 1<sup>st</sup> 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.

## **4. Principal Repayment:**

Principal Repayment (only for Foreign Currency Loan) will be adjusted on account of exchange rate variations of Pak Rupee to one of the relevant foreign currencies i.e. US\$, Euro, £, ¥.



## 5. Adjustment for KIBOR and LIBOR Variation

### a. Local Currency Loan:

Interest /Mark-up Payments for Local Currency loans will be adjusted for relevant KfBOR variations.

### b. Foreign Currency Loan:

Interest /Mark-up Payments of Foreign Currency loans will be adjusted for variations in relevant L111OR or other applicable Interest Rate benchmark and on account of exchange rate variations of Pak Rupee to one of the relevant foreign currencies i.e. US\$, Euro, £, ¥.

## 6. Cost of Working Capital:

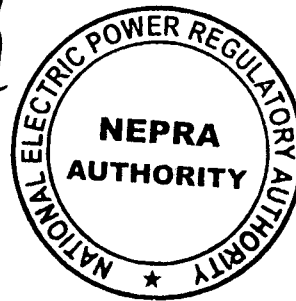
Cost of Working Capital will be adjusted only due to relevant KIBOR rate variations.

## 7. Insurance:

In case of foreign currency insurance cost, the insurance component of the tariff will be adjusted on account of US\$ to Pak Rupees variations.

## 8. Return on Equity and Return on Equity During Construction:

Return on Equity and Return on Equity During Construction will be quarterly adjusted on account of variation in PKR/US\$ parity.



TERMS AND CONDITIONS & ASSUMPTIONS OF TARIFF

1. Capacity Charge Rs. /kW/hour will be applicable to net capacity delivered at the delivery point.
2. The Contract capacity is the net electrical output as committed by the bidders at the reference ambient temperature (dry bulb) of 30°C
3. The net heat rates at 100% load will remain constant and applicable throughout the project life of 25 years and no adjustment/variation will be permissible due to deterioration/degradation or on any other account.
4. The plant availability will be as committed by the Bidders in their bids.
5. The Open Cycle Tariffs will be applicable for an initial period of maximum of 12 months.
6. The Combined Cycle Tariffs will be applicable for a period of 25 years commencing from the date of the Commercial Operation.
7. Dispatch criterion will be based on the Energy Charge with due consideration of transmission system constraints (if any) and reliability and stability criterion.
8. The net output and the net heat rates are as committed by the Bidders at the delivery point and are net of internal consumption.
9. Scheduled Outage period per annum shall be in accordance with the 2006 standardized PPA.
10. NTDC will be responsible for constructing the interconnection to the grid unless agreed otherwise between the parties.
11. All invoicing and payment terms are assumed to be in accordance with the standardized PPA attached with the Request for Proposal (RFP).
12. Tolerance in Dispatch shall be in accordance with standardized PPA attached with RFP.
13. The tariffs are based on indicative financing plans proposed by the Bidders. The Bidders may change their lenders and financing plans with the prior written approval of PPIB, without any adverse change in the financing terms, tariff, GoP/Power purchaser obligation and project implementation schedule. Any advantage of the above modification will be shared between the Power Purchaser/GoP and the Bidders in the ratio of 60:40.
14. No corporate income tax and no minimum turnover tax has been assumed.
15. Working capital has been financed by a separate Working Capital Facility, and is not included in the project cost.

