

The Registrar  
National Electric Power Regulatory Authority (NEPRA)  
2<sup>nd</sup> Floor OPF Building,  
Sector G-5/2, Islamabad

Subject: - Application for determination of Tariff for Sahiwal Hydel Power Project

I, Shafiq-ur-Rehman Chief Executive Officer, being the duly Authorized representative of Chenab Energy Private Limited (P), 1022/E, Block C, Canal View, Multan Road Lahore. by virtue of POWER OF ATTORNEY [copy attached] dated October, 31, 2007, hereby apply to the National Electric Power Regulatory Authority (NEPRA) for the approval of Tariff for Sahiwal Hydropower Project to be installed on Lower Bari Doab Canal located at R.D. 329+058 along with assumptions and conditions approved by NEPRA for Independent Power Producers (IPPs) on March 13, 2006 pursuant to the Guidelines for Determination of Tariff for IPPs November 2005 issued by Government of Pakistan.

I undertake and confirm that the information provided in the attached documents in support is true and correct to the best of my knowledge and belief.

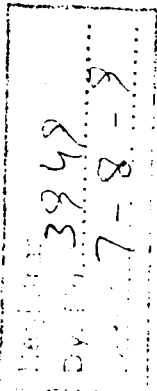
A PAY ORDER in the sum Rupees 420,480/- including CPI with reference to 10<sup>th</sup>, July, 2009 (Four hundred twenty thousand, four hundred and eighty only), being the non-refundable application processing fee as approved by the National Electric Power Regulatory Authority, is also attached herewith.

Date: 01-08-2009



Shafiq-ur - Rehman  
Chief Executive Officer

Company Seal



## INFORMATION SUMMARY

\*\*\*

1. Generator Name: Attached.
2. Location: L.B.D.C. R.D. 329+058, Near Sahiwal.
3. Project Cost: Rs. 1170.910 million
4. Technology: Pit Kaplan
5. Installed Capacity:
  - a) Gross ISO MW: 4.8 MW
  - b) Net MW: 4.693 MW
6. Plant Detail:
  - a) Make: Attached
  - b) Model: Attached
  - c) Configuration: Attached
7. Net Efficiency at Full Load (Gas/HSD) N/A
8. Debt/Equity Ratio: 80:20
9. Construction Period: 24 months
10. The expected time of commercial Operation of the generation facility: August, 2012

---

---

# PROSPECTUS

## 1.0 INTRODUCTION OF THE APPLICANT

A consortium namely Chenab Consortium has been formulated to implement the Sahiwal Hydropower Project on Build, Operate, and Transfer (BOT) basis. The Chenab Consortium consists of Chenab Limited, Chen One Stores and Shafiq ur Rehman and Associates. Mr. Shafiq ur Rehman (FCA) by virtue of power of attorney is the authorized representative of the Chenab consortium. Mr. Shafiq ur Rehman will act as the Chief Executive of the company and will act as the contact person in future for all the affairs of the project. This Consortium has already installed and maintaining and operating a number of thermal projects such as Nishatabad (Faisalabad), Kharianwala (Sheikhupura), Toba Tek Singh, Shah kot, etc. All the plants installed are functioning smoothly and very efficiently.

## 2.0. SALIENT FEATURES OF THE PROJECT

### 2.1 The Project

LBDC Hydropower Project, has been conceived by utilizing flows of Lower Bari Doab Canal available at RD 329+058 and head available at falls at RD 329+058 and RD 340+850, by combining the both falls.

The design discharge is 5,816 Cusecs while design net head is 11.00 ft. The installed capacity has been worked out as 4.8 MW while annual energy expected to be generated is 29.03 Gwh. The plant factor is 57.5 %.

### 2.2 Location

The project area lies on the left side of LBDC, between RD 327+800 and 340+850 in Sahiwal District near Sahiwal City. Sahiwal city is linked with Lahore and Multan through Lahore - Multan sections of GT road and main railways. Thus the project area is accessed both by road and railway from Lahore and Multan.

## 2.3 POWER POTENTIAL AND ENERGY CONSIDERATION

Going through daily discharge for the year 1976-77 to 2003-2004, it is observed that design discharge of LBDC i.e. 5,816 Cusecs never remained available. However keeping in view the expected rehabilitation of canal system a design discharge of 5,816 cusecs has been selected for power generation so that in case the canal is rehabilitated, the available potential is not wasted.

The gross head available is 11.2 ft. deducting head loss of 0.20 ft the net design head has been kept as 11 ft. The efficiency of turbine is taken as 92%, gear efficiency as 98%, Generator efficiency as 96%. Thus combined efficiency ( $\eta_c$ ) works out as 86.54 %. The installed capacity on the basis of formula

$P(\text{Watts}) = 9.81 \times \eta_c \times Qd \times Hd$  works out as 4.63 MW i.e by installing 3 turbines of 1.60 MW capacity, the installed capacity works out as 4.8 MW. The annual energy expected has been worked out as 29.03 Gwh.

---

---

### 3.0 PROJECT LAYOUT AND DESCRIPTION OF PROJECT COMPONENT

The discharge of LBDC will be diverted through a loop on left side of LBDC. The loop shall consist of Headrace, Powerhouse, Syphon Spillway and Tailrace.

#### 3.1 Head Race

The Head Race is 1110 ft long designed for discharge of 5,816 Cusecs. The bed width is 134 ft, Bed slope is 1: 10,526. Side slopes are 1.5 : 1.

#### 3.2 Power House

The main power house is 38 ft long, 137 ft wide and 48 ft high. The power house has been designed as an RCC framed structure. A siphon spillway to spill 1,940 cusecs of water has been provided on right side of powerhouse while loading bay is on left side.

#### 3.3 Tail Race

Tail race of 1110ft length has been designed as a brick lined trapezoidal section for a maximum discharge of 5,816 Cusecs. The bed slopes has been kept as 1:0526, bed width as 146 ft

#### 3.4 Turbines & Generators

Three Kaplan Pit type turbines each of capacity 1.6 Mw has been selected. Three Generators each of 1.6 MW capacity will be coupled with turbines through a speed increaser, thus increasing the speed of generator to 1000 rpm as compared to speed of turbine as 103.4 rpm.

### 4.0 Economic and financial analysis

Economic indicators namely (a) EIRR (b) B.C ratio and NPV are calculated at 12% from the cash flow which yields value of EIRR 24.38% B.C ratio 2.43:1 and NPV Rs.610.65 million. Financial evaluation carried on the financial cost gives FIRR 22.69%. The benefit cost ratio 2.22:1 and net present value NPV as Rs. 578.58 million.

### 5.0 PROPOSED INVESTMENT

The project cost estimate is based on the conversion rate of 1 US \$ = Rs. 80/-

The rates of civil works have been taken for December 2005 provided on the website of Govt of the Punjab. The rates of E & M works such as turbine generators etc have been taken from the rates provided by manufactures.

Total Investment	=	1170.910 Million Rs
Equity	=	234.20 Million Rs
Debt Financing	=	936.71 Million Rs.

### 6.0 SOCIAL AND ENVIRONMENTAL IMPACT

The LBDC Hydropower Project seems to be environment friendly. It has minimal environmental impacts. Environmental consideration have formed an integral part of the evaluation of layout and design alternatives with the result that all the potential effects of the project have been mitigated. The project area is approximately 28 acres. During construction planning the following consideration has been given top priority.

- 
- I. No interference with irrigation supply.
  - II. No damage to left bank of LBDC.
  - III. To ensure regular supply to Lower Bari Doab Canal during construction.

The construction of Civil Works on all the components can be started simultaneously. The mobilization period has been kept as 2 months. The civil works shall be completed by the end of 16th month. E & M equipment delivery and erection shall be started from 10th month and completed by the end of 24th month. Commercial operation shall start from the 1st of 25th month.

Table No. 11.8  
SAHIWAL HYDROPOWER PROJECT- SAHIWAL  
ASSUMPTIONS FOR TARRIF STRUCTURE

Item	Unit			
1	Installed Capacity	MW	4.80	
2	Plant factor	%	70	42.05
3	Energy Generated	GWh	29.43	
4	Aux Losses	%	0.50	
5	Energy loss	GWh	0.15	
6	Energy salable	GWh	29.29	
7	COST			
8	Capital Cost	M.US \$.	14.636	1170.910
9	Equity	%	20.00	
10	Amount of Equity	M.US\$.	2.927	
11	Debt	%	80.00	
12	Amount of Debt	M.US\$.	11.709	
13	Equity IRR	%	17.01	
14	Return on Equity	%	22.00	
15	Interest on Debt (F)	%	7.50	
16	O &M Fixed	US\$/KWh	0.0285	
17	O &M Variable	US\$/KWh	0.0127	
18	Escalation	factor	0.00	
19	Exchange Rate	Rs To \$	80.0000	80.00
20	Water charges	US\$/KWh	0.0019	
21	Insurance	US\$/KWh	0.0067	
22	Interest Rate	%	17.00	
23	Working capital cost	M.US\$.	0.0054	0.0002
24	Fixed O&M			
25	Staff Salaries and wages	M.US\$.	0.6723	
26	Import Duty on spare parts	M.US\$.	0.1464	
27	Office Overhead, Env, etc	M.US\$.	0.0160	
28	Sub-Total	M.US\$.	0.8347	
29	Variable O&M			
30	Lubricants/repair& maint	M.US\$.	0.0200	
31	Plant Maintenance	M.US\$.	0.2195	1.5%
32	other consumable	M.US\$.	0.0500	
33	vehicle O&M	M.US\$.	0.0821	0.08
34	Sub-Total	M.US\$.	0.3717	
35	Water charges	M.US\$.	0.0549	
36	Insurance Cost	M.US\$.	0.1976	1.35%
37	Total Operation Cost(in.yr)	M.US\$.	1.4642	
38	Idc on equity	M.US\$.	0.3592	
39	Idc on debt	M.US\$.	1.4369	
40	Total IDC (capitalised)	M.US\$.	1.7961	
42	W.H.Tax on Dividend	%	7.5	
41	Project Life	Years	25	
42	KIBOR (18.2.2009)	%	13.95	

## A profile of Mr. Shafiq ur Rehman

Fellow member of the Institute of Chartered Accountants of Pakistan  
and

Associate member of the Institute of Corporate Secretaries of Pakistan

---

27 years of diversified experience of working with manufacturing industries, financial sector, and professional firms in Pakistan as well as abroad. Experience includes working with government/ government owned financial institutions in remedial/corporate banking, and private sector industrial projects' corporate finance/corporate affairs and as business manager.

Held Following key positions:

- Associated as Chief Executive of Chenab Energy (Pvt.) Proposed, engaged in setting up 4.8 M.W. Hydro power project near Sahiwal, a project of Chenab Group
- Worked as **Chief Operating Officer** of Kunjah Textile Mills Ltd. Lahore, US\$25 million Sale Company, engaged in value added cotton yarn production.
- **Executive Director Finance/Financial Advisor** with Chenab Group Faisalabad, with US\$ 150 million turnover
- Was also engaged by the largest industrial group of Bangladesh on special assignment from Oct. 02 to Dec.02
- **Member/Secretary Board** with Corporate and Industrial Restructuring Corporation (CIRC), ministry of Finance, Government of Pakistan
- **Textile industry/financial specialist** with Habib Bank Limited (HBL), the largest private sector bank of Pakistan, as Textile Monitoring Head.
  - **Consultant** with Faysal Bank Limited, Pakistan (subsidiary of Darul Mall, Geneva, Switzerland) as consultant/ rescheduling administrator.

In private corporate sector got hands on specialization in business planning, industrial projects set up, corporate finance including projects feasibility studies, projects appraisal, short and long term borrowing, loans syndication, leasing, corporate affairs -including public listing, budgetary control, financial management, quantitative controls, MIS, and preparation of accounting & procedure manuals, projects acquisition, mergers and sell off.

## **IMPORTANT PROFESSIONAL ASSIGNMENTS & EXTRA CURRICULAR ACTIVITIES**

- Business plan and concepts for Pakistan's proposed private sector Distressed Assets Management Company, in 2004. Report on Pakistan's weaving sector Up Gradation Strategy in July 2000
- Prepared report on Pakistan industrial reconstruction and revival in 1998 as experts sub committee member, set up by the Prime Minister of Pakistan under Minister of Commerce & Industry
- Member sub -committee for revival of sick units (textile sector), set up by the State Bank of Pakistan under the Prime Minister's Special Committee on Industrial Restructuring and Revival of Economy during 1998-99.
- Visited Bosnia an Herzegovina during March/April 1997 and prepared initial country report on overall economic position, future economic prospects, banking, corporate, commercial, and taxation laws of the country on behalf of Malaysian and Arab investors
- Member Technical Advisory Committee (North) of the Institute of Chartered Accountants of Pakistan 1999-2003.
- Occasional contributor of business topics articles in news papers and presenter at national level conferences, seminars and on media.
- President of Human Resource Management -a voluntary non profit association set up for facilitating placement of job seekers on suitable jobs on honorary basis, under Al Khidmat Foundation
- Member of Helpline -a NGO engaged in providing various social services
- Founder Trustee of Alnoor Trust, running a school in remote village about 100 KM from Lahore
- During college life was elected President of the Hazara Commerce Students Union at Govt. College of Commerce Abbottabad
- Remained captain of colleges hockey team and played at NWFP Board level

Mailing address: 1022/E, Block C, Canal View, Lahore

E mail: [shafiq56@live.com](mailto:shafiq56@live.com)

Cell: 0300-4003035 & 0300 9483643

Phone residence: 5434621



**Profile of Mian Muhammad Latif**  
**Chief Executive, Chenab Ltd., Nishatabad, Faisalabad**  
**Tel: 0092-041-8754472-8**  
**Fax: 0092-041-8752400, 8752700**

<b>Name</b>	<b>Mian Muhammad Latif (Tamgha-i-Imtiaz)</b>
<b>Father's Name</b>	<b>Late Haji Muhammad Saleem</b>
<b>Date of Birth</b>	<b>28-08-1950</b>
<b>Academic Qualification</b>	<b>MBA</b>
<b>Occupation</b>	<b>Trade &amp; Industry</b>
<b>Professional Designation</b>	<b>1. Chairman/Chief Executive, Chenab Ltd., Nishatabad, Faisalabad</b>
<b>Offices Held</b>	<b>1. Chairman/Board of Management, Punjab Medical College/Allied &amp; DHQ Hospitals/Faisalabad Institute of Cardiology, Faisalabad.</b>
	<b>2. EX- Chairman, Faisalabad Industrial Estate Development &amp; Management Company (FIEDMC).</b>
	<b>3. Formerly Director, The Bank of Punjab.</b>
	<b>4. Formerly Chairman, District Public Safety Commission, Faisalabad.</b>
	<b>5. Trustee and Founder Chairman, Faisalabad Dry Port Trust (1992-1998).</b>
	<b>6. Founder Member, Citizen Police Liaison Committee (CPLC), Faisalabad.</b>
	<b>7. Member, Board of Governors, National Textile University, Faisalabad.</b>
	<b>8. Member, Syndicate, Govt. College University, Faisalabad.</b>
	<b>9. Member, Pakistan France Business Alliance (2004).</b>
	<b>10. Member, All Pakistan Textile Mills Association.</b>
	<b>11. Member, Board of Management, TEVTA, Faisalabad.</b>

12. Member & Formerly SVP, Faisalabad Chamber of Commerce & Industry (1992-93).
13. Convener, Sectoral Committee, Pakistan Textile Board
14. Director, National Industrial Parks Development & Management Company.
15. Member, Federal Export Development Board (Chaired by the Prime Minister of Pakistan)
16. Member and former Chairman of Pakistan Textile Exporters Association (formerly APCEA).
17. Member, Pakistan Railway Board.

**Other Pursuits**

Philanthropy and a wide range of altruistic socio-cultural activities.

**Awards/Medals**

1. Tamgha-i-Imtiaz (2004)
2. Businessman of the year Gold Medals from FPCCI for Investment, Industry & Trade (1999, 2000, 2001, and 2002)
3. Five Star Award from Macy's merchandizing group for outstanding performance in the development of Macy's department stores.
4. Best Export Performance Trophy from FPCCI (1996 to 2004)
5. Special Merit Trophy from Federation of Pakistan Chambers of Commerce and Industry, Karachi on export performance (1989 to 1996).
6. XV Star Award 2004 by South Asia Publications.

**Business  
Tours/Interests  
Abroad**

Frequently travelling in Asia, North America, Europe, South Africa, Australia, and the Middle East to promote textile exports and other business activities, keep a close liaison with international textile industry and maintain a sound rapport with world business tycoons.

Running/managing the following business set-ups

abroad:

- a) Chenab Group International (CGI) at Jebel Ali, Free Zone, UAE.
- b) ChenOne Stores in UAE (4), KSA (2), Bahrain (1).
- c) Chenab USA, New York (an international display, sales and service centre of Chenab Ltd).
- d) Regional business representatives based in Europe and Australia.

**Industrial Fairs  
Attended**

- 1. Hemtextile, Frankfurt, Germany.
- 2. Cologne Industrial Fair, Germany.
- 3. Chinese Export Commodities Fair, Guangzhou, China.
- 4. Interstuff, Hong Kong (People's Republic of China).

**PROFILE OF MUHAMMAD NAEEM**  
Director Chenab Limited, Nishatabad, Faisalabad.

Name	Muhammad Naeem
Father's Name	Late Haji Muhammad Saleem
Date of Birth	22-12-1962
Occupation	Trade & Industry
Address	42-W-101, Madina Town, Faisalabad.
Phone #	92-041-8754472-78
Fax #	92-041-8752400-8752700
Academic Qualification	Graduate
Position	Director Marketing/Planning.

**Directorship**

- Chenab Limited
- Chen One Store Limited
- Chen Soft (Pvt.) Limited

**Responsibilities**

He was designated as Director of the company in the year 1980. His current responsibilities are to plan the export strategy of the company with a highly ambitious future course of action in that area so as to accelerate its upward growth and profitability. He is also entrusted with sensitive job of marketing the high-ended-cum-value-added textiles manufactured by the company by building up a strong custom base, ensuring quality products and their timely delivery at competitive prices and thus projecting Company and Pakistan's image in the international market. He has traveled all over the world for marketing of textile products.

# Chenab Energy (Pvt.) Ltd. (Proposed)

B

Ref: CEO/09/01

Dated 4.9.2009

**The Registrar**  
National Electric Power Regulatory Authority  
**2nd Floor, OPF Building**  
G-5/2  
Islamabad

**Kind Attention Mr. Ramzan**

**Subject: Original Power Of Attorney, & Approved Tariff From PPDB**

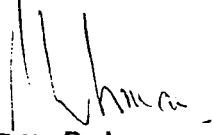
Dear Sir,

This has reference to our telephonic discussion regarding providing original power of attorney, affidavit and working papers pertaining to tariff approved by PPDB for your reference. I am pleased to enclose the documents for your reference and review.

Many thanks for your kind cooperation. Due to pre occupation of our groups' chairman submission of original power of attorney was delayed.

Yours sincerely

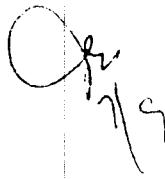
For Chenab Energy (Pvt.) Ltd. (P)



**Shafiq ur Rehman**  
Chief Executive

AD (MR) to process

- Encl: 1) Original Power of attorney  
2) Affidavit  
3) Working papers for tariff calculations



Registered  
No. 4477  
Dy. No. 7-8-58

CHENAB ENERGY (PVT) LIMITED (Proposed)

CALCULATION OF LEVELIZED TARIFF CHARGE (LTC)

Agreement Year	Total Tariff Charges	Energy output (EO)	Total Payment	Discount Factor	Present Value of Total Payment (TP)	Present Value of Total Payment (TP)
	Rs/KWh		Rs.			Rs/KWh
1	2	3	4	5	6	7
1	10.3734	29,000,000	300,828,108	0.8928	268,579,335	9.2614
2	10.4391	29,000,000	302,733,277	0.7971	241,308,695	8.3210
3	10.5125	29,000,000	304,863,245	0.7118	217,001,658	7.4828
4	10.5939	29,000,000	307,222,899	0.6355	195,240,153	6.7324
5	10.6834	29,000,000	309,818,327	0.5674	175,790,919	6.0618
6	10.7813	29,000,000	312,656,817	0.5066	158,391,943	5.4618
7	10.8878	29,000,000	315,746,864	0.4523	142,812,307	4.9246
8	11.0034	29,000,000	319,098,189	0.4038	128,851,849	4.4432
9	11.1283	29,000,000	322,721,753	0.3606	116,373,464	4.0129
10	11.2631	29,000,000	326,629,790	0.322	105,174,792	3.6267
11	5.9945	29,000,000	173,840,538	0.2875	49,979,155	1.7234
12	6.0319	29,000,000	174,924,821	0.2567	44,903,201	1.5484
13	6.0806	29,000,000	176,338,292	0.2292	40,416,737	1.3937
14	6.1413	29,000,000	178,098,692	0.2046	36,438,992	1.2565
15	6.2147	29,000,000	180,225,279	0.1827	32,927,158	1.1354
16	6.3013	29,000,000	182,738,898	0.1631	29,804,714	1.0277
17	6.4021	29,000,000	185,662,062	0.1456	27,032,396	0.9322
18	6.5179	29,000,000	189,019,035	0.13	24,572,475	0.8473
19	6.6495	29,000,000	192,835,931	0.1161	22,388,252	0.7720
20	6.7980	29,000,000	197,140,813	0.1037	20,443,502	0.7049
21	7.0111	29,000,000	203,323,183	0.0925	18,807,394	0.6485
22	7.1964	29,000,000	208,696,603	0.0826	17,238,339	0.5944
23	7.4019	29,000,000	214,655,073	0.0738	15,841,544	0.5463
24	7.6288	29,000,000	221,235,681	0.0659	14,579,431	0.5027
25	7.8786	29,000,000	228,478,123	0.0588	13,434,514	0.4633
<i>Present value of total payments at 12% DR</i>					2,158,332,926	2.9770

Calculation of Levelized Tariff

*Present value of total payments at 12% DR*

*Present value of energy output (Purchase price)*

**Levelized tariff charge**

**Levelized tariff charge**

Tab. B 2.1

Rs.

@ US\$=77.5

2,158,332,926	2.9770
278,299,806	0.3839
<b>7.7554</b>	<b>7.7554</b>
0.1001	0.1001

CHENAB ENERGY (PVT) LIMITED (Proposed)

TABLE B-2.1:  
LEVELIZED TARIFF CHARGES

Agreement Year	Capacity Purchase Price (CPP)						Energy Purchase Price			Total Tariff Charge	VALUE OF ENERGY OUTPUT	Discount factor at 12 %	Present value of energy output
	CPP-1 R\$/kWh	CPP-2 R\$/kWh	FOM	withholding tax	CP R\$/kWh	VOMC R\$/kWh	WUL R\$/kWh	EP R\$/kWh	R\$/kWh				
1	6.528	1.777	0.830	0.210	8.304	0.879	0.150	1.029	9.333	29,841,000	0.893	26,642,345	
2	6.528	1.777	0.888	0.210	8.304	0.887	0.150	1.037	9.341	30,061,268	0.797	23,961,337	
3	6.528	1.777	0.950	0.210	8.304	0.898	0.150	1.048	9.352	30,388,394	0.712	21,630,459	
4	6.528	1.777	1.017	0.210	8.304	0.913	0.150	1.063	9.367	30,819,006	0.636	19,585,478	
5	6.528	1.777	1.088	0.210	8.304	0.931	0.150	1.081	9.385	31,350,359	0.567	17,788,194	
6	6.528	1.777	1.164	0.210	8.304	0.953	0.150	1.103	9.407	31,980,288	0.507	16,201,214	
7	6.528	1.777	1.246	0.210	8.304	0.978	0.150	1.128	9.432	32,707,176	0.452	14,793,456	
8	6.528	1.777	1.333	0.210	8.304	1.006	0.150	1.156	9.461	33,529,921	0.404	13,539,382	
9	6.528	1.777	1.426	0.210	8.304	1.038	0.150	1.188	9.492	34,447,903	0.361	12,421,914	
10	6.528	1.777	1.526	0.210	8.304	1.073	0.150	1.223	9.527	35,460,968	0.322	11,418,432	
11		2.853	1.633	0.210	2.853	1.111	0.188	1.299	4.152	37,656,898	0.288	10,826,358	
12		2.735	1.747	0.210	2.735	1.153	0.188	1.340	4.075	38,861,397	0.257	9,975,721	
13		2.616	1.869	0.210	2.616	1.197	0.188	1.385	4.001	40,163,072	0.229	9,205,376	
14		2.498	2.000	0.210	2.498	1.246	0.188	1.433	3.931	41,563,424	0.205	8,503,877	
15		2.380	2.140	0.210	2.380	1.297	0.188	1.485	3.864	43,064,333	0.183	7,867,854	
16		2.261	2.290	0.210	2.261	1.353	0.188	1.540	3.801	44,668,049	0.163	7,285,359	
17		2.143	2.450	0.210	2.143	1.412	0.188	1.599	3.742	46,377,190	0.146	6,752,519	
18		2.024	2.622	0.210	2.024	1.474	0.188	1.662	3.686	48,194,732	0.130	6,265,315	
19		1.906	2.805	0.210	1.906	1.541	0.188	1.728	3.634	50,124,009	0.116	5,819,397	
20		1.787	3.002	0.210	1.787	1.611	0.188	1.799	3.586	52,168,713	0.104	5,409,896	
21		1.669	3.212	0.210	1.669	1.686	0.234	1.920	3.589	55,692,285	0.093	5,151,535	
22		1.550	3.437	0.210	1.550	1.765	0.234	1.999	3.550	57,980,322	0.083	4,789,175	
23		1.432	3.677	0.210	1.432	1.848	0.234	2.083	3.515	60,397,029	0.074	4,457,301	
24		1.314	3.935	0.210	1.314	1.936	0.234	2.171	3.484	62,947,522	0.066	4,148,242	
25		1.195	4.210	0.210	1.195	2.029	0.234	2.263	3.458	65,637,314	0.059	3,859,474	
278,299,806													

26

**CHENAB ENERGY (PVT) LIMITED (Proposed)**  
**Reference Tariff Calculated at the conversion rate as on 23-09-2008**

1 US\$= Rs. 77.50

Year	Variable O&M Local		Fixed O&M Local		Fixed Water Use Charge	Insurance	Return on Equity	ROE during construction	Withholding tax	Loan Repayment	Interest Charge	Tariff	
												Rs./KWh	\$/KWh
1	0.6210	0.8300	0.1500	0.2580	1.7766	1.7766	0.2100	1.4435	5.0844	10.3734	0.1330		
2	0.6521	0.8881	0.1500	0.2345	1.7766	1.7766	0.2100	1.6886	4.8392	10.4391	0.1338		
3	0.6847	0.9503	0.1500	0.2132	1.7766	1.7766	0.2100	1.9755	4.5524	10.5125	0.1348		
4	0.7189	1.0168	0.1500	0.1938	1.7766	1.7766	0.2100	2.3110	4.2168	10.5939	0.1358		
5	0.7548	1.0880	0.1500	0.1762	1.7766	1.7766	0.2100	2.7036	3.8243	10.6834	0.1370		
6	0.7926	1.1641	0.1500	0.1602	1.7766	1.7766	0.2100	3.1628	3.3650	10.7813	0.1382		
7	0.8322	1.2456	0.1500	0.1456	1.7766	1.7766	0.2100	3.7000	2.8278	10.8878	0.1396		
8	0.8738	1.3328	0.1500	0.1324	1.7766	1.7766	0.2100	4.3285	2.1993	11.0034	0.1411		
9	0.9175	1.4261	0.1500	0.1204	1.7766	1.7766	0.2100	5.0637	1.4641	11.1283	0.1427		
10	0.9634	1.5259	0.1500	0.1094	1.7766	1.7766	0.2100	5.9238	0.6040	11.2631	0.1444		
11	1.0115	1.6327	0.1875	0.0995	2.8533	2.8533	0.2100			5.9945	0.0769		
12	1.0621	1.7470	0.1875	0.0904	2.7348	2.7348	0.2100			6.0319	0.0773		
13	1.1152	1.8693	0.1875	0.0822	2.6164	2.6164	0.2100			6.0806	0.0780		
14	1.1710	2.0002	0.1875	0.0747	2.4979	2.4979	0.2100			6.1413	0.0787		
15	1.2295	2.1402	0.1875	0.0679	2.3795	2.3795	0.2100			6.2147	0.0797		
16	1.2910	2.2900	0.1875	0.0618	2.2611	2.2611	0.2100			6.3013	0.0808		
17	1.3556	2.4503	0.1875	0.0561	2.1426	2.1426	0.2100			6.4021	0.0821		
18	1.4233	2.6218	0.1875	0.0510	2.0242	2.0242	0.2100			6.5179	0.0836		
19	1.4945	2.8053	0.1875	0.0464	1.9058	1.9058	0.2100			6.6495	0.0853		
20	1.5692	3.0017	0.1875	0.0422	1.7873	1.7873	0.2100			6.7980	0.0872		
21	1.6477	3.2118	0.2344	0.0384	1.6689	1.6689	0.2100			7.0111	0.0899		
22	1.7301	3.4367	0.2344	0.0349	1.5504	1.5504	0.2100			7.1964	0.0923		
23	1.8166	3.6772	0.2344	0.0317	1.4320	1.4320	0.2100			7.4019	0.0949		
24	1.9074	3.9346	0.2344	0.0288	1.3136	1.3136	0.2100			7.6288	0.0978		
25	2.0028	4.2101	0.2344	0.0262	1.1951	1.1951	0.2100			7.8786	0.1010		
										8.3166	0.1066		



Return on Equity

Year	Equity	Repayment/Redemption	Return	Balance	Annual Payment	Repayment/Redemption Rs/KWh	Return Rs/KWh	Return+ Equity Rs/KWh
1	234,182,000		51,520,040	255,782,040	29,920,000	0.00	1.03	1.03
2	255,782,040		56,272,049	252,214,089	59,840,000	0.00	2.06	2.06
3	252,214,089		55,487,100	188,021,188	119,680,000	0.00	4.13	4.13
4	188,021,188		41,364,661	229,385,850		0.00	0.00	0.00
5	229,385,850		50,464,887	279,850,737		0.00	0.00	0.00
6	279,850,737		61,567,162	341,417,899		0.00	0.00	0.00
7	341,417,899		75,111,938	416,529,837		0.00	0.00	0.00
8	416,529,837		91,636,564	508,166,401		0.00	0.00	0.00
9	508,166,401		111,796,608	619,963,009		0.00	0.00	0.00
10	619,963,009		136,391,862	756,354,871		0.00	0.00	0.00
11	756,354,871	50,423,658	166,398,072	705,931,213	216,821,730	1.74	7.48	9.22
12	705,931,213	50,423,658	155,304,867	655,507,555	205,728,525	1.74	7.09	8.83
13	655,507,555	50,423,658	144,211,662	605,083,896	194,635,320	1.74	6.71	8.45
14	605,083,896	50,423,658	133,118,457	554,660,238	183,542,115	1.74	6.33	8.07
15	554,660,238	50,423,658	122,025,252	504,236,580	172,448,910	1.74	5.95	7.69
16	504,236,580	50,423,658	110,932,048	453,812,922	161,355,706	1.74	5.56	7.30
17	453,812,922	50,423,658	99,838,843	403,389,264	150,262,501	1.74	5.18	6.92
18	403,389,264	50,423,658	88,745,638	352,965,606	139,169,296	1.74	4.80	6.54
19	352,965,606	50,423,658	77,652,433	302,541,948	128,076,091	1.74	4.42	6.16
20	302,541,948	50,423,658	66,559,229	252,118,290	116,982,887	1.74	4.03	5.77
21	252,118,290	50,423,658	55,466,024	201,694,632	105,889,682	1.74	3.65	5.39
22	201,694,632	50,423,658	44,372,819	151,270,974	94,796,477	1.74	3.27	5.01
23	151,270,974	50,423,658	33,279,614	100,847,316	83,703,272	1.74	2.89	4.63
24	100,847,316	50,423,658	22,186,410	50,423,658	72,610,068	1.74	2.50	4.24
25	50,423,658	50,423,658	11,093,205	0	61,516,863	1.74	2.12	3.86

CHENAB ENERGY (PVT) LIMITED (Proposed)  
Debt servicing schedule

Period	Local Debt					Amount Principal Repayment Rs/KWh	Amount Mark-up Rs/KWh	Amount Debt Servicing Rs/KWh
	Principal	Repayment	Mark-up	Balance	Debt Servicing			
1	936,728,000	9,857,647	37,469,120	926,870,353	47,326,767			
2	926,870,353	10,251,953	37,074,814	916,618,400	47,326,767			
3	916,618,400	10,662,031	36,664,736	905,956,369	47,326,767			
4	905,956,369	11,088,512	36,238,255	894,867,856	47,326,767			
5	894,867,856	11,532,053	35,794,714	883,335,804	47,326,767	1.443	3.084	6.528
6	883,335,804	11,993,335	35,333,432	871,342,469	47,326,767			
7	871,342,469	12,473,068	34,853,699	858,869,400	47,326,767			
8	858,869,400	12,971,991	34,354,776	845,897,409	47,326,767			
9	845,897,409	13,490,871	33,835,896	832,406,538	47,326,767	1.689	4.839	6.528
10	832,406,538	14,030,506	33,296,262	818,376,033	47,326,767			
11	818,376,033	14,591,726	32,735,041	803,784,307	47,326,767			
12	803,784,307	15,175,395	32,151,372	788,608,912	47,326,767			
13	788,608,912	15,782,411	31,544,356	772,826,502	47,326,767	1.975	4.552	6.528
14	772,826,502	16,413,707	30,913,060	756,412,795	47,326,767			
15	756,412,795	17,070,255	30,256,512	739,342,539	47,326,767			
16	739,342,539	17,753,066	29,573,702	721,589,474	47,326,767			
17	721,589,474	18,463,188	28,863,579	703,126,286	47,326,767	2.311	4.217	6.528
18	703,126,286	19,201,716	28,125,051	683,924,570	47,326,767			
19	683,924,570	19,969,784	27,356,983	663,954,786	47,326,767			
20	663,954,786	20,768,576	26,558,191	643,186,210	47,326,767			
21	643,186,210	21,599,319	25,727,448	621,586,891	47,326,767	2.704	3.824	6.528
22	621,586,891	22,463,291	24,863,476	599,123,600	47,326,767			
23	599,123,600	23,361,823	23,964,944	575,761,777	47,326,767			
24	575,761,777	24,296,296	23,030,471	551,465,481	47,326,767			
25	551,465,481	25,268,148	22,058,619	526,197,333	47,326,767	3.163	3.365	6.528
26	526,197,333	26,278,874	21,047,893	499,918,459	47,326,767			
27	499,918,459	27,330,029	19,996,738	472,588,430	47,326,767			
28	472,588,430	28,423,230	18,903,537	444,165,200	47,326,767			
29	444,165,200	29,560,159	17,766,608	414,605,041	47,326,767	3.700	2.828	6.528
30	414,605,041	30,742,565	16,584,202	383,862,476	47,326,767			
31	383,862,476	31,972,268	15,354,499	351,890,208	47,326,767			
32	351,890,208	33,251,159	14,075,608	318,639,049	47,326,767			
33	318,639,049	34,581,205	12,745,562	284,057,844	47,326,767	4.328	2.199	6.528
34	284,057,844	35,964,453	11,362,314	248,093,390	47,326,767			
35	248,093,390	37,403,032	9,923,736	210,690,359	47,326,767			
36	210,690,359	38,899,153	8,427,614	171,791,206	47,326,767			
37	171,791,206	40,455,119	6,871,648	131,336,087	47,326,767	5.064	1.464	6.528
38	131,336,087	42,073,324	5,253,443	89,262,763	47,326,767			
39	89,262,763	43,756,257	3,570,511	45,506,507	47,326,767			
40	45,506,507	45,506,507	1,820,260	0	47,326,767			
	936,728,000	956,342,684			1,893,070,684	5.924	0.604	6.528

**CHENAB ENERGY (PVT) LIMITED (Proposed)**  
**Schedule of Equity**

**Project cost** Rs. 1,170,910,000

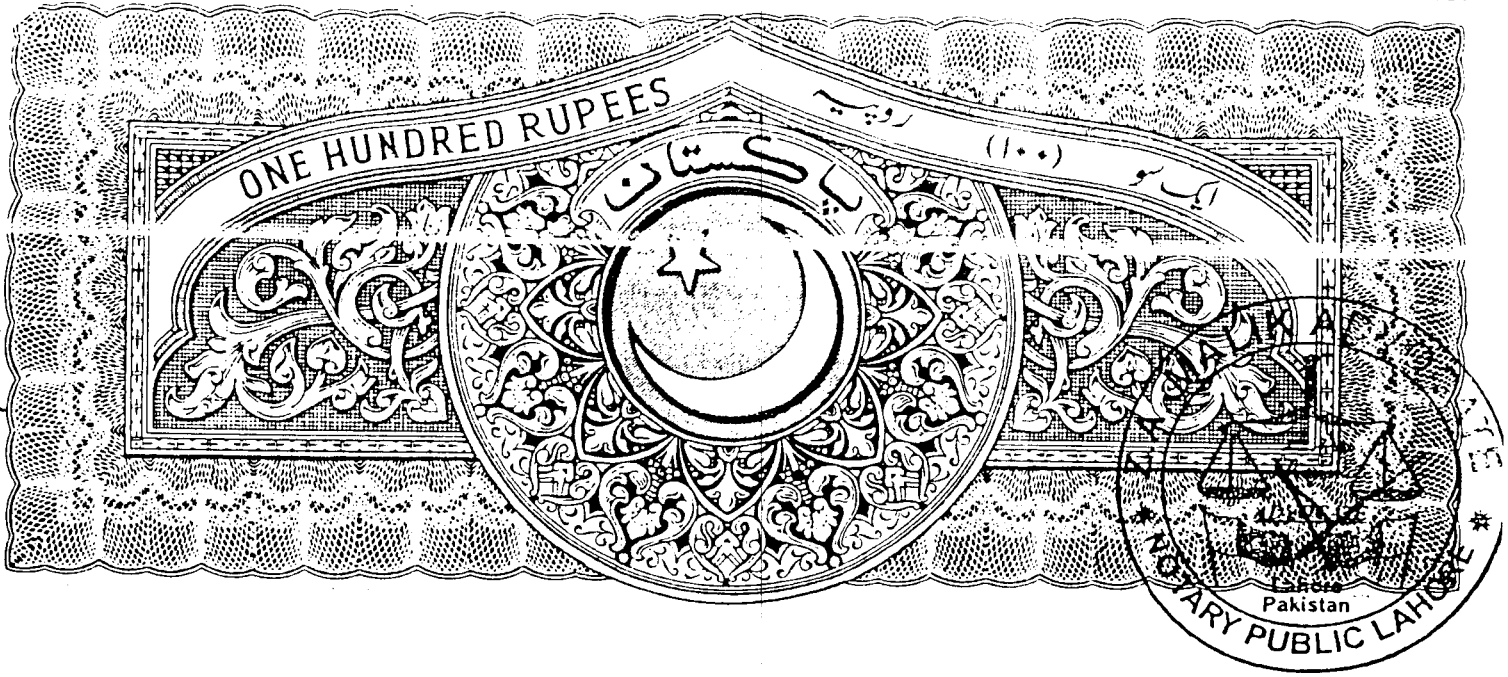
Equity at 20% 20.00% 234,182,000

Expected return on equity (17%+5% risk premium) 22.00%

Energy output per year 29,000,000

Year	Equity	Repayment	Return	Balance	Annual Payment	Repayment Rs/KWh	Return Rs/KWh	Return+ Equity Repayment Rs/KWh
1	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
2	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
3	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
4	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
5	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
6	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
7	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
8	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
9	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
10	234,182,000		51,520,040	234,182,000	51,520,040	0.00	1.78	1.78
11	234,182,000	15,612,133	51,520,040	218,569,867	67,132,173	0.00	1.78	1.78
12	218,569,867	15,612,133	48,085,371	202,957,733	63,697,504	0.54	2.31	2.85
13	202,957,733	15,612,133	44,650,701	187,345,600	60,262,835	0.54	2.20	2.73
14	187,345,600	15,612,133	41,216,032	171,733,467	56,828,165	0.54	2.08	2.62
15	171,733,467	15,612,133	37,781,363	156,121,333	53,393,496	0.54	1.96	2.50
16	156,121,333	15,612,133	34,346,693	140,509,200	49,958,827	0.54	1.84	2.38
17	140,509,200	15,612,133	30,912,024	124,897,067	46,524,157	0.54	1.72	2.26
18	124,897,067	15,612,133	27,477,355	109,284,933	43,089,488	0.54	1.60	2.14
19	109,284,933	15,612,133	24,042,685	93,672,800	39,654,819	0.54	1.49	2.02
20	93,672,800	15,612,133	20,608,016	78,060,667	36,220,149	0.54	1.37	1.91
21	78,060,667	15,612,133	17,173,347	62,448,533	32,785,480	0.54	1.25	1.79
22	62,448,533	15,612,133	13,738,677	46,836,400	29,350,811	0.54	1.13	1.67
23	46,836,400	15,612,133	10,304,008	31,224,267	25,916,141	0.54	1.01	1.55
24	31,224,267	15,612,133	6,869,339	15,612,133	22,481,472	0.54	0.89	1.43
25	15,612,133	15,612,133	3,434,669	0	19,046,803	0.54	0.78	1.31
							0.66	1.20

28



BEFORE THE NATIONAL ELECTIC POWER REGULATORY ATHORITY

PETITION FOR TARIFF DETERMINATION

UNDER RULE 3 OF THE TARIFF RULES READ WITH PARAGRAPH 1.3 OF THE  
FEDERAL GOVERNMENT'S TARIFF GUIDELINES AND THE APPLIACABLE  
PROVISIONS OF THE POWER POLICY

FOR A POWER PROJECT OF APPROX. 4.8 MW – NET  
NEAR SAHIWAL IN THE PUNJAB PROVINCE

CHENAB ENERGY PRIVATE LIMITED (Proposed to be incorporated)

Affidavit of Mr. Shafiq –Ur – Rehman, Chief Executive Officer of Chenab Energy Private  
Limited (P), 1022/E, Block C, Canal View, Lahore.

I, the above named deponent, do hereby solemnly affirm and declare that the contents of the  
accompanying petition are true and correct to the best of my knowledge and belief

*Shafiq –Ur – Rehman*  
Deponent

Verification

Verified on oath this 4th day of September 2009 that what has been stated above is true and  
correct to the best of my knowledge and belief and nothing has been concealed therefrom.