

TRIDENT Trident Power JB (Private) Limited

August 17, 2020

The Registrar
National Electric Power Regulatory Authority
NEPRA Tower, Ata-Turk Avenue
Sector G-5/1
Islamabad

APPLICATION FOR TARIFF DETERMINATION ON COST-PLUS BASIS
FOR 4.6 MW RAVI HYDRO POWER PROJECT AT LBDC RD 260+000, OKARA CANTT

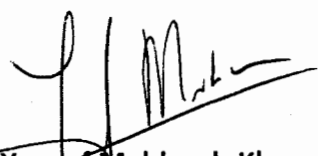
Dear Sir,

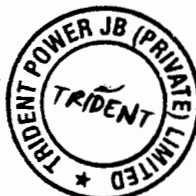
I, Yousuf Mehboob Khan, Chief Executive Office, being the duly authorized representative of M/s Trident Power JB (Private) Limited by virtue of Board Resolution dated August 03, 2020, hereby submit a feasibility stage tariff petition for 4.6 MW Ravi Hydro Power Project (the "Project") located at Lower Bari Doab Canal (LBDC RD 260+000) and request for NEPRA's approval.

I certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority and undertake to abide by the terms and provisions of the above-said regulations. I further 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 Bank Draft #.22932957, dated August 12, 2020 for sum of Rupees 373,888 (Rupees three hundred seventy three thousand eight hundred eighty eight only), being the non-refundable upfront tariff petition application fee, is also attached herewith.

I hereby further request the Authority to determine the feasibility stage tariff petition for the project.


Yousuf Mehboob Khan
CEO & Authorized Representative



For information & n.a. Please
cc: • SA(Tariff-I)
Copy to:
- DG (M&E)
- M/F

CC: Chairman
V. M (Tariff)
- m/c
- m/c
- m/c

REGISTRAR

Registered Office: Suite # 8, Ground Floor, Evacuee Trust Complex, F-5/1, Islamabad. Ph: +92-51-2870422-23 Fax: +92-51-2870424
Lahore Office: House # 359-H, Street # 4, Phase 5, DHA, Lahore Cantt.

Payee Only



HBL
T-BLOCK, DHA LAHORE
LAHORE

HABIB BANK
2268

B.C. No. 22932957

Stationary No: 22932957

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Pay to REGISTRAR NATIONAL ELECTRIC POWER REGULATORY AUTHORITY (NEPRA) or Order

Rupees Three Hundred Seventy Three Thousand Eight Hundred Eighty

PKR 111111373,888.00

Eight Only.

Payable at any HBL Branch in Pakistan
Centralised Cheque Payable Account
30019903902586

Please do not write below this line.

Signature
PA No.

Muhammad Shahid
Branch General Manager
T-BLOCK DHA BR
22-08-2007

HBL

⑈ 22932957⑈0543001⑈0030019903902586⑈010⑈

TRIDENT Trident Power JB (Private) Limited

DETAILS OF PETITIONER

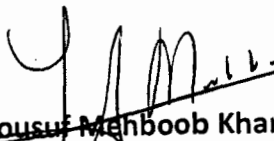
Name and Address:

Trident Power JB (Private) Limited

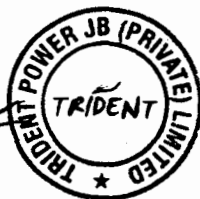
Head Office: Suit # 8, Ground Floor, Evacuee Trust Complex, F-5/1, Islamabad

Business Address: House No. 359-H, Street No. 4, Phase V, DHA, Lahore Cantt

Contact #: +92 51 2870422-23; Cell: +92 300 5553435


Yousuf Mehboob Khan

CEO & Authorized Representative

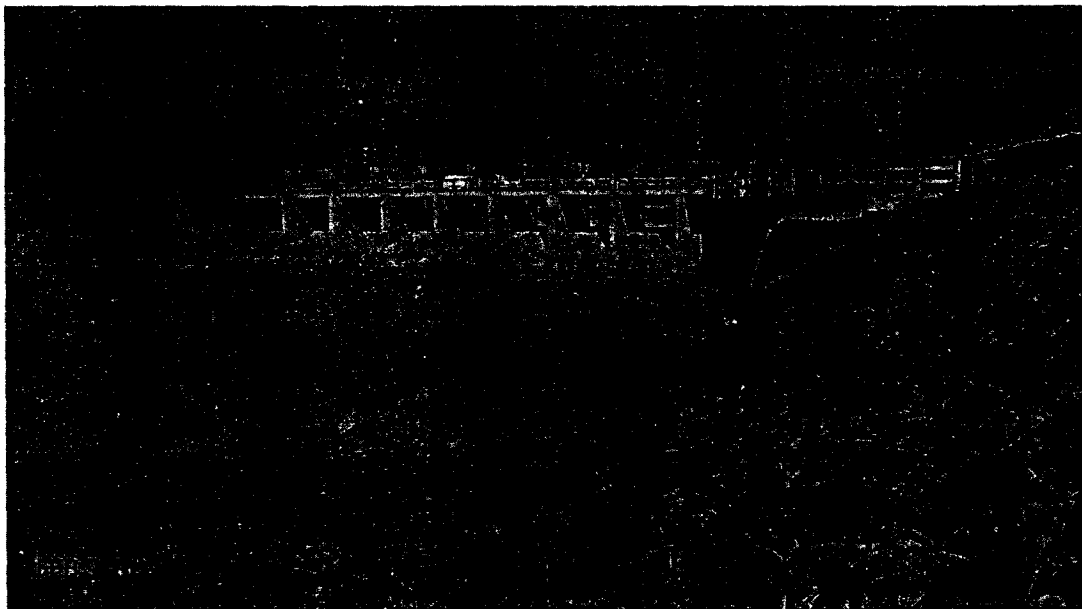


Registered Office: Suite # 8, Ground Floor, Evacuee Trust Complex, F-5/1, Islamabad. Ph: +92-51-2870422-23 Fax: +92-51-2870424
Lahore Office: House # 359-H, Street # 4, Phase 5, DHA, Lahore Cantt.



FEASIBILITY STAGE TARIFF PETITION

**FOR
4.6 MW RAVI HYDROPOWER PROJECT
OKARA CANTT
(LOWR BARI DOAB CANAL RD 260+000)**



SUBMITTED BY:

TRIDENT POWER JB (PRIVATE) LIMITED

HEAD OFFICE: SUIT # 8, GROUND FLOOR, EVACUEE TRUST COMPLEX, F-5/1, ISLAMABAD

BUSINESS ADDRESS: HOUSE NO. 359-H, STREET NO. 4, PHASE V, DHA, LAHORE CANTT

TEL: +92 51 2870422-23; CELL: +92 300 5553435



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**APPLICATION FOR TARIFF PETITION
4.6 MW RAVI HYDRO POWER PROJECT**

TRIDENT

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MINUTES OF BOARD OF DIRECTORS MEETING

The meeting of the Board of Directors of M/s. TRIDENT POWER JB (PRIVATE) LIMITED was held on August 03, 2020 at 10:30 a.m. at Suite 8, Ground Floor, Evacuee Trust Complex, F-5/1, Islamabad, which was attended by the following directors:

PRESENT

- MR. FIAZ AHMAD
- MR. YOUSUF MEHBOOB KHAN
- MR. ZAFAR IKRAM SHEIKH
- SYED HADI ALI RIZVI

CHAIR

The Directors elected **MR. YOUSUF MEHBOOB KHAN** to be the Chairman of the meeting. Quorum being present proceedings of the meeting was commenced on the instructions of the Chairman. Notice of the meeting was taken as read. The directors passed the following resolutions unanimously:

RESOLUTION No. 1: Resolved that minutes of the last meeting of the Board of Directors be hereby confirmed and adopted.

RESOLUTION No. 2: Resolved that the Company be and is hereby authorized to apply for the tariff petition for submission to National Electric Power Regulatory Authority (NEPRA) for determination of the reference generation tariff in respect of the 4.6 MW Ravi Hydro power Project and in relation thereto, enter into and execute all required documents, make all filings and pay all applicable fees, in each, of any nature whatsoever.

RESOLUTION No. 3: Further resolved that **MR. YOUSUF MEHBOOB KHAN** (CEO & Director) be and hereby authorized and empowered to sign, execute and deal with the National Electric Power Regulatory Authority (NEPRA) regarding the generation license, cost plus tariff, tariff approval, power purchase agreement and other related approvals and represent and sign all the related documents in respect of the same on behalf of the Company. **MR. Yousuf Mehboob Khan**, Chief Executive Officer of the Company be hereby also authorized to delegate all or any of the above powers in respect of the foregoing to any other person as deemed appropriate.

There being no other business, the meeting ended with a vote of thanks to the Chair.


Fiaz Ahmad
Director

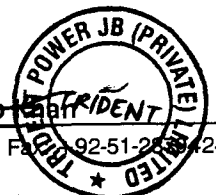
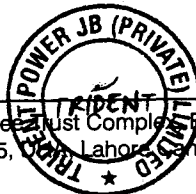

Yousuf Mehboob Khan
CEO/Director

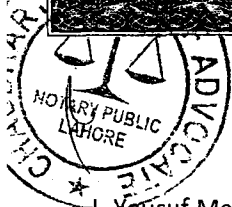

Zafar Ikram Sheikh
Director


Syed Hadi Ali Rizvi
Director

Date: August 03, 2020

Registered Office: Suite # 8, Ground Floor, Evacuee Trust Complex, F-5/1, Islamabad Ph: 92-51-2555223 Fax: 92-51-2555224
Lahore Office: House # 359-H, Street # 4, Phase 5, DHA, Lahore Cantt.





I, the above-named Deponent, do hereby solemnly affirm and declare as under:

- 

Yousuf Mehboob Khan
Authorized Representative

TRIDENT POWER JB (PRIVATE) LIMITED

~~Yousuf Mehboob Khan~~
~~thorized Representative~~

ATTESTED
Chaudhary Z. Ashraf Advocate
Oath Commissioner Lahore

	Executive Summary and Project Background	
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1.1 INTRODUCTION

God has blessed Pakistan with a tremendous hydel potential of more than 60,000 MW. However, only 15% of the hydroelectric potential has been harnessed so far. The remaining untapped potential, if properly exploited, can effectively meet Pakistan's ever-increasing demand for electricity in a cost-effective way.

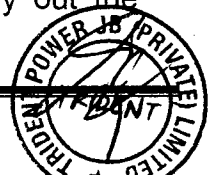
High head sites exist in hilly areas and Low head hydropower sites are located at barrages, and small falls in large rivers and artificial canals which can be utilized to develop energy. All these low head hydropower projects have very little or no negative impact on the environment and social life in the area. The most significant feature of all these projects is that they are practically emission-free and help to curb global warming, since they replace thermal power in the power supply systems. In addition, country will save lot of foreign exchange by reducing import of costly fuel by utilizing environmentally friendly Hydel energy.

During the last two & half decades more thermal power stations have been added to the system than development of hydel power stations, which resulted in increase in power tariff. To achieve target of meeting power demand at an affordable cost of generation, the installation of new hydel power plants is important and necessary. From this point of view, Punjab Power Development Board (PPDB) (a subsidiary of Punjab Energy Department), was established by the Government of Punjab to invite private sponsors for the development of low head hydropower projects in Punjab and fully assist them in all matters of project implementation. The Ravi Hydropower Project is being proposed for development.

This chapter includes the summary of necessary studies done for the evaluation of available power and energy potential of the Ravi Hydropower Project.

1.2 BACKGROUND

Punjab Power Development Board (PPDB), Government of Punjab issued a letter of Intent (LOI) to M/s Trans Tech Pakistan for the development of Ravi Hydropower Project as per Punjab Power Generation Policy 2006 (Revised in 2009) in the Punjab Province of Pakistan. Trident Power JB (Private) Limited is the company incorporated in 2013 under Companies Ordinance 1984 as SPV for the development of 4.6 MW Ravi Hydro Power Project proposed on Lower Bari Doab Canal at RD 260+000 located at District Okara. The consultant was engaged by the sponsors to carry out the



	Executive Summary and Project Background	TRIDENT
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feasibility study and evaluate the energy and power potential of the Project site on the basis of available historic data and existing site conditions. The feasibility study is being furnished in the light of available discharge data for the last thirteen years, topographic surveying and geotechnical & geophysical investigations carried out at the Project site.

1.3 LOCATION & ACCESS TO THE PROJECT SITE

The Project site is located near Okara Cantt in District Sahiwal of Punjab Province. It consists of two existing falls at RD 258+654 & RD 285+454 on Lower Bari Doab Canal (LBDC) 26800 ft. apart from each other. The Project area can easily be accessed through railway and road. Okara Cantt and Sahiwal are linked with Lahore through Lahore-Multan Highway (N5). The Project site is 133 Km from Lahore and 33 Km from Sahiwal and accessible from Karachi Port through a good road network. The Project location plan is attached as Annexure-1A.

1.4 CLIMATE

The climate of the Project area is characterized by long hot summer and short cold winter. The area receives nearly 0.86 inch rainfall/annum, with maximum in July of 2.00 inch and minimum in May of 0.05 inch. The lowest and highest values of mean monthly maximum and minimum temperatures are 43°C and 4°C during the months of June and January respectively.

1.5 HYDROLOGY

The LBDC off-takes from the left bank of Balloki Barrage. The canal was commissioned along with Balloki Headworks in 1914 and remodeled in 1965 and 1984-1986 respectively. At present, rehabilitation and improvement of canal is also in progress and expected to be completed in 2014. Discharge data for the last thirteen years (2003-2015) is considered and the following has been concluded accordingly:

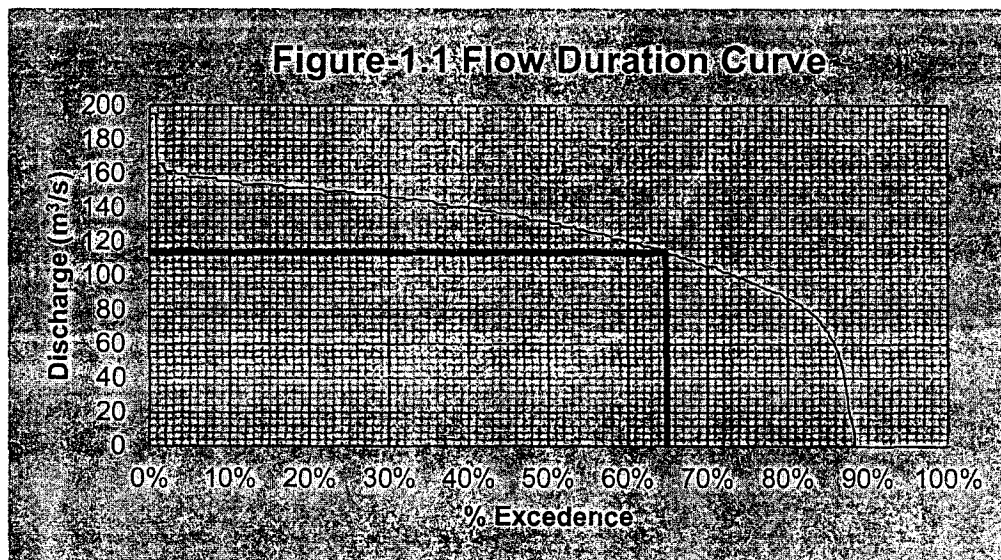
- Design discharge of LBDC at the proposed project site after its remodeling shall be 7334 cusecs (207 m³/s) which is given due importance. Considering the flow duration curve, maximum discharge data for the last decade and design discharge of LBDC once it is remodeled, it is suggested to consider 6000 cusecs (170 cumecs) design discharge and minimum discharge of 1000 cusecs (28 cumecs) for the proposed power plant.



Executive Summary and Project Background

TRIDENT

- The average closure period during the last ten years is 29 days.
- Figure 1.1 shows the flow duration curve at the proposed project site at LBDC during last ten years and it is observed that 4200 cusecs (117 m³/s) is available 65 % of the time and 4800 cusecs (135 m³/s) is available 50% of the time.



1.6 GEOTECHNICAL AND GEOPHYSICAL INVESTIGATIONS

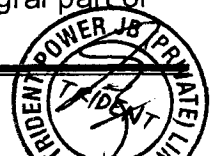
The top surface of the Project area comprises of Clayey Silt/Silty Clay/Lean Clay (Soft to Very Stiff) up to a depth of 7.0 m below NSL. The material is underlain by Sandy Silt/ Silty Sand (Very Soft to Very Stiff, Dense to Very Dense) up to a maximum investigated depth of 20 m depth below NSL.

The Groundwater was encountered at 5.60 m depth in the boreholes drilled up to a maximum depth of 20 m below NSL.

The arrival time of shear waves and longitudinal waves at each successive meter are obtained from seismic records with source at a distance of 1.0 meter. The interpreted results of Seismic Investigations at BH-2 indicate that shear wave velocity ranges between 103 m/sec to 543 m/sec and compressional wave velocity varies between 228 m/sec to 910 m/sec up to 20 m depth.

1.7 INITIAL ENVIRONMENTAL EXAMINATION

The Ravi Hydropower Project seems to be environment friendly. It has minimal environmental impacts. Environmental considerations have formed an integral part of



	Executive Summary and Project Background	
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the evaluation of layout and design alternatives with the result that all the potential effects of the project have been mitigated.

1.8 PROJECT LAYOUT

It is proposed that alternative-4 by combining the two falls at RD 260+000 is the most viable and economical option by all means. It is proposed that the two falls shall be combined by excavating the bed up to 5 ft. and providing a net head of 10.2 ft. at RD 260+000. The proposed project shall be developed in bypass arrangement in diverted canal. 5R distributary is proposed to be shifted to the upstream of the powerhouse. The Project layout plan is provided as Annexure-1B and it involves the construction of main components including Headrace Channel, Powerhouse & Tailrace Channel. The newly constructed gated fall structure will be used as spill way. Its gates will be automated, and civil structure will be strengthened as per powerhouse requirements.

1.9 SELECTION OF TURBINE

As per the available head of 10.2 ft. at the proposed project site, it is recommended to install Kaplan Type Horizontal Turbines. Major parameters of selected unit are mentioned in Table below:

Table: Major Parameters of selected Units

Characteristic	Unit	Data
Type of Turbine	--	Horizontal Shaft Propeller (Kaplan)
Number of Units	No.	Three
Discharge - design/rated	m ³ /s	56.64
H rated	M	3.2
P rated power (Turbine output)	KW	1550 (each Unit)
Generator Capacity with 0.85 p.f	MVA	1.96
Transformer Capacity with 0.85 p.f	MVA	1.96
Runner diameter	Mm	3446
No of Runner Blades	No.	3
Rated speed	Rpm	103.4
Specific speed (Ns)	Rpm	986.3



	Executive Summary and Project Background	TRIDENT
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Characteristic	Unit	Data
Runaway speed at rated head (Nr)	Rpm	323
Runner Hub Diameter	Mm	1392
Estimated Runner weight	Ton	11.1
Pit dimensions (LxW)	M	9.3x3.1
Turbine Inlet width x height (WxH)	M	7.2x7.8
Draft tube total Length (L)	M	16.5
Draft tube outlet width x height (WxH)	M	7.2x5.2

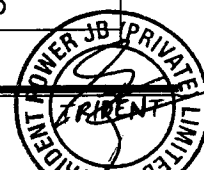
1.10 POWER AND ENERGY ESTIMATION

Power and energy estimation are furnished on the basis of the following:

- Net head is 10.2 ft.
- Design discharge is 6000 cusecs. (170 m³/s)
- Installed capacity of Ravi Hydropower Plant is 4600 KW which gives us average monthly energy of 2.47 GWh.
- Plant capacity factor is 68.2 %.

Table below shows the estimation of mean monthly & annual energy.

Table: Mean Monthly & Annual Energy (2003-2012)				
Month	Days	Discharge (m ³ /s)	Power (kW)	Energy (GWh)
January	31	2.4	65	0.05
February	28	89.6	2450	1.65
March	31	103.1	2819	2.10
April	30	119.5	3269	2.35
May	31	130.0	3556	2.65
June	30	141.6	3873	2.79
July	31	150.8	4125	3.07
August	31	150.1	4107	3.06



	Executive Summary and Project Background			
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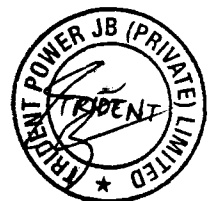
September	30	141.1	3861	2.78
October	31	98.2	2687	2.00
November	30	129.3	3537	2.55
December	31	107.2	2933	2.18
Total Annual Energy				27.2
Capacity Factor				68.2%

1.11 CONSTRUCTION PLANNING & MANAGEMENT

The Project is proposed to be constructed in 22 months. The construction of Civil Works of the major components can be started simultaneously. The mobilization period has been kept as 1.5 months. The civil works shall be completed by the end of 16th month. E&M equipment shall be delivered at the site latest before the end of 13th month of the schedule. The turbo-generator units and transformer will be installed from month 16 to 20. Commercial operation shall commence from 22nd month.

1.12 CONCLUSIONS

- The construction of the Power Plant at RD 260+000 within diversion canal by combining the two falls provides us maximum power and energy.
- The installed capacity of the Power Plant is 4600 KW and mean monthly energy is 2.47 GWh. The Sponsor is desirous of establishing this project on IPP mode.
- The Project is economically feasible and has the capacity to offset adverse change in variable and generate economic benefits. It offers good return for diverting scarce resources.



PROJECT CHRONOLOGY

TRIDENT POWER JB (PRIVATE) LIMITED **DEVELOPER OF 4.6 MW RAVI HYDRO POWER PROJECT**

1. Project Detail:

Project Company:	Trident Power JB (Private) Limited
Project Name:	Ravi Hydro Power Project
Type of Generation:	Hydropower Plant/Run of Canal
Location of Generation Facility:	Lower Bari Doab Canal at RD 260+000, Okara Cantt
Installed Capacity:	4.6 MW
Plant Factor:	68.2%
Financing Structure:	25% Equity and 75% Debt
Project Lenders:	Pak Brunei Investment Company Limited
Power Purchaser:	Lahore Electric Supply Company (LESCO)

2. Project Back Ground:

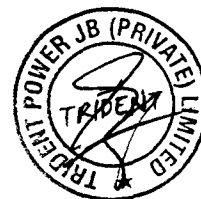
LOI Issuing Authority:	Punjab Power Development Board
LOI Issuance Date:	April 05, 2013
IEE Approval Date:	July 14, 2014
Interconnection Study Approval:	October 30, 2015
Feasibility Approval Date:	January 25, 2016
Land Acquisition Gazette Notification:	August 24, 2016
Letter of Consent by LESCO:	December 16, 2016
Generation License Approval:	January 05, 2017
Upfront Tariff Approval:	February 14, 2017
Revised Consent by LESCO:	April 01, 2020
Revalidation of Interconnection Study by LESCO:	January 30, 2020
Validation of Interconnection Study by NTDC:	July 22, 2020
Request for NOC from CPPA-G:	July 27, 2020

3. Current Status:

Tariff Petition filing to NEPRA:	August 17, 2020 (expected)
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4. Future Steps:

Tripart Energy Purchase agreement with PPIB and CPPAG
Water Usage Agreement with Irrigation Department
Land Lease Agreement
Implementation Agreement
Finalization of EPC Contractor
Financial Close



SALIENT FEATURES
4.6 MW RAVI HYDROPOWER PROJECT

A. MAIN DESIGN FEATURES

(i)	Plant Design Discharge	170 Cumecs
(ii)	Gross Head	3.4 meter
(iii)	Net Head	3.1 meter
(iv)	Installed Capacity	4.6 MW
(v)	Plant Factor	68.2%

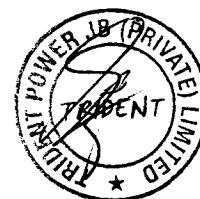
B. PROJECT MAJOR COMPONENTS

(i)	Headrace Channel	Design Discharge: 170 Cumecs Length: 332 m Width: 61 m Depth: 3.5 m Free Board: 1.52 m Manning Constant Value: 0.018 Full Supply Level (FSL): 585.85 feet (178.61m) Bed Level (BL): 574.62 feet (151.21 m) Bed Slope: 1/10000
(ii)	Tailrace Channel	Design Discharge: 170 Cumecs Length: 396 m Width: 61 m Free Board: 1.52 m Manning Constant Value: 0.018 Full Supply Level (FSL): 574.34 feet (175.1 m)



SALIENT FEATURES
4.6 MW RAVI HYDROPOWER PROJECT

		Bed Level (BL): 563.67 feet (171.85 m) Bed Slope: 1/10000
(iii)	Powerhouse	Size: 32m X 25m Bottom Pit Elevation: 543.65 ft. (165.7 m) Loading Bay Elevation: 579.65 ft.(167.7 m) Roof Slab Bottom Elevation: 607.73 ft. (185.28 m) Hydraulic gates & Trashrack provided on u/s of powerhouse Stoplogs provided on d/s of powerhouse 20 Tons overhead travelling crane Office building & control room
(iv)	Electromechanical Equipment	03 Nos Kaplan Horizontal Units With rated output of 1665 KW each. Turbine Runner Dia: 3.46 m with rated & runaway speed of 103.4 rpm & 323 rpm respectively. 1.96 MVA Generator Capacity. Transformer Capacity 1.96 MVA. Draft Tube: L = 16.5 m; Exit width = 7.2 m; Height = 5.2 m
(v)	Canal Bed Lowering	Canal Bed lowering from RD 260+000 to 287+000
(vi)	Modernization of Existing Cross Regulator	Modernization / automation of gates at existing cross regulator at RD 260+000
(vii)	5R Distributary	Relocation of 5R distributary



SALIENT FEATURES
4.6 MW RAVI HYDROPOWER PROJECT

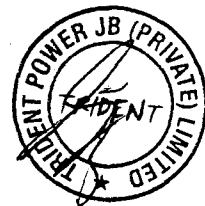
(viii)	Accommodation for O&M Staff	Operation & maintenance Staff Colony of 40m X 61m size (roughly).
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C. POWER AND ENERGY

Installed Capacity	4.6 MW
Total Annual Energy	27.2 GWh
Average Monthly Energy	2.47 GWh
Plant Capacity Factor	68.2 %

D. COST ESTIMATE

Item No	Description	Total in Million Rs	USD Million
1	EPC COST		
1.1	Civil Works	886.35	5.21
1.2	Hydromechanical & Electromechanical Works	1,188.97	6.99
2	Land Cost	54.05	0.32
3	Development Costs	110.00	0.65
4	Insurance During Construction	21.00	0.12
5	Lender's Fee & Charges	63.00	0.37
6	Interest During Construction (IDC)	126.00	0.74
	Total in Million Rs	2,449.37	14.41





NO. PPDB/ 777 /2016
PUNJAB POWER DEVELOPMENT BOARD
ENERGY DEPARTMENT

Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 042-99213879 Fax: 042-99213885)

Date: 28/03 2016

The Registrar
National Electric Power Regulatory Authority (NEPRA)
NEPRA Tower, Attaturk Avenue, G-5/1,
Islamabad

Subject: **POWER GENERATION LICENSE FOR 4.6 MW HYDROPOWER
PROJECT ON LOWER BARI DOAB CANAL (LBDC) AT RD 260 NEAR
OKARA CANTT**

M/s Trans Tech Pakistan vide its letter no. 16316 dated March 16, 2016 has requested Punjab Power Development (PPDB) that NEPRA desires clarification about Trident Power JB (Pvt.) Limited in respect of seeking generation license about the cited project.

2. In this regard, it is informed that Trident Power JB (Pvt.) Limited is the company registered by M/s Trans Tech Pakistan as an SPV company solely for the development of 4.6 MW hydro Power Project on Lower Bari Doab Canal (LBDC) at RD. 260+000, District Okara Cantt.

Regards,

SANIYA AWAIS
Managing Director

CC:

1. PS to Secretary, Government of the Punjab, Energy Department, Lahore
2. M/s Trans Tech Pakistan, House # 359-H, Street # 4, Phase 5, DHA, Lahore



M/s Trans Tech Pakistan
359 H, Street # 4, DHA, Phase-V
Lahore

Subject: **APPROVAL OF FEASIBILITY STUDY REPORT OF 4.6 MW HYDROPOWER PROJECT ON LOWER BARI DOAB CANAL (LBDC) AT RD. 260+000, DISTRICT OKARA**

It is conveyed that pursuant to Section 4.2 (Para 52 & 53) of the Punjab Power Generation Policy-2009 (the "Policy"), a Panel of Experts (POEs), comprising following members, was appointed by PPDB to monitor, review and approve feasibility study report (the "Report") about subject mentioned hydropower project being developed by your Company.

1. The Managing Director, Punjab Power Development Board (PPDB), Lahore
2. The Managing Director, Private Power & Infrastructure Board (PPIB), Islamabad
3. Dr. Engineer Javed Yunus Uppal, Chairman EPDC, Lahore
4. The Chief Executive Officer, Lahore Electric Supply Company (LESCO), Lahore
5. The Project Director, Punjab Power Management Unit (PPMU), Lahore
6. The Superintending Engineer, LBDC Circle, Irrigation Department, Sahiwal

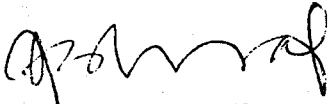
2. During the course, POEs held a number of meetings and made certain observations/suggestions paving the way towards ultimate completion of the Report. Accordingly, after thorough review, the POEs during their final meeting held on 07th January 2016, have resolved that:

- (i) *The Feasibility Study Report of 4.6 MW Hydropower Project on Lower Bari Doab Canal at RD. 260+000 District Okara, conducted by M/s AIPEL for Trans Tech Pakistan Lahore, has been approved. The Sponsor, however, shall be required to confirm the detailed design through Physical Model Study at Irrigation Research Institute (IRI) Nandipur, prior to implementation of the Project and shall also obtain NOC from Irrigation Department.*
- (ii) *POEs certifies only the completion of the Feasibility Study. However, due to nature of data and resultant conclusions, POEs jointly and/or individually will not be responsible for reliability of data contents and conclusions given in the feasibility study.*

3. In view of the above and relevant stipulations of the Policy, now, your Company is required to approach National Electric Power Regulatory Authority (NEPRA) for grant of Generation License and adoption of NEPRA's Upfront Tariff for Small Hydropower Generation Projects, notified on 14th October 2015. Thereby, please note that your petition for adoption of Upfront Tariff must be exactly in line with the assumptions of the Approved Feasibility Study Report. A copy of duly signed & stamped complete set of final feasibility study is being enclosed herewith.

4. PPDB appreciates your efforts towards completion of the Feasibility Study Report and hopes that the same pace and spirit would be kept by your Company for timely development of the project to meet the energy needs of the country.

Regards,



SANIYA AWAIS
Managing Director

ENCL: Complete set of stamped & signed Final Feasibility Study Report

CC:

1. The Chairman PPDB Board / Additional Chief Secretary, Government of the Punjab, Energy Department, Lahore
2. The Managing Director, Private Power & Infrastructure Board (PPIB), Islamabad
3. Dr. Engr. Javed Yunas Uppal, Chairman EPDC, 1-A, Aibak Block, Garden Town Lahore
4. The Chief Executive Officer, Lahore Electric Supply Company (LESCO), Lahore
5. The Project Director, Punjab Power Management Unit (PPMU), Lahore
6. The Superintending Engineer, LBDC Circle, Irrigation Department, Sahiwal



PUNJAB POWER DEVELOPMENT BOARD
ENERGY DEPARTMENT

Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 042-99213879 Fax: 042-99213885)

Date: 17 / 05 / 2016

✓ **M/s Trident Power JB (Pvt.) Limited**
359-H, Street # 4, Phase-V, DHA
Lahore

Subject: DEVELOPMENT OF 4.6 MW HYDROPOWER PROJECT (HPP) ON LOWER BARI DOAB CANAL (LBDC) AT RD. 260+000, DISTRICT OKARA

02 Nos. separate LOI's were issued to the below mentioned Consortium for development of 2.5 MW HPP on LBDC at RD. 285+454 and 03 MW at RD. 258+654 dated 05.04.2013 and 12.04.2013 respectively. During the conduct of feasibility study, the Sponsor proposed to merge the 02 sites into 01 having capacity of 4.6 MW at RD. 260+000 for making the Project more viable.

(i) Trans Tech Pakistan	Main Sponsor
(ii) SPEC Energy DMCC	Member
(iii) UNIK Fabrics (Pvt.) Ltd.	Member
(iv) Pak Carpet Industries (Pvt.) Limited	Member
(v) Automotive Spares and Accessories (Pvt.) Ltd.	Member

2. The Sponsor's proposal for merger of 2 Nos. sites was accepted by PPDB appointed POE and the feasibility study of the Project was approved by POE during its meeting dated 07.01.2016.

3. In accordance with the stipulations of Para-4(e) of the said LOI, your Company submitted the Special Purpose Vehicle (SPV) in the name of **M/s Trident Power JB (Private) Limited**, having Memorandum and Articles of Association.

3. In this regard, it is intimated that in future, all the official correspondence will be made in the name of **M/s Trident Power JB (Private) Limited** instead of M/s Trans Tech Pakistan.

Regards,

Managing Director
Punjab Power Development Board

CC:

1. The Chairman, NEPRA, Islamabad
2. The Chairman WAPDA, WAPDA House Lahore
3. The Secretary, Ministry of Water & Power, Islamabad
4. The Chief Executive Officer, Central Power Purchasing Agency (CPPA), Islamabad
5. The Chairman PPDB Board / Additional Chief Secretary, Government of the Punjab, Energy Department, Lahore
6. The Managing Director, Private Power & Infrastructure Board (PPIB), Islamabad
7. The Secretary, Government of the Punjab, Energy Department, Lahore
8. The Secretary, Government of the Punjab, Irrigation Department, Lahore
9. The Secretary, Government of the Punjab, Environment Protection Department, Lahore
10. The Chief Executive Officer, Lahore Electric Supply Company (LESCO), Lahore
11. The Chief Engineer (Power), Government of the Punjab, Energy Department, Lahore



1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 042-99212794 Fax: 042-99212796)

Date 05/04 /2013

✓
M/s Trans Tech Pakistan
359 H, Street No. 4, DHA Phase – V
Lahore

Subject: **LETTER OF INTEREST (LOI) FOR 2.5 MW HYDROPOWER PROJECT ON LBDC AT RD. 285 + 454, DISTRICT SAHIWAL**

Reference: Your proposal, dated 30.11.2012 in response to Expression of Interest (EOI) invited by Punjab Power Development Board through advertisement in daily "Jang" dated 24.10.2012

It is hereby acknowledged that Punjab Power Development Board (PPDB) has considered your Company as qualified to the eligibility criteria in accordance with the Punjab Power Generation Policy - 2006 (Revised - 2009).

2. PPDB has received the Bank Guarantee # LG-08130021 dated March 15, 2013 amounting to Rupees 250,000/- (Rupees Two Hundred and Fifty Thousand only) issued by Askari Bank Ltd., AWT Plaza, The Mall, Rawalpindi, submitted by you. The same shall be accepted after due verification.

3. Now, this Letter of Interest (LOI) is being issued on behalf of the Government of the Punjab, in terms of the provisions of the Policy. Government of the Punjab hereby confirms its interest in your proposal to conduct the feasibility study for the development of subject cited project subject to the following:

- a. As per Policy, you are required to complete your Feasibility Study for the subjected Project, at no risk and cost to, and without any obligation on the part of, the Govt. of the Punjab and its agencies, within nine (09) months from the date of this LOI.
- b. You will not disturb the Irrigation regime.
- c. You are required to carry out the Feasibility Study; complete, at internationally acceptable standards and in accordance with the terms and conditions stipulated in the Policy. The Feasibility Study must include an Environmental Impact Assessment Study, detailed design of power house, load flow and stability studies, design of interconnection / transmission lines, details pertaining to infrastructure, project cost, financing and, financing terms, tariff calculations and assumptions of financial calculations including economic / financial analysis. You are advised to liaise with the power purchaser while determining your plant size and site, project layout, transmission line and interconnection arrangements, etc.
- d. You will carry out the Feasibility Study according to the specific milestones appended herewith at Annex – A, and submit monthly progress reports showing progress against these milestones.
- e. You will establish a Special Purpose Vehicle (SPV) company and shall maintain the shares in this company in accordance with Para 39 & 40 of Punjab Power Generation Policy - 2006 (Revised - 2009) and will submit copy of Memorandum & Articles of Association as well as the Form 29 duly attested by the Securities & Exchange Commission of Pakistan (SECP).
- f. PPDB will appoint a Panel of Experts (POE) to monitor the process of Feasibility Study and its progress, to verify attainment of the aforesaid milestones and to ensure implementation of the project consistent with national and provincial needs.
- g. The Main Sponsor will be liable for all obligations and liabilities of and on behalf of other Sponsors. Further processing of the Feasibility Study is subject to Govt. of the Punjab

- h. The validity of this LOI is nine (09) months from the date of its issuance, where after, it will automatically be lapse with immediate effect. Issuance of this LOI or the lapsing of its validity or your conducting a Feasibility Study there under, cannot form the basis of any claim for compensation or damages by the Sponsors or the project company or any party claiming through them against the Government of Punjab / PPDB or any of its agencies, employees or consultants on any grounds whatsoever, during or after the expiration of its validity.
- i. You are, therefore, required to complete the Feasibility Study for the said Project within the validity of this LOI. In case there is delay in completion of the Feasibility Study within the validity of this LOI, a one-time extension by the PPDB Committee referred in Section 2.2 Para 34 may be granted up to a maximum period of ninety (90) days, provided the Panel of Expert is satisfied that the Feasibility Study is being conducted in a satisfactory manner and is likely to be completed shortly. Furthermore, extension in validity of the LOI will only be provided upon submission of a bank guarantee in double the original amount and valid beyond 180 days of the extended LOI period.
- j. In case, you fail to meet the relevant milestones and standards, PPDB will terminate this LOI and encash the Bank Guarantee.
- k. This LOI has been issued in duplicate on the date hereof, and it shall come into effect when one copy hereof is received by PPDB after having been duly countersigned by you. Nevertheless, this LOI shall lapse if the countersigned copy is not received at PPDB within fifteen (15) days of its issuance.


ENGR. IFTIKHAR AHMAD RANDHAWA
Managing Director

Accepted and agreed for & on behalf of:

Signature: _____

Date: _____

CC:

1. The Secretary, Ministry of Water & Power, Islamabad
2. The Chairman, NEPRA, Islamabad
3. The Chairman WAPDA, WAPDA House Lahore
4. The Managing Director, Private Power & Infrastructure Board (PPIB), Islamabad
5. The Secretary to Chief Minister Punjab
6. The Chairman, Government of the Punjab, Planning & Development Department, Lahore
7. The Secretary, Government of the Punjab, Energy Department, Lahore
8. The Secretary, Government of the Punjab, Irrigation Department, Lahore
9. Chief Executive Officer, Multan Electric Power Company (MEPCO)
10. Head PMU / Project Director, LBDCIP, Canal Bank, Mustafabad Lahore.
11. Electric Inspector, Multan.



No. PPDB/ 294 /2013
PUNJAB POWER DEVELOPMENT BOARD
ENERGY DEPARTMENT

1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore
(Ph: 042-99212794 Fax: 042-99212796)

Date 12/04 /2013

✓ M/s Trans Tech Pakistan
359 H, Street No. 4, DHA Phase – V
Lahore

**Subject: LETTER OF INTEREST (LOI) FOR 03 MW HYDROPOWER PROJECT C
LBDC AT RD. 258 + 654, DISTRICT SAHIWAL**

Reference: Your proposal, dated 30.11.2012 in response to Expression of Interest (EOI) invited by Punjab Power Development Board through advertisement in daily "Jang" dated 24.10.2012

It is hereby acknowledged that Punjab Power Development Board (PPDB) has considered your Company qualified to the eligibility criteria in accordance with the Punjab Power Generation Policy - 2006 (Revised 2009).

2. PPDB has received the Bank Guarantee # LG-08130023 dated March 15, 2013 amounting to Rupee 300,000/- (Rupees Three Hundred Thousand only) issued by Askari Bank Ltd., AWT Plaza, The Market, Rawalpindi, submitted by you. The same shall be accepted after due verification.

3. Now, this Letter of Interest (LOI) is being issued on behalf of the Government of the Punjab in terms of the provisions of the Policy. Government of the Punjab hereby confirms its interest in your proposal to conduct the feasibility study for the development of subject cited project subject to the following:

- a. As per Policy, you are required to complete your Feasibility Study for the subjected Project, at no risk and cost to, and without any obligation on the part of, the Govt. of the Punjab and agencies, within nine (09) months from the date of this LOI.
- b. You will not disturb the Irrigation regime.
- c. You are required to carry out the Feasibility Study; complete, at internationally acceptable standards and in accordance with the terms and conditions stipulated in the Policy. The Feasibility Study must include an Environmental Impact Assessment Study, detailed design of power house, load flow and stability studies, design of interconnection / transmission line details pertaining to infrastructure, project cost, financing and, financing terms, tariff calculations and assumptions of financial calculations including economic / financial analysis. You are advised to liaise with the power purchaser while determining your plant size and site project layout, transmission line and interconnection arrangements, etc.
- d. You will carry out the Feasibility Study according to the specific milestones appended herewith at Annex – A, and submit monthly progress reports showing progress against the milestones.
- e. You will establish a Special Purpose Vehicle (SPV) company and shall maintain the shares of this company in accordance with Para 39 & 40 of Punjab Power Generation Policy - 2006 (Revised - 2009) and will submit copy of Memorandum & Articles of Association as well as the Form 29 duly attested by the Securities & Exchange Commission of Pakistan (SECP).
- f. PPDB will appoint a Panel of Experts (POE) to monitor the process of Feasibility Study and progress, to verify attainment of the aforesaid milestones and to ensure implementation of project consistent with national and provincial needs.
- g. The Main Sponsor will be liable for all obligations and liabilities of and on behalf of other Sponsors. Further processing of the Feasibility Study is subject to Govt. of the Punjab.

- h. The validity of this LOI is nine (09) months from the date of its issuance, where after, it will automatically be lapse with immediate effect. Issuance of this LOI or the lapsing of its validity, or your conducting a Feasibility Study there under, cannot form the basis of any claim for compensation or damages by the Sponsors or the project company or any party claiming through them against the Government of Punjab / PPDB or any of its agencies, employees or consultants on any grounds whatsoever, during or after the expiration of its validity.
- i. You are, therefore, required to complete the Feasibility Study for the said Project within the validity of this LOI. In case there is delay in completion of the Feasibility Study within the validity of this LOI, a one-time extension by the PPDB Committee referred in Section 2.2 Para 34 may be granted up to a maximum period of ninety (90) days, provided the Panel of Experts is satisfied that the Feasibility Study is being conducted in a satisfactory manner and is likely to be completed shortly. Furthermore, extension in validity of the LOI will only be provided upon submission of a bank guarantee in double the original amount and valid beyond 180-days of the extended LOI period.
- j. In case, you fail to meet the relevant milestones and standards, PPDB will terminate this LOI and encash the Bank Guarantee.
- k. This LOI has been issued in duplicate on the date hereof, and it shall come into effect when one copy hereof is received by PPDB after having been duly countersigned by you. Nevertheless, this LOI shall lapse if the countersigned copy is not received at PPDB within fifteen (15) days of its issuance.


ENGR. IFTIKHAR AHMAD RANDHAWA
Managing Director

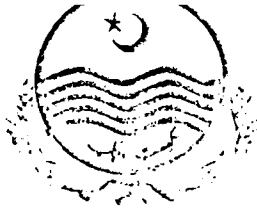
Accepted and agreed for & on behalf of:

Signature: _____

Date: _____

CC:

1. The Secretary, Ministry of Water & Power, Islamabad
2. The Chairman, NEPRA, Islamabad
3. The Chairman WAPDA, WAPDA House Lahore
4. The Managing Director, Private Power & Infrastructure Board (PPIB), Islamabad
5. The Secretary to Chief Minister Punjab
6. The Chairman, Government of the Punjab, Planning & Development Department, Lahore
7. The Secretary, Government of the Punjab, Energy Department, Lahore
8. The Secretary, Government of the Punjab, Irrigation Department, Lahore
9. Chief Executive Officer, Multan Electric Power Company (MEPCO)
10. Head PMU / Project Director, LBDCIP, Canal Bank, Mustafabad Lahore.
11. Electric Inspector, Multan.



NO. PPDB/104/2016
PUNJAB POWER DEVELOPMENT BOARD
ENERGY DEPARTMENT

Government Secretariat, Old Quila, Lahore
Tel: 37321111 Fax: 37321112

Date: 13 / 05

M/s Trident Power JB (Pvt.) Limited
359-II, Street # 4, Phase-V, DHA
Lahore

Subject: **UPFRONT TARIFF FOR DEVELOPMENT OF 4.6 MW HYDROPOWER PROJECT (HPP) ON LOWER BARI DOAB CANAL (LBDC) AT RD. 260+000, DISTRICT OKARA**

This is with reference to this Office letter No. PPDB/104/2016 dated 25.01.2016 (copy enclosed) addressed to Registrar NEPRA providing Annex-I and Annex-II (certificate of annual plant factor) for adoption of upfront tariff. Further, your Company has also submitted the Annex-III of upfront tariff to NEPRA, vide your letter No. Nil dated 07.12.2015.

2. In this regard, it is intimated that the feasibility study of 4.6 MW HPP on LBDC at RD. 206+000, District Okara was approved by PPDB appointed Panel of Experts (POE) during its meeting dated 07.01.2016. The same approval of feasibility study was intimated vide this Office letter No. PPDB/103/2016 dated 25.01.2016.

3. In view of the above, you are requested to pursue NEPRA for grant of Upfront Tariff for subject cited Hydropower Project, so that the Project may proceed further. It is further requested to intimate this Office regarding issuance of Generation License from NEPRA.

Regards,

SANIYA AWAIS
Managing Director

ENCL: As stated above

CC:

1. The Secretary, Government of the Punjab, Energy Department, Lahore
2. The Registrar, National Electric Power Regulatory Authority (NEPRA), Islamabad with request to kindly expedite the matter at early date.

Date: January 07, 2016

The Registrar,
National Electric Power Regulatory Authority,
Islamabad

SUBJECT: - Certificate Regarding Annual Plant Factor

1. A Panel of Experts appointed by Punjab Power Development Board (PPDB), in respect of small hydropower project of M/s Trans Tech Pakistan.
2. Based on the proposed installed capacity and long term historical hydrological site data, our findings are as follows:

Name of the company	: M s Trans Tech Pakistan
Project Location	: LBDC (RD. 260+000, District Sahiwal)
Address of project site	: 133 Km from Lahore and 33 Km from Sahiwal
Gross head [meters]	: 3.43 meters
Net head [meters]	: 3.10 meters
Gross plant installed capacity [MW] - A	: 4.6 MW
Auxiliary consumption @ 1% - B	: 46 kW
Net plant installed capacity [MW] - C = A - B (to be used for computation of net annual plant factor)	: 4.55 MW
Net deliverable energy per annum [GWh] - D	: 27.2 GWh
Net annual plant factor based on net deliverable energy [(D x 1,000) / (C x 24 x 365) x 100]	: 68.2%

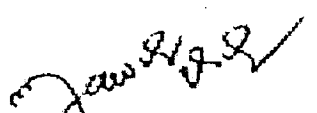
Monthly benchmark hydrology [m³/s]:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2.4	89.6	103.1	119.5	130.0	141.6	150.8	150.1	141.1	98.2	129.3	107.2	1362.9

Monthly benchmark net deliverable energy [GWh]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
0.05	1.65	2.10	2.35	2.65	2.79	3.07	3.06	2.78	2.00	2.55	2.18	27.23

3. We hereby confirm that the net annual plant factor as detailed above may be used for allowing upfront tariff, to the aforesaid company for the project site detailed above.


Mr. Munawar Iqbal
Director (Hydel)
Private Power & Infrastructure Board (PPIB)
Government of Pakistan


Dr. Engineer Javed Yunus Uppal
Chairman
Engineering Project Development Consultants


Representative of Project Director
Punjab Power Management Unit (PPMU)
Energy Department


Representative of Chief Executive Officer
Lahore Electric Supply Company (LESCO) { Net annual Plant Factor = 68.2% }


Representative of Superintending Engineer
Superintending Engineer, LBDC Circle,
Irrigation Department, Sahiwal

NOTE: "Due to nature of data and resultant conclusion as described in the Feasibility Study of the Project, POE jointly and/or individually will not be responsible for reliability of data contents and its conclusion."



ENVIRONMENT PROTECTION DEPARTMENT

Government of the Punjab

National Hockey Stadium, Ferozepur Road, Lahore



NO. DD (EIA)/EPA/F-541(IEE)/1107/2014/1187

Dated: 14/07/2014

To

Mr. Yousaf Mehboob Khan,
Director / Proponent,
M/s Trans Tech,
359, H-Block, DHA Phase-V,
Lahore

Subject:

**DECISION OF EPA PUNJAB FOR THE CONSTRUCTION OF 4.6 MW
RAVI HYDROPOWER PROJECT, SAHIWAL**

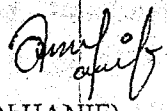
(Under Section 12 of the PEP Act, 1997 read with IEE/EIA Regulations, 2000)

Reference: Energy Department letter No. PPDB/294/2013 dated 12.04.2013

1. Description of Project: Construction of 4.6 MW Ravi Hydropower Project.
2. Location of Project: The project is located near Okara Cantt in District Sahiwal of Punjab Province on LBDC RD 258+654, Gamber, District Sahiwal
3. Date of receiving of case 26.06.2014.
4. After review of Initial Environmental Examination (IEE) Report, Site Inspection Report and other relevant record, the Environmental Protection Agency, Punjab has decided to accord its approval for the construction of above mentioned project to safeguard the environmental issues subject to the following conditions:
 - i. The proponent shall ensure compliance of National Environmental Quality Standards (NEQS).
 - ii. Hazard of soil erosion will be minimized with proper provision for resurfacing of exposed areas.
 - iii. Camping sites shall be located at suitable distance away from any settlement to avoid disturbance to the local people. Sewage generated from camping sites shall be treated in septic tanks and soak pits. These should be constructed at a suitable distance from any permanent or seasonal water source. Septic tank and soak pits shall not be located in the areas where high ground water table exists.
 - iv. Mitigation measures suggested in the IEE Report and Environmental Management Plan (EMP) shall be strictly adhered to minimize any negative impacts on soil, ground water, air and biological resources of the project area.
 - v. Monitoring shall be carried out during the entire period of the project activities. Monitoring reports of the whole operation shall be submitted to EPA, Punjab on monthly basis.
 - vi. The proponent shall ensure that strict and efficient health and safety measures are in place for protection of workers backed by a comprehensive emergency response system while working on super structure.
 - vii. The proponent shall plant 10000 trees of minimum height 6 to 7 feet in the area in consultation with District Officers (Environment) within six months.
 - viii. The proponent shall care about noise issues during construction and operation stage of the project.
 - ix. The proponent shall not place the construction material openly.
 - x. The proponent shall do proper landscaping after completion of the project.
 - xi. Compensation shall be provided to the inhabitants in case of loss of property, shops, business etc. in accordance with the rates that are agreed upon. All conflicting issues regarding compensation etc. should be settled amicably before or during the project activities.
 - xii. The proponent shall take effective measures for the sanitation during construction & operational phases.
 - xiii. The proponent shall dispose off solid waste in a proper scientific way in consultation with TMA / District Government.
 - xiv. The proponent shall provide a copy of IEE report and copy of this letter to the contractor also for their information and compliance of conditions / measures suggested in these documents.
 - xv. The proponent shall obtain NOC / clearance from all other concerned departments before

[Handwritten signature]
17/7/14

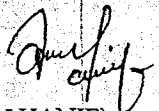
- xvii. The proponent shall plan the timings for the movement of construction material to minimize the traffic load and to avoid the inconvenience to the local residents.
- xviii. The proponent shall relocate all the public utilities likely to be affected by the purpose project well ahead of the commencement of the construction work.
- xix. The proponent shall avoid unnecessary excavations and all excavations work shall be sprinkled with water to control dust.
- xx. The proponent shall provide ear muffs and masks to the workers doing job in the vicinity of high noise generating machines and dust emitting areas and shall provide protective clothing for handling hazardous materials.
- xxi. Open burning of solid waste from the contractors camp shall not be allowed.
5. The proponent shall be liable for correctness and validity of the information supplied by the environmental consultant.
6. The proponent shall be liable for compliance of Sections 13, 14, 17 and 18 of IEE/EIA Regulations, 2000, regarding approval, confirmation of compliance, entry, inspections and monitoring.
7. This approval is accorded only for the construction phase of the project. The proponent shall obtain approval for operational phase of the project in accordance with Section 13(2)(b) and Section 18 of the IEE/EIA Regulations, 2000.
8. Any change in the approved project shall be communicated to EPA, Punjab and shall be commenced after obtaining the approval.
9. This approval shall be treated as null and void if all or any of the conditions mentioned above, is/are not complied with. This approval does not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law in force and is subjudice to legal proceedings in any legal fora / court.
10. This approval shall be valid (for commencement of construction) for a period of three years from the date of issue under Section 16 of IEE / EIA Regulations, 2000.
11. This approval can be withdrawn at anytime without any prior notice if deem necessary in the public / national interest.


(AMEN HANIF)
ASSISTANT DIRECTOR (EIA)
for Director General, EPA, Punjab
Ph: # (042)99232228

NO. & DATE EVEN.

A copy is forwarded for information to:

1. The District Officers (Environment), Sahiwal w.r.t. his letter No. 576/DOE/SWL dated 05.07.2014. He is directed to ensure compliance of the above conditions under intimation to this office.


(AMEN HANIF)
ASSISTANT DIRECTOR (EIA)
for Director General, EPA, Punjab



Page 56

INDUS RIVER SYSTEM AUTHORITY

Government of Pakistan

35-Mauve Area, G-10/4

Islamabad

Tel: 051-9108008

Fax: 051-9108007

No. IRSA/CE(O)/329/2653-55
17th June, 2016

Mr. Yousuf Mehboob Khan
Trident Power JB (Pvt) Ltd.
Suite//8, Ground Floor, Evacuee Trust Complex
F-5/1, Islamabad.

SUBJECT: APPLICATION OF TRIDENT POWER JB (PRIVATE) LIMITED FOR GRANT OF GENERATION LICENSE IN RESPECT OF ITS 4.65 MW HYDROPOWER PROJECT IN DISTRICT OKARA

Reference: Your letter No. even dated 06th June, 2016, regarding the subject application.

I am directed to state that IRSA has no objection to the installation of the subject hydropower project of 4.65 MW in District Okara.

This issues with approval of IRSA.

M. Khalid Idrees Rana
(Muhammad Khalid Idrees Rana)
Director (Operation)

Copy to:

1. Chairman / All IRSA Members, Islamabad.
2. Mr. Muhammad Ramazan, Deputy Registrar, NEPRA, Islamabad.

**National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan**

**GENERATION LICENCE
No. IGSPL/73/2017**

In exercise of the Powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority hereby grants Generation Licence to:

TRIDENT POWER JB (PRIVATE) LIMITED

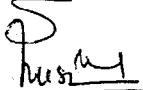
Incorporated under the Companies Ordinance, 1984
Universal Identification No. 0083146, dated March 18, 2013

for its Hydel Generation Facilities Located on Lower Bari Doab Canal
at (RD 260+000), Okara Cantt, District Okara, in the Province of Punjab

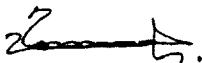
(Installed Capacity: 4.65 MW Gross)

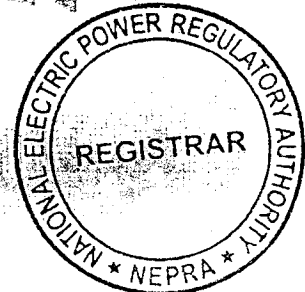
to engage in generation business subject to and in accordance with the Articles of this Licence.

Given under my hand on 05th day of January, Two Thousand & Seventeen, and expires on 14th day of November, Two Thousand & Forty Eight.


05.01.17

Registrar







Registrar

Islamic Republic of Pakistan

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

No. NEPRA/R/DL/LAG-332/259-66

January 05, 2017

Mr. Yousuf Mehboob Khan
Chief Executive Officer,
Trident Power JB (Private) Limited,
Suite # 8, Ground Floor, Evacuee Trust Complex,
F-5/1, Islamabad.
Tel: 051-2870422-23

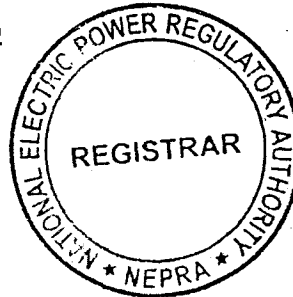
Subject: **Generation Licence No. IGSP/L/73/2017**
Licence Application No. LAG-332
Trident Power JB (Private) Limited (TPJBPL)

Reference: *Your application vide letter No. Nil, dated March 04, 2016, received on March 08, 2016.*

Enclosed please find herewith Generation Licence No. IGSP/L/73/2017 granted by National Electric Power Regulatory Authority (NEPRA) to Trident Power JB (Private) Limited (TPJBPL) for its 4.65 MW Hydel Generation facilities located on Lower Bari Doab Canal at (RD 260+000), Okara Cantt, District Okara, in the province of Punjab, pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997). Further, the determination of the Authority in the subject matter is also attached.

2. Please quote above mentioned Generation Licence No. for future correspondence.

Enclosure: Generation Licence (IGSP/L/73/2017)



[Signature]
05.01.17

(Syed Safeer Hussain)

Copy to:

1. Secretary, Ministry of Water and Power, Block – A, Pak Secretariat, Islamabad.
2. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore.
3. Chief Executive Officer, CPPA-G, 6th Floor, Shaheed-r-Millat Secretariat, Jinnah Avenue, Blue Area, Islamabad
4. Managing Director, Punjab Power Development Board (PPDB), Energy Department 1st Floor, Irrigation Secretariat, Old Anarkali, Lahore.
5. Director General, Environment Protection Department, National Hockey Stadium, Ferozpur Road, Lahore.
6. Chief Executive Officer, Lahore Electric Supply Company Limited, 22-A, Queens Road, Lahore.
7. Chairman, Indus River System Authority (IRSA), Block R-3, G-7 Markaz, Sitara Market, Islamabad

National Electric Power Regulatory Authority
(NEPRA)

Determination of the Authority
in the Matter of Application of Trident Power JB (Private) Limited
for the Grant of Generation Licence

December 29, 2016
Case No. LAG-332

(A). Background

(i). Pakistan is primarily an agricultural country and almost seventy percent (70%) of its population is directly or indirectly linked with this sector. In order to meet with the water requirements of the agriculture sector, a large number of link canals, head works and other canals have been built. The canal network laid all over the country offers a very good opportunity to harness the hydel potential for electric power generation.

(ii). In order to utilize the said potential in the province of Punjab, Government of Punjab has taken many significant measures. Punjab Power Development Board (PPDB) has issued Letter of Interests (LOI)s to various project developers for construction of hydro power projects on the canals. PPDB also issued two separate LOIs dated April 05, 2013 and April 12, 2013 in favor of Trans Tech Pakistan Limited. The LOIs envisaged development of 2.5 MW and 3.00 MW hydro power plants on Lower Bari Doab Canal (LBDC) at RD 285+545 and RD 258+654, District Sahiwal, in the province of Punjab.

(iii). In order to implement the project, Trans Tech Pakistan Limited incorporated a special purpose company in the name of Trident Power JB (Private) Limited (TPJBPL). Accordingly, TPJBPL hired the services of Anwar Integrated Projects and Engineering (Pvt.) Limited for preparing the feasibility study of the project to be approved by Panel of Experts appointed by the PPDB. While conducting the feasibility study, based on the remodeling of the LBDC, it was found more feasible to develop a 4.6 MW hydro power project at RD 260+000



near Okara cantt, in the province of Punjab. Therefore, the sponsor proposed to merge the two (02) sites into one (01) having installed capacity of 4.6 MW at RD260+000 for making the project more feasible. The said proposal of the sponsor was accepted by Panel of Experts appointed by PPDB. The scope of the feasibility study included the collection and review of the previous studies, existing data, site investigations, infrastructure requirements, Initial Environmental Examination (IEE), tariff calculation (including economic/financial analysis), term of financing and project cost etc. The said feasibility study of the project was approved by the Panel of Experts appointed by PPDB.

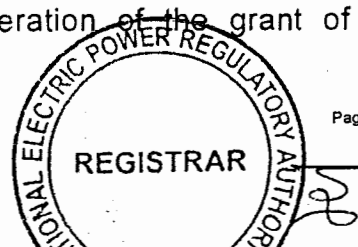
(iv). After approval of the feasibility study, PPDB directed TPJBPL to approach the Authority for grant of generation licence and adoption of upfront tariff for small hydropower generation projects. Accordingly, TPJBPL decided to approach the Authority for the grant of generation licence.

(B). Filing of Application

(i). In accordance with Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 ("the NEPRA Act"), TPJBPL filed/submitted an application for the grant of generation licence on March 08, 2016.

(ii). The Registrar examined the application to confirm its compliance with the NEPRA Licensing (Application and Modification Procedure) Regulations, 1999 ("the Licensing Regulations"). The Registrar found the same non-compliant with the Licensing Regulations and directed TPJBPL for submitting the missing information/documents. TPJBPL completed the missing information/documentation on March 30, 2016. Accordingly, the Registrar submitted the matter for the consideration of the Authority seeking admission of the application or otherwise.

(iii). The Authority considered the matter and found the form and content of the application in compliance with Regulation-3 of the Licensing Regulations. The Authority admitted the application for consideration of the grant of the



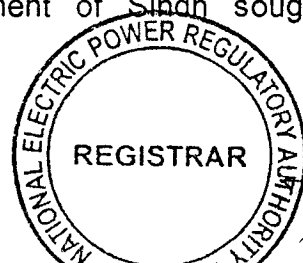
generation licence as stipulated in Regulation-7 of the Licensing Regulations. The Authority approved the advertisement containing (a). the prospectus; (b). a notice to the general public about the admission of the application of TPJBPL, to invite the general public for submitting their comments in the matter as stipulated in Regulation-8 of Licensing Regulations. Further, the Authority also approved the list of the relevant stakeholders to inform regarding admission of the application of TPJBPL and to seek their comments for assistance of the Authority in the matter.

(iv). Accordingly, the advertisement was published in one Urdu (the daily Express) and one English (the News) Newspapers on May 17, 2016. Apart from the above, separate letters were also sent to government ministries, their attached departments, representative organizations and individual experts etc. on May 17, 2016. The said stakeholders were directed to submit their views/comments for assistance of the Authority.

(C). Comments of Stakeholders

(i). In response to the above, the Authority received comments from five (05) stakeholders. These included Indus River System Authority (IRSA), Punjab Power Development Board (PPDB), Energy Department Government of Sindh, Pakistan Water and Power Development Authority (WAPDA) and Lahore Electric Supply Company Limited (LESCO). The salient points of the comments of said stakeholders are summarized below:-

- (a). IRSA in its comments stated that the applicant may be instructed to make a presentation/briefing on the project to IRSA for obtaining NOC for the project;
- (b). PPDB in its comments supported the request of TPJBPL for the grant of generation licence;
- (c). Energy Department, Government of Sindh sought some



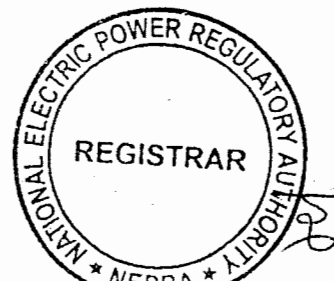
technical data (i.e. Technical detail, specification of machinery, technology of combustion) for their detailed comments on the project;

(d). WAPDA in its comments stated that it strongly supports the grant of generation licence to TPJBPL as the construction of project would extend the cheap energy into the national grid; and

(e). LESCO submitted that PPDB has requested to issue the power acquisition consent in favor of TPJBPL, as the sponsor/TPJBPL has applied for generation licence and acceptance of upfront tariff for small hydro power projects with NEPRA. LESCO commented that prior to issuance of the power acquisition consent TPJBPL is required to provide the generation licence and approval of upfront tariff issued by NEPRA.

(i). The above comments of the stakeholders were examined and the same were found supportive to the grant of generation licence to TPJBPL, except certain observations raised by IRSA and Energy Department Government of Sindh. On the observations of IRSA, the Authority directed TPJBPL to liaison with IRSA for obtaining NOC of the project. In response, TPJBPL took up the matter with IRSA and IRSA issued NOC to TPJBPL for the installation of 4.65 MW hydro power plant. Energy Department Government of Sindh in its comments requested for providing some technical data regarding the project, to provide further comments. The required data was provided to Energy Department Government of Sindh through this office letter dated June 14, 2016. However, no further comments were received from Energy Department Government of Sindh.

(ii). Foregoing in view, the Authority considered it appropriate to process the application of TPJBPL for the grant of generation licence as stipulated in the



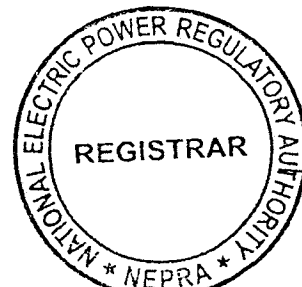
(D). Analysis of the Authority

(i). The Authority has examined the generation licence application, of TPJBPL along with information provided with the generation licence application including feasibility study of the project, interconnection and dispersal arrangement studies and relevant rules & regulations.

(ii). The applicant company (i.e. TPJBPL) is a Private Limited company incorporated under Section-32 of the Companies Ordinance, 1984 (XLVII of 1984), having Corporate Identification No. 0083146, dated March 18, 2013. The registered/business office of the company is Suit No. 8, Ground floor, Evacuee Trust Complex, F-5/1, Islamabad. The memorandum of association of the company, *inter alia*, includes the business of power generation as one of its business objects. According to the submitted memorandum of association of the company, four (04) individual businessmen namely Fiaz Ahmad, Yousaf Mehboob Khan, Zafar Ikram Sheikh and Syed Hadi Ali Rizvi own shares of the company having 25%, 25%, 26% and 24% proportion of the shares respectively.

(iii). TPJBPL intends to set up a hydel based generation facility at LBDC at RD 260+000 Okara cantt, Tehsil & District Okara in the Province of Punjab. According to the feasibility study, the proposed hydro power plant would be consisting of three (03) Horizontal Kaplan units with rated output of 1550 KW each.

(iv). Regarding feasibility study of the project, the Authority observes that TPJBPL has submitted the same including *inter alia* collection and review of the previous studies, existing data, site investigations, infrastructure requirements, Initial Environmental Examination (IEE), tariff calculation (including economic/financial analysis), term of financing and project cost etc. The said



feasibility study of the project has been approved by the Panel of Experts appointed by PPDB.

(v). Regarding grid interconnection of the project, the Authority observes that TPJBPL has submitted interconnection study of the project duly approved by LESCO. The said interconnection envisages that electric power generated by the hydropower plant of TPJBPL will be supplied to the 132/11KV Okara cantt substation of LESCO through a double circuit 11 KV transmission line of 5 KM length using Osprey conductor.

(vi). Regarding impact of the project on environment, the Authority is of the opinion that the proposed hydropower plant of TPJBPL for which generation licence has been sought, is based on a renewable energy source and does not cause any pollution however, the operation of the same may cause some other type of pollution including soil pollution, water pollution and noise pollution during construction and operation. In this regard, TPJBPL carried out an Initial Environment Examination study and obtained No Objection Certificate from Environmental Protection Agency, Government of Punjab.

(vii). Regarding land of the project, the Authority observes that Government of Punjab has allocated 195 Kanals of land to TPJBPL at Lower Bari Doab Canal at (RD 260+000), Okara cantt, District Okara, in the Province of Punjab.

(viii). In view of the clarification and justifications given above, the Authority is of the considered view that the project of TPJBPL fulfills the eligibility criteria for grant of generation licence as given under the NEPRA Act, rules and regulations and other applicable documents.

(E). Grant of Generation Licence

(i). The sustainable and affordable energy/electricity is a key prerequisite for socio-economic development of any country. In fact, the economic growth of any country is directly linked with the availability of safe, secure, reliable



and cheaper supply of energy/electricity. In view of the said reasons, the Authority is of the considered opinion that for sustainable development, all indigenous power generation resources including renewable energy must be developed on priority basis.

(ii). The existing energy mix of the country is heavily skewed towards the costlier thermal power plants, mainly operating on imported fuel. The continuous import of furnace oil not only creates pressure on the precious foreign exchange reserves of the country but is also an environmental concern. Therefore, in order to achieve sustainable development it is imperative that indigenous renewable energy resources are given priority for power generation and their development is encouraged. The Energy Security Action Plan 2005 approved by the Government of Pakistan, duly recognizes this very aspect of power generation through renewable energy and envisages that at least 5% of total national power generation capacity (i.e. 9700 MW) to be met through renewable energy resources by 2030.

(iii). The Authority considers that the proposed project of TPJBPL is consistent with the provisions of Energy Security Action Plan 2005. The project will help in diversifying the energy portfolio of the country. Further, it will not only enhance the energy security of the country by reducing the dependence on imported furnace oil but will also help reduction in carbon emission by generating clean electricity, thus improving the environment.

(iv). The term of a generation licence under Rules-5(1) of the Rules is to commensurate with the maximum expected useful life of the units comprised in a generating facility, except where an applicant for a generation licence consents to a shorter term. According to the information provided by TPJBPL its hydropower plant will achieve Commercial Operation Date (COD) by November 15, 2018 and will have a useful life of thirty (30) years from its COD. In this regard, TPJBPL has requested that the term of the proposed generation licence may be fixed as thirty (30) years, consistent with the term of its proposed Energy Purchase Agreement. The Authority considers that the information provided by TPJBPL on useful life of



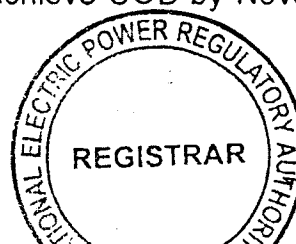
its hydropower plant is consistent with the international benchmarks and with other similar cases. Forgoing in view, the Authority fixes the term of the generation licence as thirty (30) years from COD of the project.

(v). Regarding the tariff, it is hereby clarified that under Section-7(3)(a) of the NEPRA Act, determining tariff, rate and charges etc. is the sole prerogative of the Authority. In view of the said, the Authority through Article-6 of the generation licence directs TPJBPL to charge the power purchaser only such tariff which has been determined, approved or specified by the Authority. The Authority directs TPJBPL to adhere to the Article-6 of the generation licence in letter and spirit without any exception.

(vi). Regarding land of the project as mentioned in the Schedule-I of the generation licence, the Authority directs TPJBPL that the same shall be exclusively used by TPJBPL for the proposed hydropower plant and TPJBPL cannot carry out any other generation activity on this land except with prior approval of the Authority.

(vii). Regarding compliance with the environmental standards, the Authority directs TPJBPL to ensure that the project will comply with the environmental standards during the term of the generation licence. In view of the said, the Authority has included a separate article (i.e. Article-10) in the generation licence along with other terms and conditions that the licensee will comply with relevant environmental standards. Further, the Authority directs TPJBPL to submit a report on a bi-annual basis, confirming that operation of its project is compliant with required environmental standards as prescribed by the concerned environmental protection agency.

(viii). The proposed hydropower plant of TPJBPL will be using renewable energy resource for generation of electric Power. Therefore, the project may qualify for the carbon credits under the Kyoto Protocol. Under the said protocol, projects coming into operation up to the year 2020 can qualify for the carbon credits. TPJBPL has informed that the project will achieve COD by November 15,

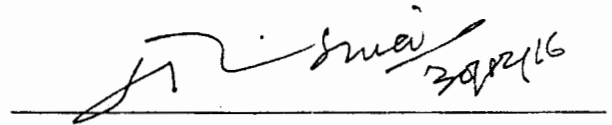


2018 which is within the deadline of the Koyoto Protocol. In view of this, an article (i.e. Article-13) for carbon credits and its sharing with the power purchaser has been included in the generation licence. In view of the said, the Authority directs TPJBPL to initiate the process in this regard at the earliest so that proceeds for the carbon credits are materialized. TPJBPL shall be required to share the proceeds of the carbon credits with the power purchaser as stipulated in Article-13 of the generation licence.

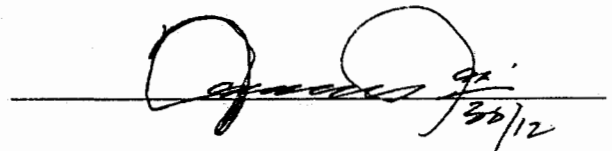
(ix). In view of the above, the Authority hereby approves the grant of generation licence to TPJBPL on the terms and conditions set out in the generation licence annexed to this determination. The grant of generation licence will be subject to the provisions contained in the NEPRA Act, relevant rules, regulations framed there under and other applicable documents.

Authority:

Maj. (R) Haroon Rashid
(Member)

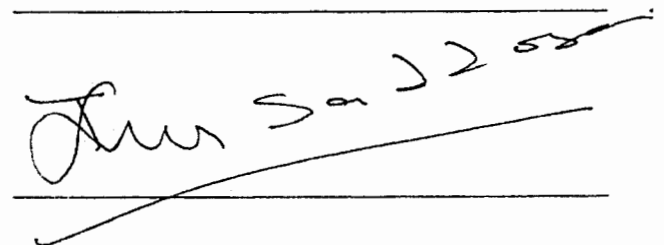


Syed Masood-ul-Hassan Naqvi
(Member)



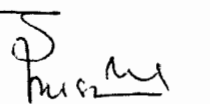
- on leave -

Himayat Ullah Khan
(Member/Vice Chairman)



Tariq Saddozai
(Chairman)




05.01.17



OFFICE OF THE
DISTRICT COORDINATION OFFICER/
DISTRICT COLLECTOR, SAHIWAL.
No. 188-RAJAC/LAC/Swl. Dated: 24-08-2016.

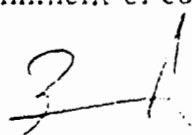
To

The Superintendent,
Govt. Printing Press, Punjab,
Lahore.

Subject: - ACQUISITION OF PRIVATE LAND FOR ESTABLISHMENT OF 4.6-MW
RAVI HYDROPOWER PROJECT AT LOWER BARI DOAB CANAL
(LBDC), RD (260+000), DISTRICT SAHIWAL.

This is with reference to the subject cited above.

A draft Notifications u/s 4 of the Land Acquisition Act, 1894, of the village "Chak No.60/4-R", Tehsil & District Sahiwal is enclosed herewith for publication in the Punjab Gazette (Extra Ordinary Issue), under the law. Please provide 7-copies of the same to this office, after fulfillment of codal formalities, as early as possible.


DISTRICT COORDINATION OFFICER/
DISTRICT COLLECTOR, SAHIWAL.

Cc:-

1. Secretary (S & C), Board of Revenue, Punjab, Lahore, with reference to his letter No.790-2016/372-S-I, dated 21.06.2016.
2. Managing Director, Punjab Power Development Board, Lahore.
3. Assistant Commissioner (Rev), Sahiwal Division, Sahiwal.
4. M/S Trident Power JB (Pvt) Limited, Lahore.



The Punjab Gazette

PUBLISHED BY AUTHORITY

LAHORE FRIDAY AUGUST 26, 2016

OFFICE OF THE DISTRICT COLLECTOR, SAHIWAL

NOTIFICATION UNDER SECTION 4 OF THE LAND ACQUISITION ACT, 1894.

No. 187 -RA/AC/LAC/Swl,

Dated: 24-08-2016.

Whereas, it appears to the District Collector, Sahiwal that the land is likely to be required to be taken by the Government, for Company "M/S Trident Power JB (Pvt) Limited, Lahore", for a public purpose namely for Development of 4.6-MW Ravi Hydropower Project at Chak No.60/4-R, Tehsil & District Sahiwal.

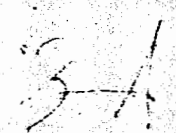
It is hereby notified that the land in the locality described below is likely to be required for the above purpose.

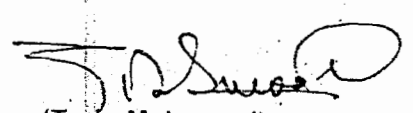
1. The notification is made under the provisions of Section- 4 of the Land Acquisition Act, 1894, to all whom it may concern.
2. In exercise of the powers conferred by the aforesaid section the District Collector, Sahiwal is pleased to direct officers/officials for the time being engaged in the undertaking with their servants and workmen to enter upon and survey land in the locality and do all other acts required or permitted by this section.

SPECIFICATION OF PRIVATE OWNED LAND.

District	Tehsil	Village/ Chak No.	Square No.	Khasra No.	Area	
					K	M
Sahiwal	Sahiwal	60/4-R	10	1	8	0
				2	8	0
				3	8	0
				4	8	0
				5/1	4	0
				5/2	4	0
				6	8	0
				7	7	8
				8/1	4	0
				8/2	4	0
				9	8	0
				10	8	0
				11	8	0
				12	8	0
				13	8	0
				14	8	0
				15	8	0
			13	16	4	9
				17	9	2
				18	8	0
				19	8	0
				20	8	0
				21	8	0
				22	8	0
				23	6	0
				1	4	8
			2	3	12	
Total Area					186	19


**Land Acquisition Collector/
 Assistant Commissioner,
 Sahiwal.**


**District Collector
 Sahiwal.**


**(Tariq Mahmood)
 General Manager,
 Trident Power JB
 (Pvt) Limited, Lahore.**



The Punjab Gazette

PUBLISHED BY AUTHORITY

LAHORE TUESDAY MAY 16, 2017

OFFICE OF THE DISTRICT COLLECTOR, SAHIWAL

No. **687**-RA/AC/LAC/Swl,

Dated: **15-05-2017**.

ADDENDUM

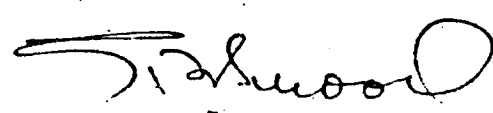
THE NOTIFICATION u/s 4 of the Land Acquisition Act, 1894, issued by the District Collector, Sahiwal, vide No.187-RA/AC/LAC/Swl, dated 24.08.2016, duly published in the Punjab Gazette (Extra Ordinary Issue) on 26.08.2016 at Page # 1419-1420, regarding acquisition of land for **Development of 4.6-MW Ravi Hydropower Project at Chak No.60/4-R, Tehsil & District Sahiwal.** As per the feasibility studies, conducted by the Company and found that some extra land is also definitely required for this project for the construction of the employer offices, workshop and a small colony. So the following Khasra Nos. is hereby included in the said Notification u/s 4 of the Land Acquisition Act, 1894, for the Company, as a public purpose.

SPECIFICATION.

District	Tehsil	Village/ Chak No.	Square No.	Khasra No.	Area	
					K	M
Sahiwal	Sahiwal	60/4-R	11	1	8	0
				2	8	0
				9	5	14
				10	8	0
				11	9	0
Total Area					38	14


**Land Acquisition Collector/
 Assistant Commissioner,
 Sahiwal.**


**District Collector
 Sahiwal.**


**(Tariq Mahmood)
 General Manager,
 Trident Power JB
 (Pvt) Limited, Lahore.**

203

Phone No. 040-9200210 / Fax No. 040-9200211
Email selbdc_sahiwal@yahoo.com

From

The Superintending Engineer
Lower Bari Doab Canal Circle
Sahiwal

To

The Project Director
PMU, LBDCIP Zone
Lahore

No. 8382 /448-M-M

Dated. 28-9- / 2016

Subject: - IRRIGATION DEPARTMENT OWNED LAND ON LEASE FOR 4.6 MW HYDROPOWER PROJECT LBDC AT RD 260+000 OKARA CANTT DISTRICT SAHIWAL

Reference: - Administrative Department letter No.S.O/Rev/Irr/12-70/16/LBDC dated 08-09-2016 and your office letter No.61927-28/3-B dated 16-09-2016

It is submitted that Executive Engineer Sahiwal Division LBDC has submitted detailed report on the subject noted above vide letter No.784 dated 24-09-2016 which is self-explanatory. The Executive Engineer alongwith filed staff also visited the site. The area demanded by the company is Right of Way of Lower Bari Doab Canal and cannot be handed over permanently, however the same can be leased out in case of dire necessity of the company with the following terms and conditions:-

- 1- The land can only be leased out on temporary basis and the operating agency will be bound to return the possession of the land as and when required by the Irrigation Department.
- 2- In case Irrigation Department wants to take over the said land in future for its own use, the Energy Department shall be bound to remove their infrastructure from the said land.
- 3- In case, any damage to infrastructure of 4.6 MW Hydropower Project due to any mishap of Canal System, Irrigation Department neither will be responsible nor pay any kind of compensation to the Energy Department.
- 4- Lease of land amount will be assessed by the District Price Assessment Committee Sahiwal and will be paid by the operating agency "Energy Department" to the Irrigation Department in advance.
- 5- The operating agency will be responsible for the payment of cost of any type of losses so occurred to the canal system, structures or adjacent public / private property during construction or operation.

Following documents are attached herewith:-

As above
D.A.

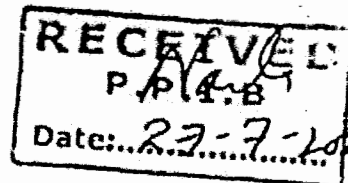
Department please.

- The report is submitted as desired for onward submission to the Administrative Department please.
- their letter.
- Photo copy of X-section of proposed site as attached by the applicant company with their letter.
- IV- Photo copy of Incident Power JB Private Limited letter.
- III- Photo copy of map of proposed land / site.
- II- Dast Khaka (map) of proposed land / site.
- I- Photo copy of Xen Sahiwal Division letter No 784 dated 24-09-2016.

Superintending Engineer
Lower Bari Doab Canal Circle
Sahiwal

TRIDENT

Trident Power JB (Private) Limited



July 27, 2020

REMINDER

27/7

The Chief Executive Officer
Central Power Purchasing Agency Guarantee Limited
Shaheen Plaza, Plot # 73-West, Fazi-e-Haq Road,
Blue Area, Islamabad



CONSENT AND NO OBJECTION CERTIFICATE ON LESCO'S CONSENT ENABLING CPPA-G TO PROCURE POWER FROM 4.6 MW (RAVI HYDRO) HYDROPOWER PROJECT ON LOWER BARI DOAB CANAL (LBDC) AT RD. 260+000, DISTRICT OKARA

Dear Sir,

Please refer to the subject captioned and to our letter to your office dated April 02, 2020 and to the following letters:

1. LESCO Letter No. 78324-31/MMT-241 dated April 01, 2020
2. CPPA-G letter No. CPPA-G/CTO/DGM(Renewable)/SHPP/2031-38 dated January 28, 2020 and
3. To the Minutes of Meeting of Board of Directors of PPIB dated November 07, 2019 regarding way forward for revalidation of Power Acquisition Consent by related DISCOs.

The Board of Directors of LESCO has approved and issued revised Power Acquisition Consent for the captioned project enabling CPPA-G to procure power from the said project (copy attached). In addition to this, LESCO has also approved and revalidated the Grid Interconnection Study of the captioned project on January 31, 2020 (copy attached). It is pertinent to mention here that the Grid Interconnection Study has also been approved by NTDC on July 22, 2020.

In order to fulfill the requirements of PPIB board of directors' directions, CPPA-G is requested to kindly issue Consent and NOC on revised power acquisition consent already issued by LESCO at your earliest for further proceedings of the project.

Your cooperation and early response in this regard will be highly appreciated.

Warm Regards,

Tariq Mahmood
General Manager

c.c. Managing Director
Private Power & Infrastructure Board

CS



LAHORE ELECTRIC SUPPLY COMPANY LIMITED
CUSTOMER SERVICES DIRECTOR

22-A, Queens Road, Lahore

Ph: 9204820-30, Fax: 9204831

Subject: **REVISED LESCO'S CONSENT ENABLING CPPA-G TO PROCURE 4.6 MW HYDRO POWER (RAVI HYDRO) FROM M/S TRIDENT POWER JB PRIVATE LIMITED.**

The consent which was issued vide this office letter No. 57053-57 dated 16-12-2016, is hereby revised in the light of instructions of PPIB circulated vide letter No. 1(101)PPIB-MISC/19/PRJ/O-53805 dated 07-11-2020, enabling CPPA-G to procure power from project company i.e. Trident Power JB Private Limited subject to the condition as per clause (iii) of PPIB letter No. 1(101)PPIB-MISC/19/PRJ/O-53805 dated 07-11-2019. LESCO supports the project being clean energy, no imported fuel involved and with the apprehension that tariff would be appreciably lower than the average basket price of running financial year. Presently no cost of tariff is available for considered opinion and analysis

The Project Company shall provide the interest free soft loan to LESCO for construction of the interconnection arrangements which will be reimbursed in easy installments.

This is issued with the approval of Competent Authority.


Customer Services Director
LESCO

To

**Chief Executive Officer
Central Power Purchasing Agency Guarantee Limited
Shaheen Plaza, Plot No. 73-West, Fazal-e-Haq Road,
Blue Area, Islamabad**

Copy:

1. GM (Technical) LESCO
2. Chief Financial Officer LESCO
3. Chief Law Officer LESCO
4. Chief Engineer (P&D) LESCO with the request to submit estimated cost of interconnection arrangement.
5. Chief Engineer (Development) PMU LESCO
6. M/s Trident Power JB Private Limited, House No. 359-H, Street # 4, Phase-5, DHA, Lahore w.r.t his letter dated 03-02-2020
7. SO to CEO LESCO

No. 78324-571 /MMT-241

Dated: 1 / APR /2020



Office of Chief Engineer (Development) LESCO
Qartaba Grid Station Bahawalpur Road Lahore.
Ph:042-99214410 FAX 042-99214412

No. 2019-23 /CE(DEV)/P&S/PMU/553

Dated: 30/01/2020

To

Manager (Marketing & Tariff)
LESCO

Sub: Grid Interconnection Assessment (GIA) Studies of 4.6 MW Ravi Hvdro Power Project on Lower Bari Doab Canal (LBDC) at Rd 260+000, District Okara

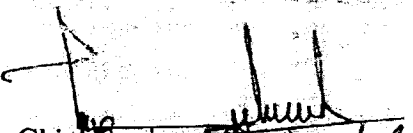
- Ref:
- 1- Your office letter no. 67612-15/MMT-241 dated: 28-01-2020.
 - 2- M/s Trident Power JB letter dated: 21-01-2020.
 - 3- This office letter no. 1339-42/CE(DEV)/P&S/PMU/553 dated: 13-01-2020.
 - 4- M/s Trident Power JB letter dated: 18-12-2019.
 - 5- This office letter no. 16788-90/CE(DEV)/P&S/PMU/553 dated: 30-10-2015.

Please refer to the letter at sr. no. 4 above vide which the revised Grid Interconnection Assessment (GIA) study report of the subject cited power plant was submitted to this office for review/ vetting.

This office has reviewed the revised GIA study report consisting of Load Flow, Short Circuit and Dynamic Stability analyses, all these analyses fulfill the NEPRA Grid Code planning criteria; therefore, the revised report is vetted.

However, it is clarified that the report has been vetted only for interconnectivity aspect of the subject cited power plant and it should not be considered as a go-ahead signal to execute the project. Any commitment regarding project execution or consent of power purchase, tariff etc. has to be discussed with the concerned quarters.

It is further intimated that if there will be any change in the parameters assumed in the interconnection study then the study should be revised accordingly.


Chief Engineer (Dev.) PMU LESCO

Info:

1. General Manager (Technical), LESCO.
2. Customer Services Director, LESCO.
- ✓ 3. M/s Trident Power JB (Pvt.) Ltd., 359 H, Street # 4, DHA Phase-V, Lahore.
4. M/s ARCO Energy, Pakistan, 515 Eden Towers, Main Boulevard, Gulberg, Lahore.
5. M/F.



National Transmission and Despatch Company Limited (NTDC)

General Manager (Power System Planning) NTDC

No. GMPSP/TP/2379-85

Dated: 22-07-2020

✓ **General Manager**

Trident Power JB (Pvt.) Ltd.,
House # 359-H, Street # 4, Phase 5, DHA,
Lahore Cantt.

Subject: Approval of Grid Interconnection Assessment (GIA) Report of 4.6 MW Ravi Hydro Power Project (HPP) on Lower Bari Doab Canal (LBDC), District Okara, Punjab

Ref: (i) M/s Trident Power JB (Pvt) Ltd. office letter dated 05-06-2020.
(ii) M/s Trident Power JB (Pvt) Ltd. office letter dated 15-07-2020.

This office received the grid interconnection assessment (GIA) report of the subject 4.6 MW Ravi HPP on Lower Bari Doab Canal (LBDC) vide above referred letter (i). This office, after review, communicated the corrections needed in the GIA report to the consultant, M/s ARCO Energy, vide this office email dated 01-07-2020. The consultant re-submitted the GIA report in soft form on 13-07-2020 after incorporation of comments. During review, it was found that the consultant had not accommodated some of the comments of this office, which were communicated on the same day to the consultant. The consultant submitted the GIA report after incorporation of all the comments vide above referred letter (ii). Consequently, the final report, after review, is approved at NTDC end as per assumptions, study results and recommendations presented in the report.

It is intimated that the subject report has been approved only for the interconnectivity aspects of the subject HPP. Any commitment regarding induction of the subject 4.6 MW Ravi HPP and/or for any other purpose shall be carried by LESCO, CPPA-G and the relevant stakeholders.

(Sadiq Ullah)

General Manager (Power System Planning)

CC:

1. Managing Director (PPDB), 515, Eden Tower, 82-E/1 Main Boulevard, Gulberg-III, Lahore.
 2. Chief Technical Officer (CPPA-G), 73-West Blue Area, Shaheen Plaza, Fazal-e-Haq Road, Islamabad.
 3. Dy. Managing Director (P&E), NTDC
 4. Registrar, NEPRA, Islamabad.
 5. P.S. to Managing Director NTDC.
 6. ARCO Energy Pakistan, Office No. 515, Eden Tower, Main Boulevard, Gulberg-III Lahore.
- Master File



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN
COMPANY REGISTRATION OFFICE

1st Floor SLIC Building No.7, Blue Area,
Islamabad

CERTIFICATE OF INCORPORATION

[Under Section 32 of the Companies Ordinance, 1984 (XLVII of 1984)]

Corporate Universal Identification No. 0083146

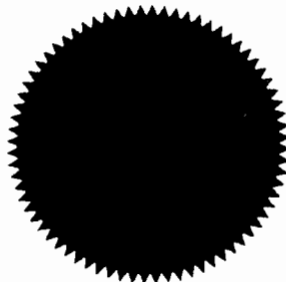
I hereby certify that **TRIDENT POWER JB (PRIVATE) LIMITED**
is this day incorporated under the Companies Ordinance, 1984 (XLVII of
1984) and that the company is limited by shares.

Given under my hand at Islamabad this 18th day of March, Two
Thousand and Thirteen.

Fee Rs. 22,000/-

(Shaukat Hussain)

Additional Registrar of Companies



CERTIFIED TO BE TRUE COPY

Assistant Registrar
Company Registration

NO. JF/ 30913
Dated 19-3-13

THE COMPANIES ORDINANCE, 1984
(COMPANY LIMITED BY SHARES)

ARTICLES OF ASSOCIATION

OF

TRIDENT POWER JB (PVT.) LIMITED

1. **TRIDENT POWER JB (PVT.) LIMITED** is established as a private Company with limited liability in accordance with and subject to the provisions of the Companies Ordinance, 1984 and accordingly the following provisions shall have effect, namely:

- (a) The numbers of the members for the time being of the Company (exclusive of persons who are for the time being in the employment of the Company), is not to exceed to fifty but when two or more persons hold one or more shares in the company jointly they shall, for the purpose of this paragraph, be treated as a single member;
- (b) Any invitation to the public to subscribe for any shares or debentures or debenture stock of the Company is hereby prohibited.
- (c) The right to transfer shares of the Company shall be restricted in manner hereinafter appearing,

2. The regulations contained in Table "A" in the First Schedule to The Companies Ordinance, 1984 shall apply to the Company, subject to the articles hereinafter provided.

INTERPRETATION

3. In these Articles unless there is something in the subject or context inconsistent therewith:

- (i) "The Company" means the above named Company.
- (ii) "The Ordinance" means the Companies Ordinance, 1984, or any statutory modification or re-enactment thereof for time being in force in Pakistan;
- (iii) "The Directors" means the Directors for the time being of the Company or the Directors assembled at a Board;
- (iv) "Month" means a calendar month;
- (v) "The Office" means the Registered Office for the time being of the Company;
- (vi) "The Seal" in relation to a Company means the common Seal of the Company.

"Printing" shall include printing and lithography and any other mode or modes of representing or reproducing words in a visible form.



- (viii) Words importing the singular number only shall include the plural number and vice versa;
- (ix) Words importing the masculine gender only shall include the feminine gender;
- (x) Words importing persons shall include corporations.
- (xi) Subject as aforesaid any words or expressions defined in the Ordinance; shall except where the subject or context forbids bear the same meaning in these Articles.

CAPITAL

- 4. The Authorize Share Capital of the Company is Rs. 20,00,000/- (Rupees Three Million only) divided into 20,000 ordinary shares of Rs.100/-(Rupees Hundred only) each with powers to the company from time to time to increase and reduce its capital subject to any permission required under the law.
- 5. The shares shall be under the control of the Directors who may allot or otherwise dispose off the same to such persons, firms or corporation on such terms and conditions and at such times, as they may deem fit.
- 6. Transfer of shares shall not be made or registered without the previous sanctions of the Directors if registration of shares is refused, the Directors shall within one month from the date when instrument of transfer was lodged send notice of refusal to the transferee and the transferor.
- 7. An instrument of share transfer must be accompanied by the certificate of shares sought to be transferred thereby.

GENERAL MEETINGS

- 8. An annual General meeting, of the Company shall be held within eighteen months from the date of it's incorporation and thereafter once at least in every calendar year within four months following the close of its financial year at such time and place as the Directors may determine, provided however, that no greater interval than fifteen months shall be allowed to elapse between two general meetings.
- 9. The above mentioned meeting shall be called Annual General Meetings. All other general meetings shall be called extraordinary general meeting.

PROCEEDINGS AT GENERAL MEETING

- 10. At least Twenty-One days' notice of any General Meeting specifying the place, day and the hour of meeting and, in case of special business, the general nature of such business shall be given to members in manner hereinafter mentioned or in such other manner as may from time to time be prescribed by the Company in General Meeting. The accidental omission to give any such notice to or the non-receipt of any such notice by any member shall not invalidate the proceedings at any General Meeting or any resolution passed thereat.
- 11. The business of an Annual General Meeting shall be to receive and consider the profit and loss account, the balance sheet and the reports of the directors and auditors, to declare dividends, to elect the directors and to appoint and fix the remuneration of the auditors,



and to transact any other business which under these presents ought to be transacted at an Annual General Meeting and all business transacted at an Extraordinary General Meeting shall be deemed special.

12. Two members present in person who represent not less than twenty five percent of the total voting power either of their own account or as proxies shall constitute quorum for a General Meeting.
13. No business shall be transacted at any General meeting unless the requisite quorum shall be present at the commencement of business.
14. At every General Meeting the Chairman appointed by the Directors as the Chairman of the Meeting shall take the Chair, but if there be no such chairman or he be not presents within fifteen minutes after the time appointed for the meeting or is unwilling to act as Chairman, the members present shall choose a Director as Chairman and if none of the Directors be present, or willing to act as Chairman, the members present shall choose from one of their members, to be Chairman of the Meeting.
15. If within half an hour from the time appointed for the holding of a General Meeting the requisite quorum be not present, the meeting, if convened on the requisition of or by members, shall be dissolved and in every other case, it shall stand adjourned to the same day in the next week at the same hour and place, and, if at such adjourned meeting the requisite quorum be not present within half an hour from the time appointed for the meeting, two members present in person shall constitute a quorum and may transact the business for which the meeting was called.
16. The Chairman with the consent of the meeting may adjourn any General Meeting from time to time and from place to place but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place and which might have been transacted at that meeting.
17. Every question submitted to any General Meeting shall be decided in the first instance by a show of hands and in the case of equality of votes the Chairman shall, both on a show of hands and at the poll have a casting vote in addition to the vote or votes to which he may be entitled as a member.

VOTES OF MEMBERS

18. Upon a show of hands every member holding ordinary shares present in person or by proxy or attorney or in case of corporation under section 162 of the Ordinance shall have one vote except for election of Directors in which case, the provisions of section 178 of the Ordinance shall apply and upon a poll every member present in person or by proxy or attorney or by representative under section 162 of the Ordinance shall have votes proportionate to the paid up value of the shares carrying voting rights held by such member.
19. (a) Votes may be given, either personally or by proxy or attorney or representative subject to the provisions of the Ordinance

No person shall be appointed a proxy who is not a member of the Company and qualified to vote save that a corporation or an organization being a member of



the Company may appoint as its representative any person whether a member of the Company or not. An attorney of a member need not himself be a member.

20. The instrument appointing a proxy, and every power of attorney or other authority (if any) under which it assigned, or a notarially certified copy of that power of authority shall be deposited at the registered office of the Company, not less than 48 hours before the time for holding the meeting. Otherwise the instrument of proxy shall not be treated as valid.

DIRECTORS

21. The number of directors shall not be less than two nor more than nine.
22. The persons hereinafter named shall be the first directors and they shall hold the office upto the First Annual General Meeting.
- (1) **FIAZ AHMED**
 - (2) **YOUSAF MEHBOOB KHAN**
 - (3) **ZAFAR IKRAM SHEIKH**
 - (4) **SYED HADI ALI RIZVI**
23. A Director may, with the approval of the directors, by notice in writing under his hand appoint any person to be an alternate director during his absence of not less than three months from Pakistan, and such appointment shall have effect and such appointee, whilst he holds office as an alternate director, shall be entitled to notice of meeting of directors, and to attend and vote thereat accordingly, but he shall ipso facto vacate office if and when the appointer returns to Pakistan or vacates office as Director, or removes the appointee from office by notice in writing under his hand.
24. The Directors shall subject to clause 21 hereof fix the number of Directors to comprise the Board of Directors at least 35 days before the convening of General Meeting at which election of directors is to take place.
25. The directors shall have power to fill a casual vacant but so that the total number of directors shall not at any time exceed the maximum number fixed in clause 24 hereof. But any Director appointed in a casual vacancy shall hold office only for the remainder of the term of the director in whose place he is appointed and shall then be eligible for re-election.
26. A Director must be a member of the Company except where the director is a nominee of a corporation or an organization, which is a member of the Company.
27. The remuneration of every director shall be such sum not exceeding Rs 500/- for every meeting of the Board attended by him, as may from time to time be fixed by the Board.
28. If any Director being willing is called upon to perform extra services (which expression shall include work done by a Director as a member of any committee formed by the Directors), or to make any special exertion in going or residing abroad, or otherwise for any of the purposes of the Company, the directors may remunerate such director as may be determined by the Directors.



29. The continuing directors may act notwithstanding any vacancy in their body, but so that if the number falls below the minimum fixed above, the Directors shall not except in emergencies or for the purposes of filling vacancies act so long as the number remains below the minimum.

ELECTION OF DIRECTORS

30. At the first annual general meeting of the Company, the whole of the directors shall retire from office
31. A director shall hold office for a period of three years, unless he earlier resigns, becomes disqualified from being a Director or otherwise ceases to hold office.
32. A retiring director shall be eligible for re-election
33. The company at the annual general meeting at which a director retires in manner aforesaid may fill up the vacated office by electing a person thereto as provided in the Ordinance.

MANAGING DIRECTOR

34. (a) The directors shall within fifteen days of the incorporation of the Company appoint any individual to be the Chief Executive, hereinafter called the Managing Director, of the company, to hold office till the holding of the first annual general meeting, unless the earlier resigns or otherwise ceases to hold office.
- (b) within fourteen days of election of Directors under the preceding Articles or the office of Chief Executive falling vacant, as the case may be as prescribed by section 199 of the Companies Ordinance, 1984, the directors shall appoint any individual, including an elected director, to be the Managing Director of the Company for a period not exceeding three years on such terms and conditions as the Directors deem fit.
- (c) On the expiry of the term of his office, the Managing Director shall be eligible for reappointment.
35. The directors of a company by resolution passed by not less than three fourth of the total number of directors for the time being, or the company by a special resolution may remove the managing director before the expiry of his term of office notwithstanding anything contained in the articles or in any agreement between the company and the managing director.
36. The remuneration of Managing Director shall from time to time be fixed by the Directors and may be by way of fixed salary or by any other mode.
37. The directors may from time to time entrust to and confer upon the Managing Director for the time being such of powers as they may think fit and may confer such powers for such time and to be exercised for such objects and purposes and upon such terms and conditions and with such restrictions as they think expedient and may from time to time revoke, withdraw alter or vary all or any of such powers.



PROCEEDINGS OF DIRECTORS

38. The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings and proceedings, as they think fit, and may determine the quorum necessary for the transactions of the business. Until otherwise determined two Directors shall be a quorum.
39. A director may, at any time, convene a meeting of directors. A Director who is at any time not in Pakistan shall not during such time be entitled to notice of any such meeting.
40. Questions arising at any meeting shall be decided by a majority of votes, and in case of an equality of votes, the Chairman shall have a second or casting vote.
41. The directors may elect as chairman of their meetings and determine the period for which he is to hold office; and unless otherwise determined, the chairman shall be elected annually. If no such chairman is elected, or if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the directors present shall choose one of their numbers to be chairman of the meeting.
42. A meeting of directors for the time being at which a quorum is present shall be competent to exercise all or any of the authorities, powers and discretions by or under the Articles of the Company for the time being vested in or exercisable by the directors generally.
43. The Directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit and may from time to time revoke such delegation. Any committee so formed shall in the exercise of the powers delegated, conform to any restrictions that may from time to time be imposed upon it by the Directors.
44. The meeting and proceedings of any such committee of two or more members shall be governed by the provisions herein contained for regulating the meetings and proceedings of the directors so far as the same are applicable thereto, and are not superseded by any regulations made by the directors under the last preceding clause.
45. All acts done by any meeting of the Directors or by a committee of directors or by any person acting as a director shall notwithstanding that it shall afterwards be discovered that there was some defect in the appointment of such directors or persons acting as aforesaid or that they or any of them were disqualified be as valid as if every such persons had been duly appointed and was qualified to be a director.
46. A resolution in writing signed by all the directors for the time being present in Pakistan, shall be valid and effectual as if it had been passed at a meeting of the directors duly called and constituted.

MINUTES

47. (a) The directors shall cause a fair and accurate summary of the minutes of all proceedings of general meetings and meetings of its directors and committee of directors, along with the names of those participating in such meetings, to be entered in properly maintained books.



- (b) Any such minutes of any general meeting, or of any meeting of the directors or of any committee of the directors if purporting to be signed by the Chairman of such meeting, or by the chairman of the next succeeding meeting shall be receivable as prima facie evidence of the matter stated in such minutes.

POWERS OF DIRECTORS

48. The management of the business of the company shall be vested in the directors, and the directors may exercise all such powers and do all such acts and things as the company is by its articles of association or otherwise authorized to exercise and do and are not hereby or by statute directed or required to be exercised or done by the Company in general meeting, but subject nevertheless to the provisions of the Companies Ordinance, 1984 or to any of these presents and regulations being not inconsistent with the aforesaid provisions, as may from time to time be prescribed by the company in general meeting provided that no regulations made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if such regulation had not been made.

BORROWING POWERS

49. The Directors may from time to time raise or borrow any sums of money for and on behalf the company from the members or other persons, Companies, firms or banks or they may themselves advance money to the company on such terms as may be approved by the directors.
50. The directors may raise and secure payment of such sum or sums of money in such manner and upon such terms and conditions in all respects as they think fit, and in particular by the issue of debentures or bonds or by mortgage or charge of all or any part of the property of the company.

THE SEAL

51. The directors shall provide for the safe custody of the seal and the seal shall never be used except by the authority of the Directors or a committee of directors previously given and in the presence of two directors who shall sign every instrument to which the seal is affixed.

ACCOUNTS

52. The directors shall cause true accounts to be kept in such form as they may decide for sums of money received and expended by the company and the matters in respect of which such receipt and expenditure take place and of all sales and purchases of goods by the company and of the assets, credits and liabilities of the Company.
53. The books of account shall be kept at the registered office of the company or at such other place or places as the directors think fit.
54. The directors shall, from time to time, determine whether and to what extent and at what times and places, under what conditions or regulations the accounts and books of the company or any of them shall be opened to the inspections of the members (not being a director) and no member not being a director shall have any right of inspecting any account or book or document of the company except as conferred bylaw or authorized by the directors or by a resolution of the company in a general meeting.



AUDIT

55. Once at least in every year the accounts of the Company shall be examined and the fairness of profit and loss account and balance sheet ascertained by one or more auditor or auditors.
56. The first auditor of the company shall be appointed by the directors.

NOTICES

57. (a) A notice may be given by the company upon any member either personally or by sending it by post to him to his registered address or (if he has no registered address in Pakistan) to the address, if any, within Pakistan supplied by him to the company for the giving of notices to him.
- (b) Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice unless the contrary is proved, to have been effected at the time at which the letters would be delivered in the ordinary course of post.
58. Each holder of registered share whose registered place of address is not in Pakistan may from time to time notify in writing to the Company an address in Pakistan which shall be deemed his registered place or address within the meaning of the last preceding clause.

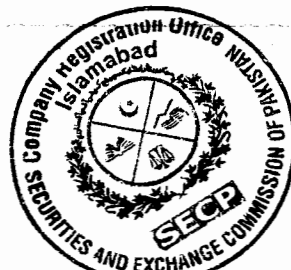
WINDING UP

59. If the company shall be wound up, whether voluntarily or otherwise the liquidator may, with the sanction of a special resolution, divide amongst the contributories in specie or kind, any part of the assets of the Company and may with the like sanction, vest any part of the assets of the Company in trustees upon such trusts for the benefit of the contributories, or any of them as the liquidator with the like sanction shall think fit.

INDEMNITY

60. Every director, manager, auditor, secretary, chief accountant and other officer or servant of the company shall be indemnified by the company against, and it shall be the duty of the directors out of the funds of the company to pay all costs, losses and expenses which any such officer or servant may incur or become liable to by reason of any contract entered into or thing done by him as such officer or servant or in any way in the discharge of his duties and the amount for which such indemnity is provided shall immediately attach as a lien on the property of the Company and have priority as between the members over all other claims.

No director, auditor or other officer of the company shall be liable for the acts, receipts, neglect or default of any other director or officer or for joining in any receipt or other act for conformity or for any loss or expenses happening to the company through the insufficiency or deficiency of title to any property acquired by order of the directors for or on behalf of the company or for the insufficiency or deficiency of any security in or upon which any of the money of the company shall be invested or for any loss or damage arising from bankruptcy, insolvency of any person with whom any moneys, securities or effects shall be deposited or for any loss occasioned by any error of judgment or oversight on his part or for any other damage or misfortune whatever which shall happen in the execution of the duties of his office or in relation thereto unless the same happens through his own dishonesty.



We the several persons, whose names and addresses are subscribed below are desirous of being formed into a Company in pursuance of the Article of Association and we respectively agree to take the number of shares in the capital of the Company set opposite to our respective names:-

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father's/ Husband's Name in full	Nationality with any former Nationality	Occupation	Residential Address in full	Number of shares taken by each subscriber	Signatures
FIAZ AHMED	61101-1916032-5	HAKIM JAN	PAKISTANI	BUSINESS	MARGALA ROAD, HOUSE 60, SECTOR F-8/2 ISLAMABAD	25	
YOUSAF MEHBOOB KHAN	61101-1916030-3	MEHBOOB ALI KHAN	PAKISTANI	BUSINESS	HOUSE NO 3, STREET NO 1 SECTOR F-6/3 ISLAMABAD	25	
ZAFAR IKRAM SHEIKH	31101-7738774-7	SHEIKH IKRAM UD DIN	PAKISTANI	BUSINESS	HOUSE NO 01 BLOCK 14 BALDIA ROAD BAHAWALNAGAR	26	
SYED HADI ALI RIZVI	42201-6153104-1	SYED ALI AKBAR RAZVI	PAKISTANI	BUSINESS	IBHRAHAM REHMAT ULLAH ROAD HOUSE NO B-81 MOHALLAH K.D.A SCHEME 1-A KARACHI EAST	24	
Total number of shares to be taken						100	

Dated: The 11th day of March 2013

National Institutional Facilitation Technologies Pvt. Ltd.

5th Floor, AWT Plaza I.I. Chundrigar Road, Karachi, Pakistan



CERTIFIED TO BE TRUE COPY

Assistant Registrar
Company Registration Office Islamabad

RECEIVED IN 1906

THE UNIVERSITY OF CHICAGO

CHICAGO

**THE COMPANIES ORDINANCE, 1984
(COMPANY LIMITED BY SHARES)**

ARTICLES OF ASSOCIATION

OF

TRIDENT POWER JB (PVT.) LIMITED

1. TRIDENT POWER JB (PVT.) LIMITED is established as a private Company with limited liability in accordance with and subject to the provisions of the Companies Ordinance, 1984 and accordingly the following provisions shall have effect, namely:

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- (c) The right to transfer shares of the Company shall be restricted in manner hereinafter appearing,

2. The regulations contained in Table "A" in the First Schedule to The Companies Ordinance, 1984 shall apply to the Company, subject to the articles hereinafter provided.

INTERPRETATION

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- (iii) "The Directors" means the Directors for the time being of the Company or the Directors assembled at a Board;
- (iv) "Month" means a calendar month;
- (v) "The Office" means the Registered Office for the time being of the Company;

"The Seal" in relation to a Company means the common Seal of the Company.

"Printing" shall include printing and lithography and any other mode or modes representing or reproducing words in a visible form.



- (viii) Words importing the singular number only shall include the plural number and vice versa;
- (ix) Words importing the masculine gender only shall include the feminine gender;
- (x) Words importing persons shall include corporations.
- (xi) Subject as aforesaid any words or expressions defined in the Ordinance; shall except where the subject or context forbids bear the same meaning in these Articles.

CAPITAL

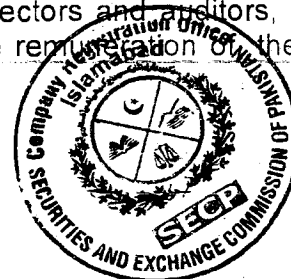
- 4. The Authorize Share Capital of the Company is Rs. 20,00,000/- (Rupees Three Million only) divided into 20,000 ordinary shares of Rs.100/-(Rupees Hundred only) each with powers to the company from time to time to increase and reduce its capital subject to any permission required under the law.
- 5. The shares shall be under the control of the Directors who may allot or otherwise dispose off the same to such persons, firms or corporation on such terms and conditions and at such times, as they may deem fit.
- 6. Transfer of shares shall not be made or registered without the previous sanctions of the Directors if registration of shares is refused, the Directors shall within one month from the date when instrument of transfer was lodged send notice of refusal to the transferee and the transferor.
- 7. An instrument of share transfer must be accompanied by the certificate of shares sought to be transferred thereby.

GENERAL MEETINGS

- 8. An annual General meeting, of the Company shall be held within eighteen months from the date of it's incorporation and thereafter once at least in every calendar year within four months following the close of its financial year at such time and place as the Directors may determine, provided however, that no greater interval than fifteen months shall be allowed to elapse between two general meetings.
- 9. The above mentioned meeting shall be called Annual General Meetings. All other general meetings shall be called extraordinary general meeting.

PROCEEDINGS AT GENERAL MEETING

- 10. At least Twenty-One days' notice of any General Meeting specifying the place, day and the hour of meeting and, in case of special business, the general nature of such business shall be given to members in manner hereinafter mentioned or in such other manner as may from time to time be prescribed by the Company in General Meeting. The accidental omission to give any such notice to or the non-receipt of any such notice by any member shall not invalidate the proceedings at any General Meeting or any resolution passed thereat.
- 11. The business of an Annual General Meeting shall be to receive and consider the profit and loss account, the balance sheet and the reports of the directors and auditors, to declare dividends, to elect the directors and to appoint and fix the remuneration of the auditors,



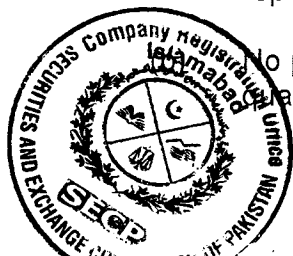
and to transact any other business which under these presents ought to be transacted at an Annual General Meeting and all business transacted at an Extraordinary General Meeting shall be deemed special.

12. Two members present in person who represent not less than twenty five percent of the total voting power either of their own account or as proxies shall constitute quorum for a General Meeting.
13. No business shall be transacted at any General meeting unless the requisite quorum shall be present at the commencement of business.
14. At every General Meeting the Chairman appointed by the Directors as the Chairman of the Meeting shall take the Chair, but if there be no such chairman or he be not presents within fifteen minutes after the time appointed for the meeting or is unwilling to act as Chairman, the members present shall choose a Director as Chairman and if none of the Directors be present, or willing to act as Chairman, the members present shall choose from one of their members, to be Chairman of the Meeting.
15. If within half an hour from the time appointed for the holding of a General Meeting the requisite quorum be not present, the meeting, if convened on the requisition of or by members, shall be dissolved and in every other case, it shall stand adjourned to the same day in the next week at the same hour and place, and, if at such adjourned meeting the requisite quorum be not present within half an hour from the time appointed for the meeting, two members present in person shall constitute a quorum and may transact the business for which the meeting was called.
16. The Chairman with the consent of the meeting may adjourn any General Meeting from time to time and from place to place but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place and which might have been transacted at that meeting.
17. Every question submitted to any General Meeting shall be decided in the first instance by a show of hands and in the case of equality of votes the Chairman shall, both on a show of hands and at the poll have a casting vote in addition to the vote or votes to which he may be entitled as a member.

VOTES OF MEMBERS

18. Upon a show of hands every member holding ordinary shares present in person or by proxy or attorney or in case of corporation under section 162 of the Ordinance shall have one vote except for election of Directors in which case, the provisions of section 178 of the Ordinance shall apply and upon a poll every member present in person or by proxy or attorney or by representative under section 162 of the Ordinance shall have votes proportionate to the paid up value of the shares carrying voting rights held by such member.
19. (a) Votes may be given, either personally or by proxy or attorney or representative subject to the provisions of the Ordinance

No person shall be appointed a proxy who is not a member of the Company and qualified to vote save that a corporation or an organization being a member of



the Company may appoint as its representative any person whether a member of the Company or not. An attorney of a member need not himself be a member.

20. The instrument appointing a proxy, and every power of attorney or other authority (if any) under which it assigned, or a notarially certified copy of that power of authority shall be deposited at the registered office of the Company, not less than 48 hours before the time for holding the meeting. Otherwise the instrument of proxy shall not be treated as valid.

DIRECTORS

21. The number of directors shall not be less than two nor more than nine.
22. The persons hereinafter named shall be the first directors and they shall hold the office upto the First Annual General Meeting.
- (1) **FIAZ AHMED**
 - (2) **YOUSAF MEHBOOB KHAN**
 - (3) **ZAFAR IKRAM SHEIKH**
 - (4) **SYED HADI ALI RIZVI**
23. A Director may, with the approval of the directors, by notice in writing under his hand appoint any person to be an alternate director during his absence of not less than three months from Pakistan, and such appointment shall have effect and such appointee, whilst he holds office as an alternate director, shall be entitled to notice of meeting of directors, and to attend and vote thereat accordingly, but he shall ipso facto vacate office if and when the appointer returns to Pakistan or vacates office as Director, or removes the appointee from office by notice in writing under his hand.
24. The Directors shall subject to clause 21 hereof fix the number of Directors to comprise the Board of Directors at least 35 days before the convening of General Meeting at which election of directors is to take place.
25. The directors shall have power to fill a casual vacant but so that the total number of directors shall not at any time exceed the maximum number fixed in clause 24 hereof. But any Director appointed in a casual vacancy shall hold office only for the remainder of the term of the director in whose place he is appointed and shall then be eligible for re-election.
26. A Director must be a member of the Company except where the director is a nominee of a corporation or an organization, which is a member of the Company.
27. The remuneration of every director shall be such sum not exceeding Rs 500/- for every meeting of the Board attended by him, as may from time to time be fixed by the Board.
28. If any Director being willing is called upon to perform extra services (which expression shall include work done by a Director as a member of any committee formed by the Directors), or to make any special exertion in going or residing abroad, or otherwise for any of the purposes of the Company, the directors may remunerate such director as may be determined by the Directors.



29. The continuing directors may act notwithstanding any vacancy in their body, but so that if the number falls below the minimum fixed above, the Directors shall not except in emergencies or for the purposes of filling vacancies act so long as the number remains below the minimum.

ELECTION OF DIRECTORS

30. At the first annual general meeting of the Company, the whole of the directors shall retire from office
31. A director shall hold office for a period of three years, unless he earlier resigns, becomes disqualified from being a Director or otherwise ceases to hold office.
32. A retiring director shall be eligible for re-election
33. The company at the annual general meeting at which a director retires in manner aforesaid may fill up the vacated office by electing a person thereto as provided in the Ordinance.

MANAGING DIRECTOR

34. (a) The directors shall within fifteen days of the incorporation of the Company appoint any individual to be the Chief Executive, hereinafter called the Managing Director, of the company, to hold office till the holding of the first annual general meeting, unless the earlier resigns or otherwise ceases to hold office.
- (b) within fourteen days of election of Directors under the preceding Articles or the office of Chief Executive falling vacant, as the case may be as prescribed by section 199 of the Companies Ordinance, 1984, the directors shall appoint any individual, including an elected director, to be the Managing Director of the Company for a period not exceeding three years on such terms and conditions as the Directors deem fit.
- (c) On the expiry of the term of his office, the Managing Director shall be eligible for reappointment.
35. The directors of a company by resolution passed by not less than three fourth of the total number of directors for the time being, or the company by a special resolution may remove the managing director before the expiry of his term of office notwithstanding anything contained in the articles or in any agreement between the company and the managing director.
36. The remuneration of Managing Director shall from time to time be fixed by the Directors and may be by way of fixed salary or by any other mode.
37. The directors may from time to time entrust to and confer upon the Managing Director for the time being such of powers as they may think fit and may confer such powers for such time and to be exercised for such objects and purposes and upon such terms and conditions and with such restrictions as they think expedient and may from time to time revoke, withdraw alter or vary all or any of such powers.



PROCEEDINGS OF DIRECTORS

38. The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings and proceedings, as they think fit, and may determine the quorum necessary for the transactions of the business. Until otherwise determined two Directors shall be a quorum.
39. A director may, at any time, convene a meeting of directors. A Director who is at any time not in Pakistan shall not during such time be entitled to notice of any such meeting.
40. Questions arising at any meeting shall be decided by a majority of votes, and in case of an equality of votes, the Chairman shall have a second or casting vote.
41. The directors may elect as chairman of their meetings and determine the period for which he is to hold office; and unless otherwise determined, the chairman shall be elected annually. If no such chairman is elected, or if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the directors present shall choose one of their numbers to be chairman of the meeting.
42. A meeting of directors for the time being at which a quorum is present shall be competent to exercise all or any of the authorities, powers and discretions by or under the Articles of the Company for the time being vested in or exercisable by the directors generally.
43. The Directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit and may from time to time revoke such delegation. Any committee so formed shall in the exercise of the powers delegated, conform to any restrictions that may from time to time be imposed upon it by the Directors.
44. The meeting and proceedings of any such committee of two or more members shall be governed by the provisions herein contained for regulating the meetings and proceedings of the directors so far as the same are applicable thereto, and are not superseded by any regulations made by the directors under the last preceding clause.
45. All acts done by any meeting of the Directors or by a committee of directors or by any person acting as a director shall notwithstanding that it shall afterwards be discovered that there was some defect in the appointment of such directors or persons acting as aforesaid or that they or any of them were disqualified be as valid as if every such persons had been duly appointed and was qualified to be a director.
46. A resolution in writing signed by all the directors for the time being present in Pakistan, shall be valid and effectual as if it had been passed at a meeting of the directors duly called and constituted.

MINUTES

47. (a) The directors shall cause a fair and accurate summary of the minutes of all proceedings of general meetings and meetings of its directors and committee of directors, along with the names of those participating in such meetings, to be entered in properly maintained books.



- (b) Any such minutes of any general meeting, or of any meeting of the directors or of any committee of the directors if purporting to be signed by the Chairman of such meeting, or by the chairman of the next succeeding meeting shall be receivable as prima facie evidence of the matter stated in such minutes.

POWERS OF DIRECTORS

48. The management of the business of the company shall be vested in the directors, and the directors may exercise all such powers and do all such acts and things as the company is by its articles of association or otherwise authorized to exercise and do and are not hereby or by statute directed or required to be exercised or done by the Company in general meeting, but subject nevertheless to the provisions of the Companies Ordinance, 1984 or to any of these presents and regulations being not inconsistent with the aforesaid provisions, as may from time to time be prescribed by the company in general meeting provided that no regulations made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if such regulation had not been made.

BORROWING POWERS

49. The Directors may from time to time raise or borrow any sums of money for and on behalf the company from the members or other persons, Companies, firms or banks or they may themselves advance money to the company on such terms as may be approved by the directors.
50. The directors may raise and secure payment of such sum or sums of money in such manner and upon such terms and conditions in all respects as they think fit, and in particular by the issue of debentures or bonds or by mortgage or charge of all or any part of the property of the company.

THE SEAL

51. The directors shall provide for the safe custody of the seal and the seal shall never be used except by the authority of the Directors or a committee of directors previously given and in the presence of two directors who shall sign every instrument to which the seal is affixed.

ACCOUNTS

52. The directors shall cause true accounts to be kept in such form as they may decide for sums of money received and expended by the company and the matters in respect of which such receipt and expenditure take place and of all sales and purchases of goods by the company and of the assets, credits and liabilities of the Company.
53. The books of account shall be kept at the registered office of the company or at such other place or places as the directors think fit.
54. The directors shall, from time to time, determine whether and to what extent and at what times and places, under what conditions or regulations the accounts and books of the company or any of them shall be opened to the inspections of the members (not being a director) and no member not being a director shall have any right of inspecting any account or book or document of the company except as conferred bylaw or authorized by the directors or by a resolution of the company in a general meeting.



AUDIT

55. Once at least in every year the accounts of the Company shall be examined and the fairness of profit and loss account and balance sheet ascertained by one or more auditor or auditors.
56. The first auditor of the company shall be appointed by the directors.

NOTICES

57. (a) A notice may be given by the company upon any member either personally or by sending it by post to him to his registered address or (if he has no registered address in Pakistan) to the address, if any, within Pakistan supplied by him to the company for the giving of notices to him.
- (b) Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice unless the contrary is proved, to have been effected at the time at which the letters would be delivered in the ordinary course of post.
58. Each holder of registered share whose registered place of address is not in Pakistan may from time to time notify in writing to the Company an address in Pakistan which shall be deemed his registered place or address within the meaning of the last preceding clause.

WINDING UP

59. If the company shall be wound up, whether voluntarily or otherwise the liquidator may, with the sanction of a special resolution, divide amongst the contributories in specie or kind, any part of the assets of the Company and may with the like sanction, vest any part of the assets of the Company in trustees upon such trusts for the benefit of the contributories, or any of them as the liquidator with the like sanction shall think fit.

INDEMNITY

60. Every director, manager, auditor, secretary, chief accountant and other officer or servant of the company shall be indemnified by the company against, and it shall be the duty of the directors out of the funds of the company to pay all costs, losses and expenses which any such officer or servant may incur or become liable to by reason of any contract entered into or thing done by him as such officer or servant or in any way in the discharge of his duties and the amount for which such indemnity is provided shall immediately attach as a lien on the property of the Company and have priority as between the members over all other claims.

No director, auditor or other officer of the company shall be liable for the acts, receipts, neglect or default of any other director or officer or for joining in any receipt or other act for conformity or for any loss or expenses happening to the company through the insufficiency or deficiency of title to any property acquired by order of the directors for or on behalf of the company or for the insufficiency or deficiency of any security in or upon which any of the money of the company shall be invested or for any loss or damage arising from bankruptcy, insolvency of any person with whom any moneys, securities or effects shall be deposited or for any loss occasioned by any error of judgment or oversight on his part or for any other damage or misfortune whatever which shall happen in the execution of the duties of his office or in relation thereto unless the same happens through his own dishonesty.



We the several persons, whose names and addresses are subscribed below are desirous of being formed into a Company in pursuance of the Article of Association and we respectively agree to take the number of shares in the capital of the Company set opposite to our respective names:-

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father's/ Husband's Name in full	Nationality with any former Nationality	Occupation	Residential Address in full	Number of shares taken by each subscriber	Signatures
FIAZ AHMED	61101-1916032-5	HAKIM JAN	PAKISTANI	BUSINESS	MARGALA ROAD, HOUSE 60, SECTOR F-8/2 ISLAMABAD	25	
YOUSAF MEHBOOB KHAN	61101-1916030-3	MEHBOOB ALI KHAN	PAKISTANI	BUSINESS	HOUSE NO 3, STREET NO 1 SECTOR F-6/3 ISLAMABAD	25	
ZAFAR IKRAM SHEIKH	31101-7738774-7	SHEIKH IKRAM UD DIN	PAKISTANI	BUSINESS	HOUSE NO 01 BLOCK 14 BALDIA ROAD BAHAWALNAGAR	26	
SYED HADI ALI RIZVI	42201-6153104-1	SYED ALI AKBAR RAZVI	PAKISTANI	BUSINESS	IBHRAHAM REHMAT ULLAH ROAD HOUSE NO B-81 MOHALLAH K.D.A SCHEME 1-A KARACHI EAST	24	
Total number of shares to be taken						100	

Dated: The 11th day of March 2013

National Institutional Facilitation Technologies Pvt. Ltd.

5th Floor, AWT Plaza I.I. Chundrigar Road, Karachi, Pakistan



CERTIFIED TO BE TRUE COPY
[Signature]
 Assistant Registrar
 Company Registration Office Islamabad
 18.2.2013

CONFIDENTIAL

CONFIDENTIAL

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THE COMPANIES ORDINANCE, 1984
(COMPANY LIMITED BY SHARES)

ARTICLES OF ASSOCIATION

OF

TRIDENT POWER JB (PVT.) LIMITED

1. **TRIDENT POWER JB (PVT.) LIMITED** is established as a private Company with limited liability in accordance with and subject to the provisions of the Companies Ordinance, 1984 and accordingly the following provisions shall have effect, namely:

- (a) The numbers of the members for the time being of the Company (exclusive of persons who are for the time being in the employment of the Company), is not to exceed to fifty but when two or more persons hold one or more shares in the company jointly they shall, for the purpose of this paragraph, be treated as a single member;
- (b) Any invitation to the public to subscribe for any shares or debentures or debenture stock of the Company is hereby prohibited.
- (c) The right to transfer shares of the Company shall be restricted in manner hereinafter appearing,

2. The regulations contained in Table "A" in the First Schedule to The Companies Ordinance, 1984 shall apply to the Company, subject to the articles hereinafter provided.

INTERPRETATION

3. In these Articles unless there is something in the subject or context inconsistent therewith:

- (i) "The Company" means the above named Company.
- (ii) "The Ordinance" means the Companies Ordinance, 1984, or any statutory modification or re-enactment thereof for time being in force in Pakistan;
- (iii) "The Directors" means the Directors for the time being of the Company or the Directors assembled at a Board;
- (iv) "Month" means a calendar month;
- (v) "The Office" means the Registered Office for the time being of the Company;

"The Company Seal" in relation to a Company means the common Seal of the Company.

shall include printing and lithography and any other mode or modes representing or reproducing words in a visible form.



- (viii) Words importing the singular number only shall include the plural number and vice versa;
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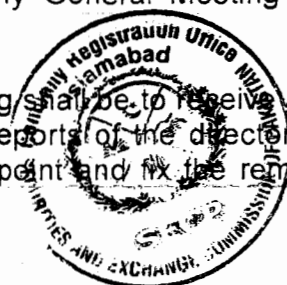
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5. The shares shall be under the control of the Directors who may allot or otherwise dispose off the same to such persons, firms or corporation on such terms and conditions and at such times, as they may deem fit.
6. Transfer of shares shall not be made or registered without the previous sanctions of the Directors if registration of shares is refused, the Directors shall within one month from the date when instrument of transfer was lodged send notice of refusal to the transferee and the transferor.
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GENERAL MEETINGS

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9. The above mentioned meeting shall be called Annual General Meetings. All other general meetings shall be called extraordinary general meeting.

PROCEEDINGS AT GENERAL MEETING

10. At least Twenty-One days' notice of any General Meeting specifying the place, day and the hour of meeting and, in case of special business, the general nature of such business shall be given to members in manner hereinafter mentioned or in such other manner as may from time to time be prescribed by the Company in General Meeting. The accidental omission to give any such notice to or the non-receipt of any such notice by any member shall not invalidate the proceedings at any General Meeting or any resolution passed thereat.
11. The business of an Annual General Meeting shall be to receive and consider the profit and loss account, the balance sheet and the reports of the directors and auditors, to declare dividends, to elect the directors and to appoint and fix the remuneration of, the auditors,



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14. At every General Meeting the Chairman appointed by the Directors as the Chairman of the Meeting shall take the Chair, but if there be no such chairman or he be not presents within fifteen minutes after the time appointed for the meeting or is unwilling to act as Chairman, the members present shall choose a Director as Chairman and if none of the Directors be present, or willing to act as Chairman, the members present shall choose from one of their members, to be Chairman of the Meeting.
15. If within half an hour from the time appointed for the holding of a General Meeting the requisite quorum be not present, the meeting, if convened on the requisition of or by members, shall be dissolved and in every other case, it shall stand adjourned to the same day in the next week at the same hour and place, and, if at such adjourned meeting the requisite quorum be not present within half an hour from the time appointed for the meeting, two members present in person shall constitute a quorum and may transact the business for which the meeting was called.
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39. A director may, at any time, convene a meeting of directors. A Director who is at any time not in Pakistan shall not during such time be entitled to notice of any such meeting.
40. Questions arising at any meeting shall be decided by a majority of votes, and in case of an equality of votes, the Chairman shall have a second or casting vote.
41. The directors may elect as chairman of their meetings and determine the period for which he is to hold office; and unless otherwise determined, the chairman shall be elected annually. If no such chairman is elected, or if at any meeting the chairman is not present within ten minutes after the time appointed for holding the same or is unwilling to act as chairman, the directors present shall choose one of their numbers to be chairman of the meeting.
42. A meeting of directors for the time being at which a quorum is present shall be competent to exercise all or any of the authorities, powers and discretions by or under the Articles of the Company for the time being vested in or exercisable by the directors generally.
43. The Directors may delegate any of their powers not required to be exercised in their meeting to committees consisting of such member or members of their body as they think fit and may from time to time revoke such delegation. Any committee so formed shall in the exercise of the powers delegated, conform to any restrictions that may from time to time be imposed upon it by the Directors.
44. The meeting and proceedings of any such committee of two or more members shall be governed by the provisions herein contained for regulating the meetings and proceedings of the directors so far as the same are applicable thereto, and are not superseded by any regulations made by the directors under the last preceding clause.
45. All acts done by any meeting of the Directors or by a committee of directors or by any person acting as a director shall notwithstanding that it shall afterwards be discovered that there was some defect in the appointment of such directors or persons acting as aforesaid or that they or any of them were disqualified be as valid as if every such persons had been duly appointed and was qualified to be a director.
46. A resolution in writing signed by all the directors for the time being present in Pakistan, shall be valid and effectual as if it had been passed at a meeting of the directors duly called and constituted.

MINUTES

47. (a) The directors shall cause a fair and accurate summary of the minutes of all proceedings of general meetings and meetings of its directors and committee of directors, along with the names of those participating in such meetings, to be entered in properly maintained books.



- (b) Any such minutes of any general meeting, or of any meeting of the directors or of any committee of the directors if purporting to be signed by the Chairman of such meeting, or by the chairman of the next succeeding meeting shall be receivable as prima facie evidence of the matter stated in such minutes.

POWERS OF DIRECTORS

48. The management of the business of the company shall be vested in the directors, and the directors may exercise all such powers and do all such acts and things as the company is by its articles of association or otherwise authorized to exercise and do and are not hereby or by statute directed or required to be exercised or done by the Company in general meeting, but subject nevertheless to the provisions of the Companies Ordinance, 1984 or to any of these presents and regulations being not inconsistent with the aforesaid provisions, as may from time to time be prescribed by the company in general meeting provided that no regulations made by the company in general meeting shall invalidate any prior act of the directors which would have been valid if such regulation had not been made.

BORROWING POWERS

49. The Directors may from time to time raise or borrow any sums of money for and on behalf the company from the members or other persons, Companies, firms or banks or they may themselves advance money to the company on such terms as may be approved by the directors.
50. The directors may raise and secure payment of such sum or sums of money in such manner and upon such terms and conditions in all respects as they think fit, and in particular by the issue of debentures or bonds or by mortgage or charge of all or any part of the property of the company.

THE SEAL

51. The directors shall provide for the safe custody of the seal and the seal shall never be used except by the authority of the Directors or a committee of directors previously given and in the presence of two directors who shall sign every instrument to which the seal is affixed.

ACCOUNTS

52. The directors shall cause true accounts to be kept in such form as they may decide for sums of money received and expended by the company and the matters in respect of which such receipt and expenditure take place and of all sales and purchases of goods by the company and of the assets, credits and liabilities of the Company.
53. The books of account shall be kept at the registered office of the company or at such other place or places as the directors think fit.
54. The directors shall, from time to time, determine whether and to what extent and at what times and places, under what conditions or regulations the accounts and books of the company or any of them shall be opened to the inspections of the members (not being a director) and no member not being a director shall have any right of inspecting any account book or document of the company except as conferred bylaw or authorized by the directors or by a resolution of the company in a general meeting.



AUDIT

55. Once at least in every year the accounts of the Company shall be examined and the fairness of profit and loss account and balance sheet ascertained by one or more auditor or auditors.
56. The first auditor of the company shall be appointed by the directors.

NOTICES

57. (a) A notice may be given by the company upon any member either personally or by sending it by post to him to his registered address or (if he has no registered address in Pakistan) to the address, if any, within Pakistan supplied by him to the company for the giving of notices to him.
- (b) Where a notice is sent by post, service of the notice shall be deemed to be effected by properly addressing, prepaying and posting a letter containing the notice unless the contrary is proved, to have been effected at the time at which the letters would be delivered in the ordinary course of post.
58. Each holder of registered share whose registered place of address is not in Pakistan may from time to time notify in writing to the Company an address in Pakistan which shall be deemed his registered place or address within the meaning of the last preceding clause.

WINDING UP

59. If the company shall be wound up, whether voluntarily or otherwise the liquidator may, with the sanction of a special resolution, divide amongst the contributories in specie or kind, any part of the assets of the Company and may with the like sanction, vest any part of the assets of the Company in trustees upon such trusts for the benefit of the contributories, or any of them as the liquidator with the like sanction shall think fit.

INDEMNITY

60. Every director, manager, auditor, secretary, chief accountant and other officer or servant of the company shall be indemnified by the company against, and it shall be the duty of the directors out of the funds of the company to pay all costs, losses and expenses which any such officer or servant may incur or become liable to by reason of any contract entered into or thing done by him as such officer or servant or in any way in the discharge of his duties and the amount for which such indemnity is provided shall immediately attach as a lien on the property of the Company and have priority as between the members over all other claims.

No director, auditor or other officer of the company shall be liable for the acts, receipts, neglect or default of any other director or officer or for joining in any receipt or other act for conformity or for any loss or expenses happening to the company through the insufficiency or deficiency of title to any property acquired by order of the directors for or on behalf of the company or for the insufficiency or deficiency of any security in or upon which any of the money of the company shall be invested or for any loss or damage arising from bankruptcy, insolvency of any person with whom any moneys, securities or effects shall be deposited or for any loss occasioned by any error of judgment or oversight on his part or for any other damage or misfortune whatever which shall happen in the execution of the duties of his office or in relation thereto unless the same happens through his own dishonesty.



We the several persons, whose names and addresses are subscribed below are desirous of being formed into a Company in pursuance of the Article of Association and we respectively agree to take the number of shares in the capital of the Company set opposite to our respective names:-

Name and surname (present & former) in full (in Block Letters)	NIC No. (in case of foreigner, Passport No)	Father's/ Husband's Name in full	Nationality with any former Nationality	Occupation	Residential Address in full	Number of shares taken by each subscriber	Signatures
FAIAZ AHMED	61101-1916032-5	HAKIM JAN	PAKISTANI	BUSINESS	MARGALA ROAD, HOUSE 60, SECTOR F-8/2 ISLAMABAD	25	
YOUSAF MEHBOOB KHAN	61101-1916030-3	MEHBOOB ALI KHAN	PAKISTANI	BUSINESS	HOUSE NO 3, STREET NO 1 SECTOR F-6/3 ISLAMABAD	25	
ZAFAR IKRAM SHEIKH	31101-7738774-7	SHEIKH IKRAM UD DIN	PAKISTANI	BUSINESS	HOUSE NO 01 BLOCK 14 BALDIA ROAD BAHAWALNAGAR	26	
SYED HADI ALI RIZVI	42201-6153104-1	SYED ALI AKBAR RAZVI	PAKISTANI	BUSINESS	IBHRAHAM REHMAT ULLAH ROAD HOUSE NO B-81 MOHALLAH K.D.A SCHEME 1-A KARACHI EAST	24	
Total number of shares to be taken						100	

Dated: The 11th day of March 2013

National Institutional Facilitation Technologies Pvt. Ltd.

5th Floor, AWT Plaza I.I. Chundrigar Road, Karachi, Pakistan



CERTIFIED TO BE TRUE COPY
[Signature]
 Assistant Registrar
 Company Registration Office Islamabad
 18.2.2020

[Faint, illegible text from bleed-through]

FORM 28

THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
[Section 167 and Regulation 4]

CONSENT TO ACT AS DIRECTOR / CHIEF EXECUTIVE

PART-I

1.1 CUIN (Incorporation number) 0083146
1.2 Name of the Company TRIDENT POWER JB (PVT.) LIMITED
1.3 Fee Payment Details
1.3.1 Challan Number E-2019-1100846 1.3.2 Amount 400.00

PART-II

2. I/we, the undersigned, have consented to act as Director(s) / Chief Executive of the above named company pursuant to section 167 of the Companies Act, 2017, and certify that I / We am / are not ineligible to become Director(s) / Chief Executive under section 153 or 177 of the Companies Act, 2017.

Name in Full	Father's/Husband's Name	Designation	Address	Occupation	NIC No. or Passport No. (In case of foreign national)	Signature
YOUSAF MEHBOOB KHAN	MEHBOOB ALI KHAN	Chief Executive	HOUSE NO. 3, STREET NO. 1, SECTOR F-6/3 ISLAMABAD ISLAMABAD Islamabad Capital Territory (I.C.T.) Pakistan 44000		61101-1916030-3	
YOUSAF MEHBOOB KHAN	MEHBOOB ALI KHAN	Director	HOUSE NO. 3, STREET NO. 1, SECTOR F-6/3 ISLAMABAD ISLAMABAD Islamabad Capital Territory (I.C.T.) Pakistan 44000	BUSINESS	61101-1916030-3	
FIJAZ AHMAD	HAKIM JAN	Director	MARGALLA ROAD HOUSE NO 60, SECTOR F-8/2 ISLAMABAD ISLAMABAD Islamabad Capital Territory (I.C.T.) Pakistan 44000	BUSINESS	61101-1916032-5	
ZAFAR IKRAM SHEIKH	SHEIKH IKRAM UD DIN	Director	HOUSE NO. 01, BLOCK NO. 14, BALDIA ROAD, BAHAWALNAGAR	BUSINESS	31101-7738774-7	
SYED HADI ALI RIZVI	SYED AKBAR ALI RIZVI	Director	IBRAHIM REHMAT ULLAH ROAD, HOUSE NO. B-81, MOHALLA K.D.A SCHEME 1-A, KARACHI EAST, KARACHI	BUSINESS	42201-6153104-1	

PART-III

3.1 Declaration:

I do hereby solemnly, and sincerely declare that the information provided in the form is:



I do hereby solemnly and sincerely declare that the information provided in the form is:

- (i) true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed; and
(ii) hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation/ Authorized Intermediary	MUHAMMAD ASIF CHUGHTAI	Secretary
3.3 Signatures	Electronically signed by MUHAMMAD ASIF	
3.4 Registration No of Authorized Intermediary, if applicable		
3.5 Date (DD/MM/YYYY)	28/10/2019	

CERTIFIED TO BE TRUE COPY

certified
[Signature]
Assistant Registrar
Company Registration Office Islamabad



THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
 [Section 197 and Regulations 4 and 20]
**PARTICULARS OF DIRECTORS AND OFFICERS, INCLUDING THE CHIEF EXECUTIVE,
 SECRETARY, CHIEF FINANCIAL OFFICER, AUDITORS AND LEGAL ADVISER OR OF
 ANY CHANGE THEREIN**

FORM 29

PART-I

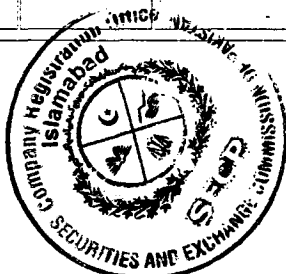
1.1 CUIIN (Incorporation Number) 0083146
 1.2 Name of Company TRIDENT POWER JB (PVT.) LIMITED
 1.3 Fee Payment Details
 1.3.1 Challan Number E-2019-1100846 1.3.2 Amount 400.0

PART-II**2. Particulars:****2.1 New Appointment/Election**

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation** (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointment / change / any other remarks (i)	Nature of directorship (nominee/indepen- dent/additional/ other) (j)
YOUSAF MEHBOOB KHAN	61101- 1916030-3	MEHBOOB ALI KHAN	HOUSE NO. 3, STREET NO. 1, SECTOR F-6/3 ISLAMABAD ISLAMABAD	Chief Executive	Pakistan		28/10/2019	Re-Appointment	
YOUSAF MEHBOOB KHAN	61101- 1916030-3	MEHBOOB ALI KHAN	HOUSE NO. 3, STREET NO. 1, SECTOR F-6/3 ISLAMABAD ISLAMABAD	Director	Pakistan	BUSINESS	28/10/2019	Re-Elected	
FAIAZ AHMAD	61101- 1916032-5	HAKIM JAN	MARGALLA ROAD HOUSE NO 60, SECTOR F-6/2 ISLAMABAD ISLAMABAD	Director	Pakistan	BUSINESS	28/10/2019	Re-Elected	
ZAFAR IKRAM SHEIKH	31101- 7738774-7	SHEIKH IKRAM UD DIN	HOUSE NO. 01, BLOCK NO. 14, BALDIA ROAD BAHAWALNAGAR	Director	Pakistan	BUSINESS	28/10/2019	Re-Elected	
SYED HADI ALI RIZVI	42201- 6153104-1	SYED AKBAR ALI RIZVI	IBRAHIM REHMAT ULLAH ROAD HOUSE NO. B-81 MOHALLA K.D.A SCHEME 1-A	Director	Pakistan	BUSINESS	28/10/2019	Re-Elected	
ASIF ASSOCIATES CHARTERED ACCOUNTANTS			SECOND FLOOR, SAFDAR MENSION, 16-D EAST, FAZAL E- HAQ ROAD, BLUE	Auditor	Pakistan	CHARTERED ACCOUNTANTS	28/10/2019	Re-Appointment	

2.2 Ceasing of Officer/Retirement/Resignation

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation** (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointment / change / any other remarks (i)	Nature of directorship (nominee/indepen- dent/additional/ other) (j)



2.3 Any other change in particulars relating to columns (a) to (g) above

Present Name in Full (a)	NIC No. or Passport No. in case of Foreign National (b)	Father / Husband Name (c)	Usual Residential Address (d)	Designation (e)	Nationality** (f)	Business Occupation* ** (if any) (g)	Date of Present Appointment or Change (h)	Mode of Appointment / change / any other remarks (i)	Nature of directorship (nominee/indepen- dent/additional/oth- er)

* In the case of a firm, the full name, address and above mentioned particulars of each partner, and the date on which each became a partner

** In case the nationality is not the nationality of origin, provide the nationality of origin as well

*** Also provide particulars of other directorships or offices held, if any

**** In case of resignation of a director, the resignation letter and in case of removal of a director, member's resolution be attached

3.1 Declaration:

PART-III

I do hereby solemnly, and sincerely declare that the information provided in the form is:

(i) true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed and

(ii) hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable

3.2 Name of Authorized Officer with designation/ Authorized Intermediary

MUHAMMAD ASIF CHUGHTAI

Secretary

3.3 Signature

Electronically signed by MUHAMMAD ASIF CHUGHTAI

3.4 Registration No of Authorized Intermediary, if applicable

3.5 Date (DD/MM/YYYY)

28/10/2019

CERTIFIED TO BE TRUE COPY

Assistant Registrar
Company Registration Office Islamabad



Form A
THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
(Section 130(1) and Regulation 4)
ANNUAL RETURN OF COMPANY HAVING SHARE CAPITAL

PART-I

(Please complete in typescript or in bold block capitals)

1.1 CUIN (Registration Number) 0053145

1.2 Name of the Company TRICENT POWER JB (PVT.) LIMITED

1.3 Fee payment details

1.3.1 Chalan No. 1.3.2 Amount 400.0

dd . mm . yyyy

1.4 Form A made upto 28/10/2019

1.5 Date of AGM 28/10/2019

PART - II

Section A

2.1 Registered Office Address SUIT NO. 8, GROUND FLOOR, EVACUE TRUST COMPLEX SECTOR, F-5/1 ISLAMABAD Islamabad Capital Territory (I.C.T.) 44000

2.2 Email Address chughtaimasif@gmail.com

2.3 Office Tel. No. 512348093

2.4 Office Fax No. 512348093

2.5 Principle line of business --MISCELLANEOUS

2.6 Mobile No. of Authorized officer
(Chief Executive/ Director/
Company Secretary/
Chief Financial Officer) 03005553435

2.7 Authorized Share Capital

Classes and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares		2,000,000.00	

2.8 Paid up Share Capital

Classes and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares		10,000.00	

2.9 Particulars of the holding /subsidiary company, if any

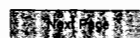
Name of Company	Holding/Subsidiary	% Shares Held

2.10 Chief Executive

Name YOUSAF MEHBOOB KHAN

Address HOUSE NO 3, STREET NO. 1, SECTOR F-6/3 ISLAMABAD ISLAMABAD Islamabad Capital T

NIC No 51101-1916030-3



2.11 Chief Financial Officer

Name

Address

NIC No

2.12 Secretary

Name

MUHAMMAD ASIF CHUGHTAI

Address

HOUSE NO. 196, STREET NO. 46, SECTOR F-11/3, ISLAMABAD

NIC No

61101-1728827-3

2.13 Legal Advisor

Name

Address

NIC No

2.14 Particulars of Auditors

Name

ASIF ASSOCIATES CHARTERED ACCOUNTANTS

Address

SECOND FLOOR, SAJDAR MENSION, 16-D EAST, FAZAL-E-HAQ ROAD, BLUE AREA, ISLAMABAD

2.15 Particulars of Shares Registrar (if applicable)

Name

Address

Email

Section-B**2.16 List of Directors on the date Annual return is made**

S#	Name of Director	Residential Address	Nationality	NIC (Passport No. if foreigner)	Date of appointment or election
1	YOUSAF MEHBOOB KHAN	HOUSE NO. 3, STREET NO. 1, SECTOR E-6/3 ISLAMABAD ISLAMABAD Islamabad Capital Territory (I.C.T.) Pakistan 44000	Pakistan	61101-1916030-	28/10/2019
2	FAIZ AHMAD	MARGALLA ROAD HOUSE NO 60, SECTOR F-8/2 ISLAMABAD ISLAMABAD Islamabad Capital Territory (I.C.T.) Pakistan 44000	Pakistan	61101-1916032-	28/10/2019
3	ZAFAR IKRAM SHEIKH	HOUSE NO. 01, BLOCK NO. 14, BALDIA ROAD, BAHAWALNAGAR	Pakistan	31101-7738774-	28/10/2019
4	SYED HADI ALI RIZVI	IBRAHIM REHMAT ULLAH ROAD, HOUSE NO. B-81, MOHALLA K D A SCHEME 1-A, KARACHI EAST, KARACHI	Pakistan	42201-6153104-	28/10/2019



2.17 List of members & debenture holders on the date upto which this Form is made

S#	Folio#	Name	Address	Nationality	No of shares held/Debenture	NIC No(Passport if foreigner)
Members						
1	01	MR FAIZ AHMAD	MARGALLA ROAD HOUSE NO. 60, SECTO	Pakistan	25	6110119160325
2	02	MR YOUSUF MEHBOOB KHAN	HOUSE NO. 3, STREET NO. 1, SECTOR F-	Pakistan	25	6110119160303
3	03	MR ZAFAR IKRAM SHEIKH	HOUSE NO. 01, BLOCK NO. 14, BALDIA R	Pakistan	26	3110177387747
4	04	SYED HAID ALI RIZVI	IBHRAM REHMAT ULLAH ROAD, HOUSE N	Pakistan	24	4220161531041
Debenture Holders						



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[Signature]
Assistant Registrar
 Company Registration Office Islamabad

2.18 Transfer of shares (debentures) since last Form A was made

S#	Name of Transferor	Name of Transferee	No of Shares Transferred	Date of Registration of transfer
Members				
Debenture Holders				

PART-3

3.1 Declaration:

I do hereby solemnly, and sincerely declare that the information provided in the form is:

- (i) true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed; and
- (ii) hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation/ Authorized Intermediary

MUHAMMAD ASIF CHUGHTAI Secretary

3.3 Signatures

Electronically signed by MUHAMMAD ASIF CHUGHTAI

3.4 Registration No of Authorized Intermediary, if applicable

Day Month Year

3.5 Date

28/10/2019

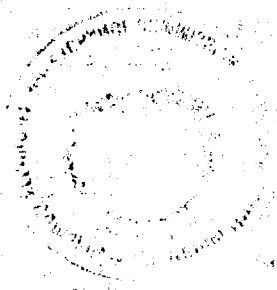




CERTIFIED TO BE TRUE COPY

Assistant Registrar
Company Registration Office Islamabad

... and other



... ..

TAXPAYER REGISTRATION CERTIFICATE

ORIGINAL

NTN 4225227-0

Category COMPANY

Status RESIDENT

Reg. / Inc No. 0083146 Reg. / Inc Date: 18-MAR-2013

Name TRIDENT POWER JB (PRIVATE) LIMITED

Address SUIT NO 8, GROUND FLOOR, EVACUEE TRUST COMPLEX, EVACUEE TRUST COMPLEX (F 5/1), ISLAMABAD, DISTT: ISLAMABAD, CAPITAL TERRITORY

Principal Activity ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION

Other Activities 1) MANUFACTURE OF GAS, DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS

Registered for Income Tax w.e.f. 24-JAN-2014
(MANUFACTURER.)

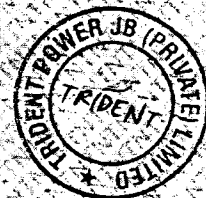
Representative's CNIC/NTN 1610277250857
Name MUHAMMAD HUSSAIN
Email Address mc_mhussain@hotmail.com

Tax Office RTO-ISLAMABAD

Business Name 1) TRIDENT POWER JB (PRIVATE) LIMITED
SUIT NO 8, GROUND FLOOR, EVACUEE TRUST COMPLEX, EVACUEE TRUST COMPLEX (F 5/1), ISLAMABAD, ISLAMABAD, CAPITAL TERRITORY

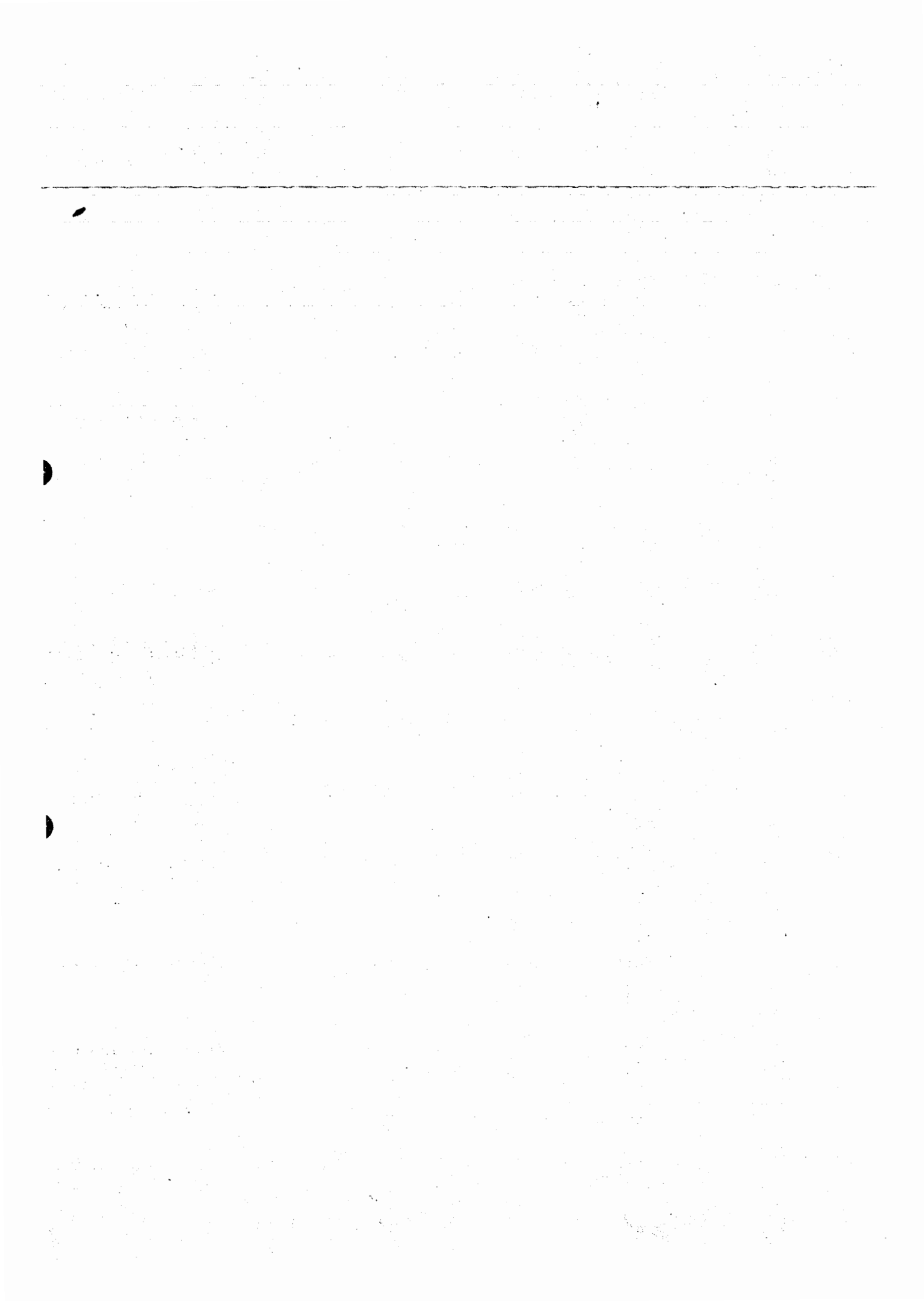
This Certificate Shall be prominently displayed at a conspicuous place of the premises in which business or work for gain is carried on. NTN number is also required to be indicated on the signboard.

NOTE:- The NTN must be written on all returns, payment challans, invoices, letter heads, advertisements, etc. and all correspondence made with the tax departments.



RGCRT-422014-38924933-0

Date of Printing: 04-FEB-2014



ACKNOWLEDGEMENT SLIP**114(1) (Return of Income filed voluntarily for complete year)**

Name: TRIDENT POWER JB (PRIVATE) LIMITED
Address: SUIT NO. 08, GROUND FLOOR, EVACUEE TRUST
COMPLEX, SECTOR F-5/1, ISLAMABAD, Islamabad
Islamabad Urban

Contact No: 00923425563127



100000063826200

Registration 4225227

Tax Year : 2019

Period : 01-Jul-2018 - 30-Jun-2019

Medium : Online

Due Date : 31-Dec-2019

Document 19-Nov-2019

Description	Code	Amount
Indable Income Tax	9210	4,871.00

This is not a valid evidence of being a "filer" for the purposes of clauses (23A) and (35C) of sections 2 and 181A.

114(1) (Return of Income filed voluntarily for complete year)

Name: TRIDENT POWER JB (PRIVATE) LIMITED
Address: SUIT NO. 08, GROUND FLOOR, EVACUEE TRUST
COMPLEX, SECTOR F-5/1, ISLAMABAD, Islamabad
Islamabad Urban

Contact No: 00923425563127



Registration 4225227
Tax Year : 2019
Period : 01-Jul-2018 - 30-Jun-2019
Medium : Online
Due Date : 31-Dec-2019
Document 19-Nov-2019

Manufacturing / Trading Items

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Income / (Loss) from Business	3000	-7,624,240.00	0.00	-7,624,240.00

Other Revenues

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Other Revenues	3129	150,903.00	0.00	150,903.00
Others	3128	150,903.00	0.00	150,903.00

Management, Administrative, Selling & Financial Expenses

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Management, Administrative, Selling & Financial Expenses	3199	7,775,143.00	0.00	7,775,143.00
Salaries / Wages / Perquisites / Benefits	3154	6,385,750.00	0.00	6,385,750.00
Traveling / Conveyance / Vehicles Running / Maintenance	3155	29,280.00	0.00	29,280.00
Stationery / Printing / Photocopies / Office Supplies	3166	9,700.00	0.00	9,700.00
Professional Charges	3171	682,500.00	0.00	682,500.00
Profit on Debt (Financial Charges / Markup / Interest)	3172	2,823.00	0.00	2,823.00
Other Indirect Expenses	3180	665,090.00	0.00	665,090.00
Accounting Profit / (Loss)	3200	-7,624,240.00	0.00	-7,624,240.00

Inadmissible / Admissible Deductions

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Tax Amortization for Current Year	3247	0.00	0.00	0.00
Tax Depreciation / Initial Allowance for Current Year	3248	0.00	0.00	0.00

114(1) (Return of Income filed voluntarily for complete year)

Name: TRIDENT POWER JB (PRIVATE) LIMITED
Address: SUIT NO. 08, GROUND FLOOR, EVACUEE TRUST
 COMPLEX, SECTOR F-5/1, ISLAMABAD, Islamabad
 Islamabad Urban

Registration 4225227
Tax Year : 2019
Period : 01-Jul-2018 - 30-Jun-2019
Medium : Online
Due Date : 31-Dec-2019
Document 19-Nov-2019

Contact No: 00923425563127



Adjustments

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Income / (Loss) from Business before adjustment of Admissible Depreciation / Initial Allowance / Amortization or current / previous years	3270	0.00	0.00	-7,624,240.0

Business Assets / Equity / Liabilities

Description	Code	Amount		
Total Assets	3349	26,388,767.00	0.00	0.0
Plant / Machinery / Equipment / Furniture (including fittings)	3303	1,544,895.00	0.00	0.0
Advances / Deposits / Prepayments	3312	24,700,319.00	0.00	0.0
Cash / Cash Equivalents	3319	143,553.00	0.00	0.0
Total Equity / Liabilities	3399	26,388,767.00	0.00	0.0
Authorized Capital	3351	2,000,000.00	0.00	0.0
Issued, Subscribed & Paid up capital	3352	10,000.00	0.00	0.0
Accumulated Profits	3364	-50,431,671.00	0.00	0.0
Trade Creditors / Payables	3384	1,319,000.00	0.00	0.0
Other Liabilities	3398	75,491,438.00	0.00	0.0

Adjustable Tax

Description	Code	Receipts / Value	Tax Collected / Deducted	Tax Chargeable
Adjustable Tax	640000	0.00	4,871.00	0.0
Cash Withdrawal from Bank u/s 231A	64100101	0.00	4,871.00	0.0
Cash Withdrawal from Bank u/s 231A - HBL - 7902329403	64100101	0.00	4,871.00	0.0

Computations

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Income / (Loss) from Business	3000	-7,624,240.00	0.00	-7,624,240.0
Turnover / Tax Chargeable u/s 113 @1.25%	923160	0.00	0.00	0.0
Accounting Profit / Tax Chargeable u/s 113C @17%	923173	0.00	0.00	0.0
Withholding Income Tax	9201	0.00	4,871.00	0.0

114(1) (Return of Income filed voluntarily for complete year)**Name:** TRIDENT POWER JB (PRIVATE) LIMITED**Registration** 4225227**Address:** SUIT NO. 08, GROUND FLOOR, EVACUEE TRUST
COMPLEX, SECTOR F-5/1, ISLAMABAD, Islamabad
Islamabad Urban**Tax Year :** 2019**Period :** 01-Jul-2018 - 30-Jun-2019**Medium :** Online**Due Date :** 31-Dec-2019**Document** 19-Nov-2019**Contact No:** 00923425563127

100000063826200

Computations

Description	Code	Total Amount	Amount Exempt from Tax / Subject to Fixed / Final Tax	Amount Subject to Normal Tax
Refundable Income Tax	9210	0.00	0.00	4,871.0



AUDITORS REPORT
For The Period Ended 30 June 2019

M/S TRIDENT POWER JB (PRIVATE) LIMITED

Submitted by:

Asif Associates
Chartered Accountants

72 West, 2nd Floor, Benazir plaza,
Jinnah Avenue, Blue Area, Islamabad, Pakistan
Ph # +92 51 2120368
Email: asif@argroup.com.pk
asif@asifassociates.com.pk

INDEPENDENT AUDITOR'S REPORT

To the members of Trident Power JB (Private) Limited

Report on the Audit of Financial Statements

Opinion

We have audited the annexed financial statements of Trident Power JB (Private) Limited (the Company), which comprise the statement of financial position as at June 30, 2019, and the statement of profit or loss, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, statement of profit or loss and the statement of changes in equity and the statement of cash flows together with the notes forming part thereof conform with the accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2019, and of the loss, the changes in equity and its cash flows for the year then ended.

Basis for Opinion

We conducted our audit in accordance with the International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' *Code of Ethics for Professional Accountants* as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Board of Directors for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017 (XIX of 2017), and for such internal controls as management determines is necessary to enable the preparation of financial statements that are free from the material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as going concern, disclosing, as applicable, matters related to going concern and using the going

concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of directors are responsible for overseeing the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material, if individually or in aggregate, they could reasonably be expected to influence the economic decisions of the users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, as applicable in Pakistan, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to the events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw the attention in our auditor's report to the related disclosures in the financial statements or, if such disclosure are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the board of directors with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the board of directors, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

Based on our audit, we further report that in our opinion;

- a) Proper books of accounts have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) The statement of financial position, the statement of profit or loss and the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017); and are in agreement with the books of account and returns;
- c) Investments made, expenditure incurred and guarantees extended during the period were for the purpose of the Company's business; and
- d) No Zakat was deducted at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

The engagement partner on the audit resulting in this independent auditor's report is Muhammad Asif Raza.



Asif Associates
Asif Associates
Chartered Accountants
Date: August 26, 2019
Place: Islamabad

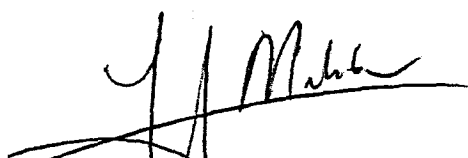
Trident Power JB (Private) Limited

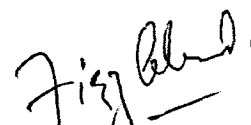
Statement of Financial Position

As at 30 June 2019

	Note	30-Jun 2019 (Rupees)	30-Jun 2018 (Rupees)
ASSETS			
Non-Current Assets			
Property, Plant & Equipment	4	1,544,895	1,716,550
Current Assets			
Advances, Prepayments and Other Receivables	5	24,700,319	24,695,448
Cash & Bank Balances	6	143,553	1,813,354
		24,843,873	26,508,803
TOTAL		26,388,767	28,225,352
EQUITY AND LIABILITIES			
Authorized Capital			
20,000 Ordinary shares of Rs. 100/- each		2,000,000	2,000,000
Issued, Subscribed & Paid up Capital			
100 Ordinary shares of Rs. 100/- each.		10,000	10,000
Accumulated Loss		(50,431,671)	(42,807,431)
		(50,421,671)	(42,797,431)
Non-Current Liabilities			
Loan From Directors	7	75,491,438	69,722,783
Current Liabilities			
Trade and other Payables	8	1,319,000	1,300,000
TOTAL		26,388,767	28,225,352

The annexed notes from 1 to 12 form an integral part of these financial statements.


CHIEF EXECUTIVE


DIRECTOR

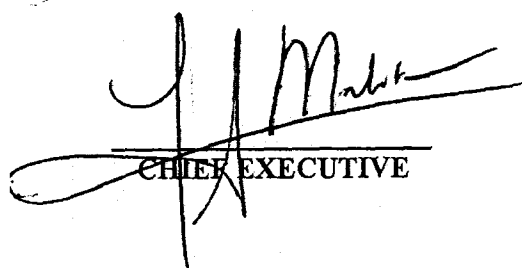
Trident Power JB (Private) Limited

Statement of Profit & Loss

For the year ended 30 June 2019

	Note	30-Jun 2019 (Rupees)	30-Jun 2018 (Rupees)
Revenue		-	-
Cost of Revenue		-	-
Gross Profit/(Loss)		-	-
Administrative Expenses	9	(7,772,320)	(9,507,782)
Operating Loss		(7,772,320)	(9,507,782)
Other Income		150,903	129,665
Financial Charges	10	(2,823)	(1,100)
		148,080	128,565
Loss Before Taxation		(7,624,240)	(9,379,217)
Provision for Taxation		-	-
Loss After Taxation		(7,624,240)	(9,379,217)

The annexed notes from 1 to 12 form an integral part of these financial statements.


CHIEF EXECUTIVE


DIRECTOR

Trident Power JB (Private) Limited

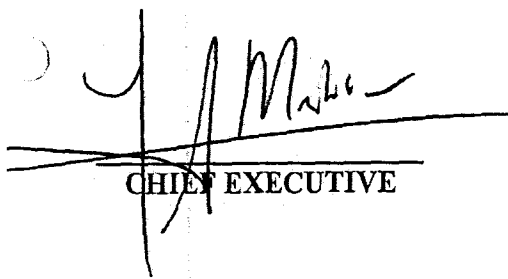
Statement of Changes in Equity

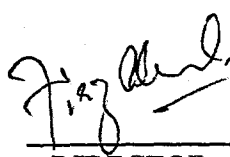
For the year ended 30 June 2019

	Share capital	Accumulated loss	Total
	(Rupees)		
Balance as at July 1, 2017	10,000	(33,428,214)	(33,418,214)
Loss for the year	-	(9,379,217)	(9,379,217)
Balance at June 30, 2018	10,000	(42,807,431)	(42,797,431)
Balance as at July 1, 2018	10,000	(42,807,431)	(42,797,431)
Loss for the year	-	(7,624,240)	(7,624,240)
Balance at June 30, 2019	10,000	(50,431,671)	(50,421,671)

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The annexed notes from 1 to 12 form an integral part of these financial statements.


CHIEF EXECUTIVE


DIRECTOR

Trident Power JB (Private) Limited

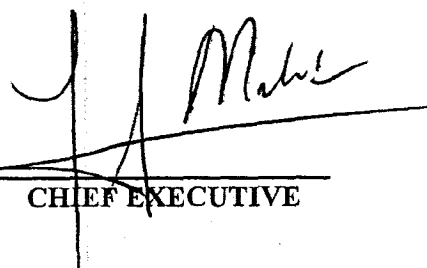
Statement of Cash Flows

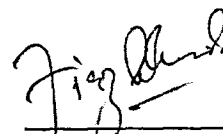
For the year ended 30 June 2019

	Note	30-Jun 2019 (Rupees)	30-Jun 2018 (Rupees)
Cash Flow From Operating Activities			
Loss Before Taxation		(7,624,240)	(9,379,217)
Adjustments for non-cash items:			
Depreciation		171,655	190,728
Operating Loss before working capital changes		(7,452,585)	(9,188,489)
Working capital changes			
- Changes in assets			
Current Assets		-	(10,000,000)
- Changes in liabilities			
Trade and other Payables		19,000	530,000
		19,000	(9,470,000)
Cash generated from operations		(7,433,585)	(18,658,489)
Tax Paid		(4,871)	(853)
Net cash generated from/(used in) operating activities		(7,438,456)	(18,659,343)
Cash Flow From Financing Activities			
Non-Current liabilities		5,768,655	(13,599,285)
Net Cash Flows from Financing Activities		5,768,655	(13,599,285)
Net increase/(decrease) in cash and cash equivalents		(1,669,801)	(32,258,628)
Cash and Cash Equivalents at the beginning of the year		1,813,354	34,071,982
Cash and Cash Equivalents at the end of the year		143,553	1,813,354

At At

The annexed notes from 1 to 12 form an integral part of these financial statements.


CHIEF EXECUTIVE


DIRECTOR

Trident Power JB (Private) Limited

Notes to the Financial Statements

For the year ended 30 June 2019

1 THE COMPANY AND ITS OPERATIONS

The Company was incorporated in Pakistan on April 01, 2013 as a Private Limited Company under the Companies Ordinance 1984 (Now Companies Act, 2017). The company is principally engaged in setting up and operating a hydro power plant and its related services. The registered office of the company is situated at Islamabad, Pakistan.

2 STATEMENT OF COMPLIANCE AND SIGNIFICANT ACCOUNTING ESTIMATES

2.1 Statement of Compliance

These financial statements have been prepared in accordance with the approved accounting standards as applicable in Pakistan and the requirements of the Companies Act 2017. Approved accounting standards comprise of such International Accounting and Financial Reporting Standards for Small Sized Entities (SSEs) issued by the Institute of Chartered Accountants of Pakistan. Wherever, the requirements of the Companies Act, 2017 or directives issued by the Securities and Exchange Commission of Pakistan differ with the requirements of these standards, the requirements of the Companies Act 2017 or the requirements of the said directives take precedence.

2.2 Basis of measurement

These accounts have been prepared under the historical cost convention, without any adjustments for the effects of inflation or current values.

2.3 Functional and presentation currency

These financial statements are presented in Pakistan Rupees which is also the company's financial currency. All financial information presented in Pakistan Rupees has been rounded to the nearest rupee.

3. SIGNIFICANT ACCOUNTING POLICIES

The principle accounting policies which have adopted in the preparation of these accounts are as follows:

3.1 Taxation

The provision for current taxation is based on taxable income at the current rates of taxation after taking into account fact that available tax rebates and credits. No provision for deferred taxation is required to be made in these accounts due to the timing differences will not reverse within next three years.

3.2 Property and Equipment

Operating fixed assets are stated at cost less accumulated depreciation. Depreciation is charged to income applying the reducing balance method so as to write off the cost of operating fixed assets over their expected useful life.

Full year's depreciation is charged on the assets in the year of purchase while no depreciation is charged

in the year of sale. Gain or loss on disposal of fixed assets is reflected in the income currently.

Normal repairs and maintenance is charged to income as and when incurred. Major renewals and improvements are capitalized.

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Trident Power JB (Private) Limited

Notes to the Financial Statements

For the year ended 30 June 2019

3.3 Stores and Spares

These are valued at moving average cost.

3.4 Stock in Trade

Stock-in-trade is valued at lower of cost and net realizable value. The cost is calculated on the basis of moving average.

3.5 Borrowing Cost

Borrowing costs are recognized as an expense in the period in which they are incurred, except to the extent that they are directly attributable to the construction of qualifying assets in which case they are capitalized as part of the cost of that asset.

3.6 Revenue Recognition

Revenue from sales of electricity units generated is recognized on accrual basis.

3.7 Trade Debts and Receivables

Trade Debts and Receivables are recognized and carried at original amount /cost less a provision for any in collectable amount, whereas known bad debts are written off.

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Trident Power JB (Private) Limited

Notes to the Financial Statements

For the year ended 30 June 2019

4 PROPERTY, PLANT & EQUIPMENT

PARTICULARS	Vehicles	Total
	(.....Rupees.....)	
Cost		
As at 1 July 2017	2,119,197	2,119,197
Additions	-	-
Disposals	-	-
As at 30 June 2018	2,119,197	2,119,197
As at 1 July 2018	2,119,197	2,119,197
Additions	-	-
Disposals	-	-
As at 30 June 2019	2,119,197	2,119,197
Accumulated Depreciation		
As at 1 July 2017	211,920	211,920
Charge for the year	190,728	190,728
Adjustment on disposal	-	-
As at 30 June 2018	402,647	402,647
As at 1 July 2018	402,647	402,647
Charge for the year	171,655	171,655
Adjustment on disposal	-	-
As at 30 June 2019	574,302	574,302
Carrying amounts		
At 30 June 2018	1,716,550	1,716,550
At 30 June 2019	1,544,895	1,544,895
Rate of depreciation(%)	10%	

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Trident Power JB (Private) Limited

Notes to the Financial Statements

For the year ended 30 June 2019

	Note	30-Jun 2019 (Rupees)	30-Jun 2018 (Rupees)
5 ADVANCES, DEPOSITS & PREPAYMENT			
Advances		24,659,000	24,659,000
Advance Income Tax	5.1	41,319	36,448
		<u>24,700,319</u>	<u>24,695,448</u>
5.1 ADVANCE INCOME TAX			
Opening balance		36,448	35,595
Add: Tax deducted at source		4,871	853
Less: Provision for the year		-	-
Closing Balance		<u>41,319</u>	<u>36,448</u>
6 CASH AND BANK BALANCES			
Cash in Hand		-	-
Cash at Bank		143,553	1,813,354
		<u>143,553</u>	<u>1,813,354</u>
7 LOAN FROM DIRECTORS			
Loan from Directors	7.1	75,491,438	69,722,783
		<u>75,491,438</u>	<u>69,722,783</u>
7.1 Loan from directors comprise of Rs. 72,991,438/- (2018: 67,222,783/-) from Mr. Yousaf Mehboob Khan and Rs. 2,500,000/- (2018: 2,500,000/-) from Mr. Zafar Ikram Sheikh.			
8 TRADE & OTHER PAYABLES			
Creditors- AIPEL		750,000	750,000
Accrued Liabilities		569,000	550,000
		<u>1,319,000</u>	<u>1,300,000</u>
9 ADMINISTRATIVE EXPENSES			
Salaries & Wages		6,385,750	6,300,000
Travelling & Conveyance		29,280	1,809,300
Fee & Subscription		69,515	66,071
Printing & Stationery		9,700	274,105
Entertainment		177,426	165,090
Legal and professional		682,500	457,500
Audit fee		29,000	25,000
Depreciation		171,655	190,728
Miscellaneous		217,494	219,988
		<u>7,772,320</u>	<u>9,507,782</u>

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Trident Power JB (Private) Limited

Notes to the Financial Statements

For the year ended 30 June 2019

Note	30-Jun 2019 (Rupees)	30-Jun 2018 (Rupees)
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10 FINANCIAL CHARGES

Bank charges

2,823	1,100
<u>2,823</u>	<u>1,100</u>

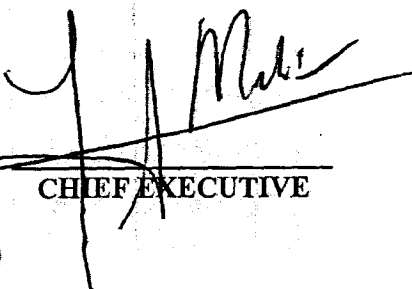
11 GENERAL

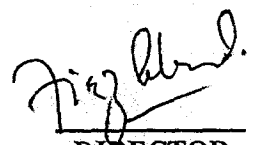
Figures have been rounded off to the nearest Rupee.

Corresponding figures have been rearranged/reclassified, where necessary, for the purposes of comparison.

12 AUTHORIZATION OF FINANCIAL STATEMENTS

These Financial Statements were approved by the Board of Directors for issuance on _____.


CHIEF EXECUTIVE


DIRECTOR

TRIDENT POWER JB (PRIVATE) LIMITED

1. Introduction

New millennium has introduced vast changes in energy and power sectors. Trans Tech Group has a substantial interest in Pakistan's power sector. With experience which span over the decades, spirit of inquiry has introduced one of the leading group in Pakistan as well as globally.

With every passing year Trans Tech Group has recorded exponential growth. This dynamic group has redefined its segment of industry and created new standards of excellence. The sheer hard work, dedication and help from the Almighty have brought the group to its present enviable position. The pioneering spirit lives on as the group moves on to a new generation of consolidates and growth. Equipped with irreplaceable experience and infused with latest technology Trans Tech set to meet all changes beyond the millennium.

Human imagination and spirit of hard working further creates competence, which plays an important role in maintaining the quality and commitment. We are proud of our culture inheritance of hard working, honesty and dedication with singleness of the purpose.

2. Project Back Ground

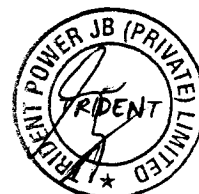
Punjab Power Development Board (PPDB) issued a letter of Intent (LOI) to Trident Power JB (Private) Limited (The Sponsor) for the development of Ravi Hydropower 4.6 MW Project in the Punjab Province of Pakistan.

In this connection, feasibility study was carried out and evaluated the energy and power potential of the Project site on the basis of available historic data and existing site conditions. The generated electricity shall be sold to LESCO. The feasibility study has been approved by the panel of experts (POEs) of PPDB. Besides this, initial environmental examination (IEE) from Environment Protection Agency (EPA), Government of Punjab and Interconnection study from Lahore Electric Supply Company (LESCO) has been approved. Application for issuance of generation license has been submitted to National Electric & Power Regulatory Authority (NEPRA).

The Project site is located near Okara Cantt in District Sahiwal of Punjab Province. The powerhouse is proposed at RD 260+000 on Lower Bari Doab Canal (LBDC), Okara, Cantt. The Project area can easily be accessed through railway and road. Okara Cantt and Sahiwal are linked with Lahore through Lahore-Multan Highway (N5). The Project site is 133 Km from Lahore and 33 Km from Sahiwal and accessible from Karachi Port through a good road network.

A summary of the proposed project is as under:

Name of Company:	Trident Power JB (Private) Limited
Registered Office:	Suite # 8, Ground Floor, Evacuee Trust Complex, Sector F-5/1, Islamabad
Type of Generation:	Hydropower Plant/Run of Canal



Location of Generation Facility:	Lower Bari Doab Canal at RD 260+000, Okara Cantt
Expected life of Facility:	30 years
Commissioning & Operation Date:	2023 (Tentative)
Plant Design Discharge:	170 Cumecs
Gross Head:	3.4 meter
Net Head:	3.1 meter
Installed Capacity:	4.6 MW
Plant Factor:	68.2%
Electromechanical Equipment:	03 Nos. Kaplan Horizontal units with rated output of 1,665 each. 1.96 MVA Generator and Transformer Capacity.
Expected Turbine Manufacturers:	Andritz Hydro, Austria Mavel, Czech Republic Global Hydro, Austria Vaptech, Balgharia HPP, France
Expected EPC Contractors:	Nishan Engineers, Pakistan Sinotech, China Descon Engineering, Pakistan Sambu, Korea

3. Sponsors' Profile

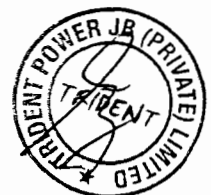
The company M/s Trident Power JB (Private) Limited was incorporated under the Companies Ordinance 1984 on March 18, 2013 as a private limited company. Trident Power JB (Private) Limited is a consortium of three renowned and well established business houses, namely:

- ✓ **Trans Tech Group**
- ✓ **SPEC Group**
- ✓ **PCI Group**

Trans Tech Group

Trans Tech Group was founded in the early nineties with the vision of participating in the development of the engineering sectors in Pakistan. However, it was not until the start of a market based economy that encouraged private investment in infrastructure and major engineering works that provided the opportunity to Trans Tech to establish its mark in its fields of expertise. Trans Tech finally emerged as one of the leading engineering and contracting companies in Pakistan in last two decades. Trans Tech is known today for its expertise in the following fields:

- Civil Construction & Engineering
- Automobile
- Oil & Gas
- Alternative Energy
- Food & Beverages



Trans Tech is owned and operated by two seasoned and professional partners and are the key sponsors and owners of the group.

Mr. Fiaz Ahmad is the Chairman and Managing Partner of Trans Tech Group. He joined the Group since its inception in 1994 and have continued to develop from a small Engineering office to what is now a Pakistan based group. Today this company's structure enables to provide with exactly those capacities and skills which is the need for the success of projects. The optimum co-operation between all the technical disciplines, group has now become a matter of daily routine. It leads to specific relationship from which a client can benefit. He has been responsible for promoting new ventures and transforming the Group into the diversified business it is today.

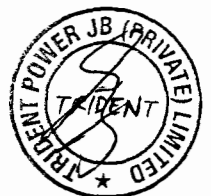
Mr. Ahmad is a renowned acclaimed business leader with deep and comprehensive expertise in introducing new projects in emerging markets. He is credited with launching various projects of civil construction, Automobile, Food & Beverages, oil & gas and Alternate Energy. Mr. Fiaz Ahmad has been managing the Group businesses for the past 22 years. Mr. Fiaz is currently a director in Trident Power JB (Private) Limited.

Mr. Yousuf Mehboob Khan is the Co-Chairman, Partner and Director of a number of Trans Tech Group companies. He joined the group in 1994 and is responsible for the continued growth and success of the Group. He is focused on leading the Group to achieve improved growth in revenue and profitability greater innovation and inventiveness resulting in the good number of Joint ventures with the foreign companies in Pakistan as well as abroad. He is responsible for the strategic planning and business development operations of the Group. He also assists the Chairman in the Group's operations, project management and planning.

His areas of expertise include global and regional business issues, priorities of capital and financial flows as well as current management best practices. Mr. Yousuf is currently a CEO & Director of Trident Power JB (Private) Limited.

Trans Tech Pakistan has its Affiliations and Joint Ventures with the following Foreign firms and Organizations:

- CHINA PETROLEUM ENGINEERING CONSTRUCTION CORPORATION (CPECC)
- CHINA ROAD & BRIDGE CORPORATION – CHINA (CRBC)
- CHINA THREE GORGES INTERNATIONAL CORPORATION (CTGI)
- CHINA INTERNATIONAL WATER & ELECTRIC CORPORATION – CHINA (CWE)
- CHINA NATIONAL MACHINERY & EQUIPMENT IMPORT & EXPORT CORPORATION – CHINA (CMEC)
- CHINA IPPR INTERNATIONAL ENGINEERING CORP. (IPPR)
- CHINA HEAVY MACHINERY CORPORATION (CHMC)
- SINOHYDRO CORPORATION LTD
- CHINA HARBIN POWER ENGINEERING CO. LTD (HPE)



-
- CHINA RAILWAY FIRST GROUP CO. LTD (CRFGC)
 - CHINA RAILWAY TUNNEL CONSTRUCTION (GROUP) LTD – CHINA (CTG)

Trans Tech Group has completed a diverse range of construction project, and have expertise to deliver projects of any size and complexity.

- MES Building Construction
- Surface Drainage system
- Lahore Islamabad Motorway (M-2)
- Indus Highway
- Sind Bamboo Complex
- Meran Shah Bridges
- Lahore Bypass
- Rewiring Islamabad Sectors
- Optical Fibre Installation
- National Highway Rehabilitation
- Seven Story Plaza
- Houses in Islamabad
- Shopping Plaza
- Primary School
- Ravian Housing DHA

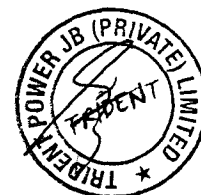
Spec Group

Spec Group is solely owned and operated by Mr. Zafar Ikram Sheikh.

The SPEC Group is an integrated engineering, design, project management, procurement, fabrication and construction service provider for various sectors. The group has in place global network of offices, manufacturing facilities and resources to undertake responsibility as single contractor for EPC contracts. Single point responsibility as EPC contractor allows clients to pass their risk to Spec and concentrate on their core business activities.

The group has strong presence spanning Middle East, Asia, Africa and headquarters in United States of America. With multinational and multicultural work team of over 6,000 team members striving to achieve the group vision of being among top 10 EPC companies of the regions by year 2012.

Diversified operations with experienced management teams backing every project enables the group to capitalize on our in-house experience. The presence of Engineering, Procurement, project management, construction, commissioning and even original equipment manufacturing capabilities in-house give us a strong edge to execute projects within budget and shorter delivery cycles so clients are assured of quality and value every step of the way.



The Group enjoys the track record of successful project completions within challenging schedules. Our project management team establishes priorities, coordinates activities, monitor closely and controls all operation during entire execution of project. The SPEC Group is not only meeting but exceeding the international concerns for Quality, Health, Safety and environment while recognizing its social responsibilities, during all phases of operations.

SPEC has seen a tremendous growth in the past recent years, revenue has increased exponentially in the last 5 years. SPEC being a group has a strong financial position where all assets are debt-free. SPEC enjoys a good reputation among customers, having strong relationship with vendors and increasing stakeholders values each year.

Mr. Sheikh is currently a director in Trident Power JB (Private) Limited.

PCI Group

PCI is a renowned name in the carpeting industry since 1948 with an extremely impressive portfolio of products and prides itself on the remarkable achievements since its inception. PCI Flooring (Pak Carpet Industries) is a leading distributor and retailer of flooring, headquartered in Karachi and managing up-country operations through Rawalpindi and Lahore branch offices, we offer institutions, offices, architects and interior designers an almost infinite and unmatched range of color combinations, textures and patterns, suitable for every kind of commercial and residential flooring applications.

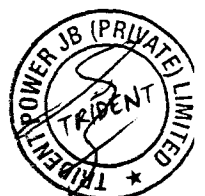
PCI's vision is to become Pakistan's leading building material provider and during the years it has accomplished exceptionally by catering to notable companies like American Express, UEP, PC, Marriott, Unilever, Khaadi and Bank Al Habib to name a few.

PCI partners with the best international carpeting and flooring manufacturers like Interface, which is the largest designer and maker of carpet tile, Quick Step is the first Belgian brand selling top notch laminate flooring solutions, Kaindl, what began as a small sawmill in Lungotz in 1897 is now taking the world by storm from Salzburg with a never-ending supply of new ideas and products, Ege spells exclusivity by offering customized carpeting coupled with excellent quality and Armstrong is a prominent retailer of PVC flooring from USA. These brands are benchmarked for setting the highest standards in the flooring industry. They stay ahead of their rivals by inculcating values of leadership, commitment to providing impeccable service and encouraging innovation at every step.

By joining hands with PCI, they promise to beautify your home by providing the finest quality which will last you a lifetime.

PCI Group is a family owned group and is managed by three brothers. PCI Group comprises of following three companies:

- Pak Carpet Industries (Private) Limited



- Unik Fabrics (Private) Limited
- Automotive Spares & Accessories (Private) Limited

Automotive Spares and Accessories (ASA) is a sister company Pak Carpet Industries Group. ASA entered the automotive industry by becoming supplier of automotive floor carpet to Pak Suzuki Motor Company in 1985. From its humble beginnings as a trading company, ASA today is amongst the largest vendors of automotive interior and related products in Pakistan. The foundations of ASA were laid by keeping in mind its vision of meeting or exceeding customers' expectation in terms of suppliability, quality & cost.

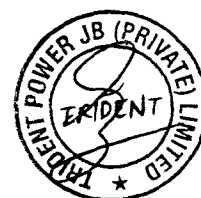
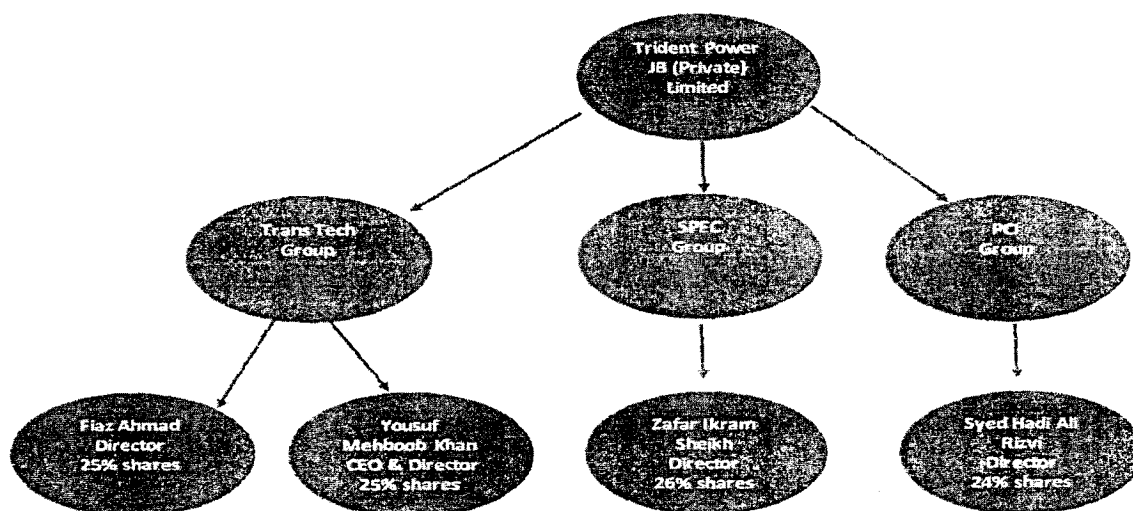
PCI Group is headed by Syed Hadi Ali Rizvi. Mr. Rizvi is currently Chairman & CEO of PCI group which includes Pak Carpet Industries Ltd., Unik Fabrics Ltd. and Automotive Spares & Accessories Ltd., with an expected turnover of Rs. 2.25 billion for year 2015-16.

Mr. Rizvi born in 1960 and graduated from Govt. Commerce Collage Karachi in 1981, joined family business of Oriental carpets. Diversified into machine made carpets in mid - 80's. Started manufacturing auto grade carpets for Automotive Industry of Pakistan. Currently all three major players are using carpets produced in our manufacturing facilities. Gradually developed new parts for OEM and are currently supplying over 200 parts which includes cosmetic parts, fabrics, sheet metal, injection and blow molding parts.

Beside above introduced concept of Carpet tiles, currently representing some of the world leading flooring brands in Pakistan. Recently diversified into packaging industry and are supplying lubricant bottles to one of the market leaders with ambitious plan of expanding this line of business in coming years.

Mr. Rizvi is currently a director in Trident Power JB (Private) Limited.

4. Company Shareholding





Ravi Hydropower Project Details Of Generation Facility

A. GENERATION BUSINESS INFORMATION

(i)	Name of Company / Licensee	Trident Power JB (Private) Limited.
(ii)	Business Address	House # 359 H, Street # 4, Phase V, DHA Lahore

B. TYPE AND LOCATION

(i)	Type of Generation Facility	Hydropower Plant / Run of Canal
(ii)	Location of Generation Facility	Lower Bari Doab Canal at RD 260+000, Okara Cantt in the Province of Punjab, Pakistan
(iii)	Expected life of Facility from COD	30 Years
(iv)	Tentative Commissioning & Operation Year	2023

C. WATER SOURCE

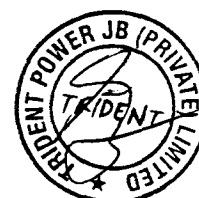
(i)	Stream / Tributary / Canal	Lower Bari Doab Canal (LBDC), District Okara in the Province of Punjab, Pakistan
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D. MAIN DESIGN FEATURES

(i)	Plant Design Discharge	170 Cumecs
(ii)	Gross Head	3.4 meter
(iii)	Net Head	3.1 meter
(iv)	Installed Capacity	4.6 MW
(v)	Plant Factor	68.2%

E. PROJECT MAJOR COMPONENTS

(i)	Headrace Channel	Design Discharge: 170 Cumecs Length: 332 m
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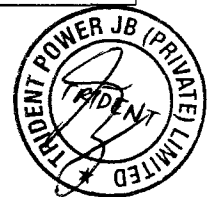




Ravi Hydropower Project Details Of Generation Facility

TRIDENT

		Width: 61 m Depth: 3.5 m Free Board: 1.52 m Manning Constant Value: 0.018 Full Supply Level (FSL): 585.85 feet (178.61m) Bed Level (BL): 574.62 feet (151.21 m) Bed Slope: 1/10000
(ii)	Tailrace Channel	Design Discharge: 170 Cumecs Length: 396 m Width: 61 m Free Board: 1.52 m Manning Constant Value: 0.018 Full Supply Level (FSL): 574.34 feet (175.1 m) Bed Level (BL): 563.67 feet (171.85 m) Bed Slope: 1/10000
(iii)	Powerhouse	Size: 32m X 25m Bottom Pit Elevation: 543.65 ft. (165.7 m) Loading Bay Elevation: 579.65 ft.(167.7 m) Roof Slab Bottom Elevation: 607.73 ft. (185.28 m) Hydraulic gates & Trashrack provided on u/s of powerhouse Stoplogs provided on d/s of powerhouse 20 Tons overhead travelling crane Office building & control room
(iv)	Electromechanical Equipment	03 Nos Kaplan Horizontal Units With rated output of 1665 KW each.





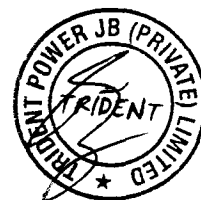
Ravi Hydropower Project Details Of Generation Facility

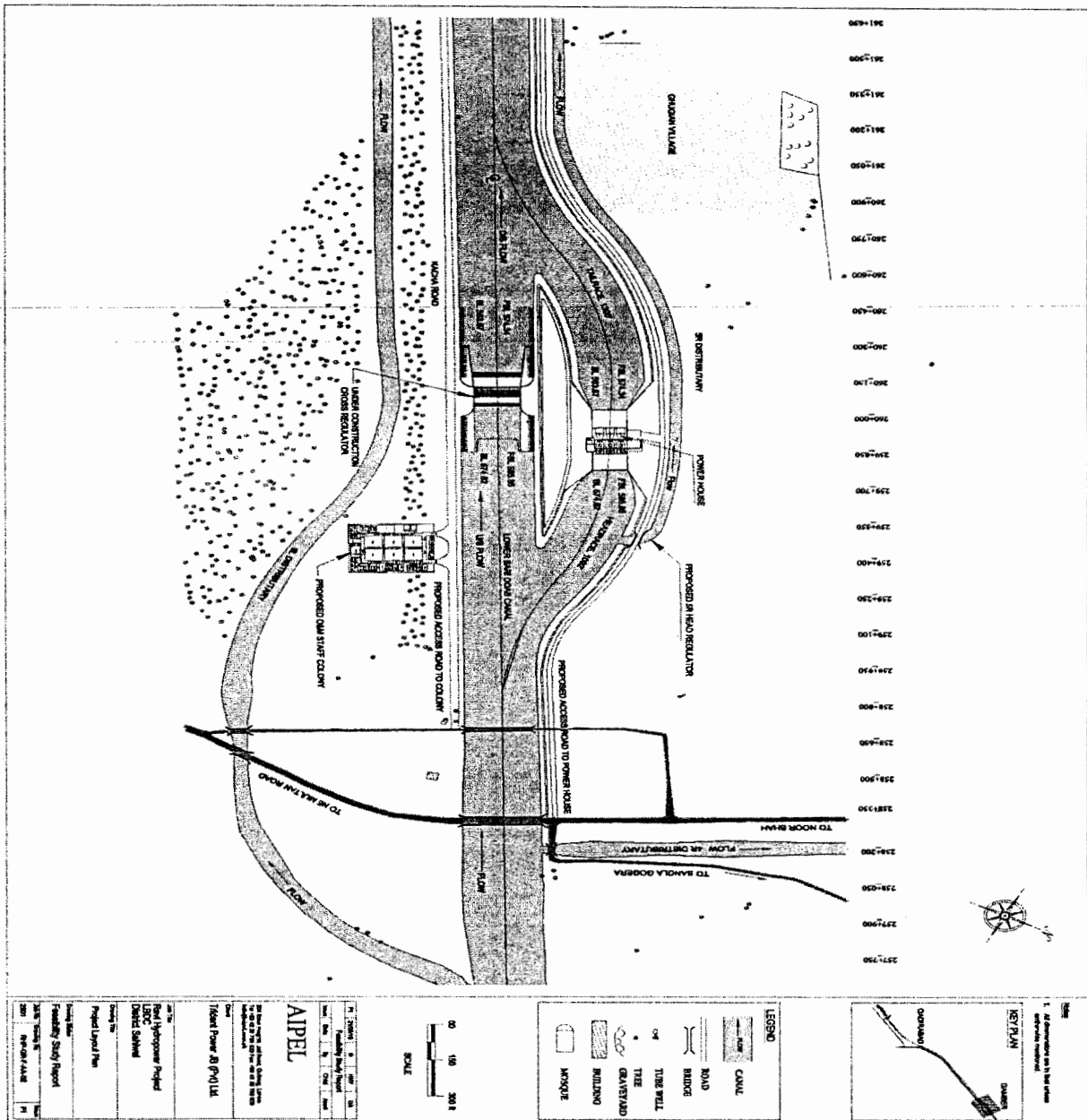
TRIDENT

		Turbine Runner Dia: 3.46 m with rated & runaway speed of 103.4 rpm & 323 rpm respectively. 1.96 MVA Generator Capacity. Transformer Capacity 1.96 MVA. Draft Tube: L = 16.5 m; Exit width = 7.2 m; Height = 5.2 m
(v)	Canal Bed Lowering	Canal Bed lowering from RD 260+000 to 287+000
(vi)	Modernization of Existing Cross Regulator	Modernization / automation of gates at existing cross regulator at RD 260+000
(vii)	5R Distributary	Relocation of 5R distributary
(viii)	Accommodation for O&M Staff	Operation & maintenance Staff Colony of 40m X 32m size.

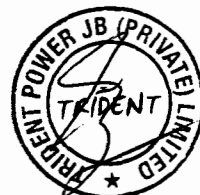
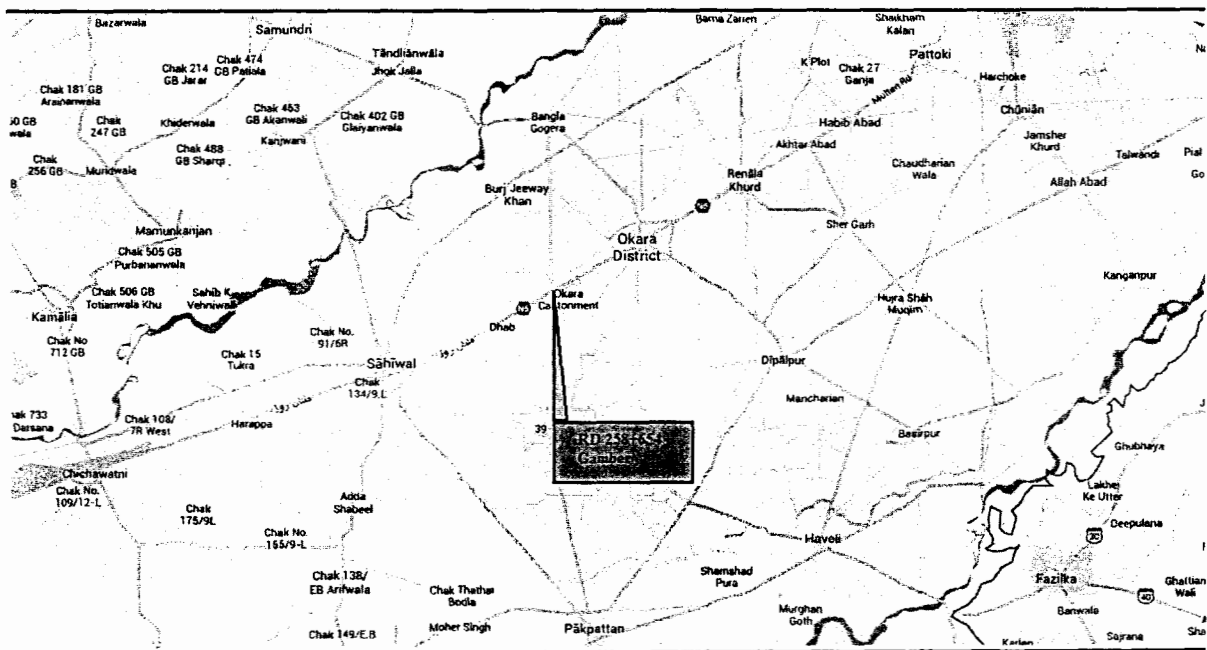
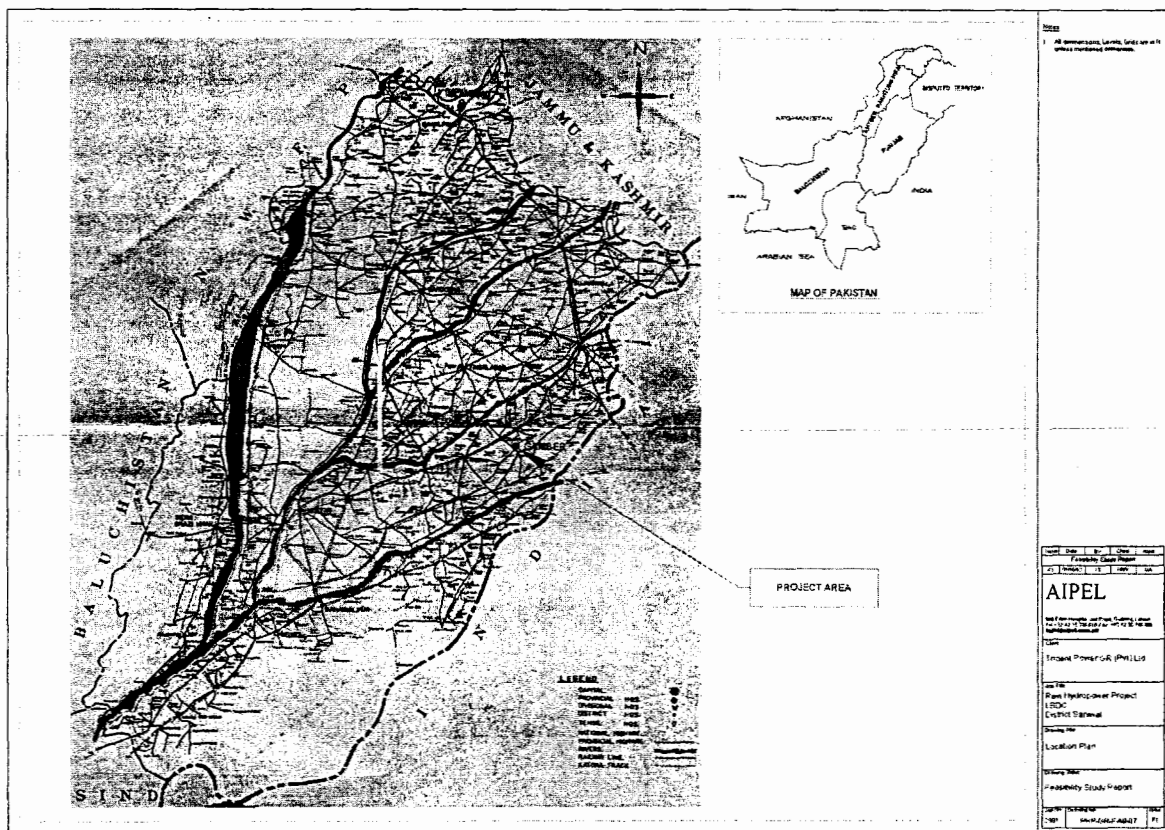
F. Expected Civil and E&M Contractors

(i)	Expected Turbine Manufacturers	Andritz Hydro, Austria Mavel, Czech Republic Global Hydro, Austria Gugler, Austria
(ii)	Expected EPC Contractors	Izhar Group Descon, Pakistan Ramzan & Sons Al Fajr Contracting

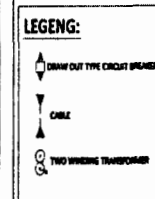
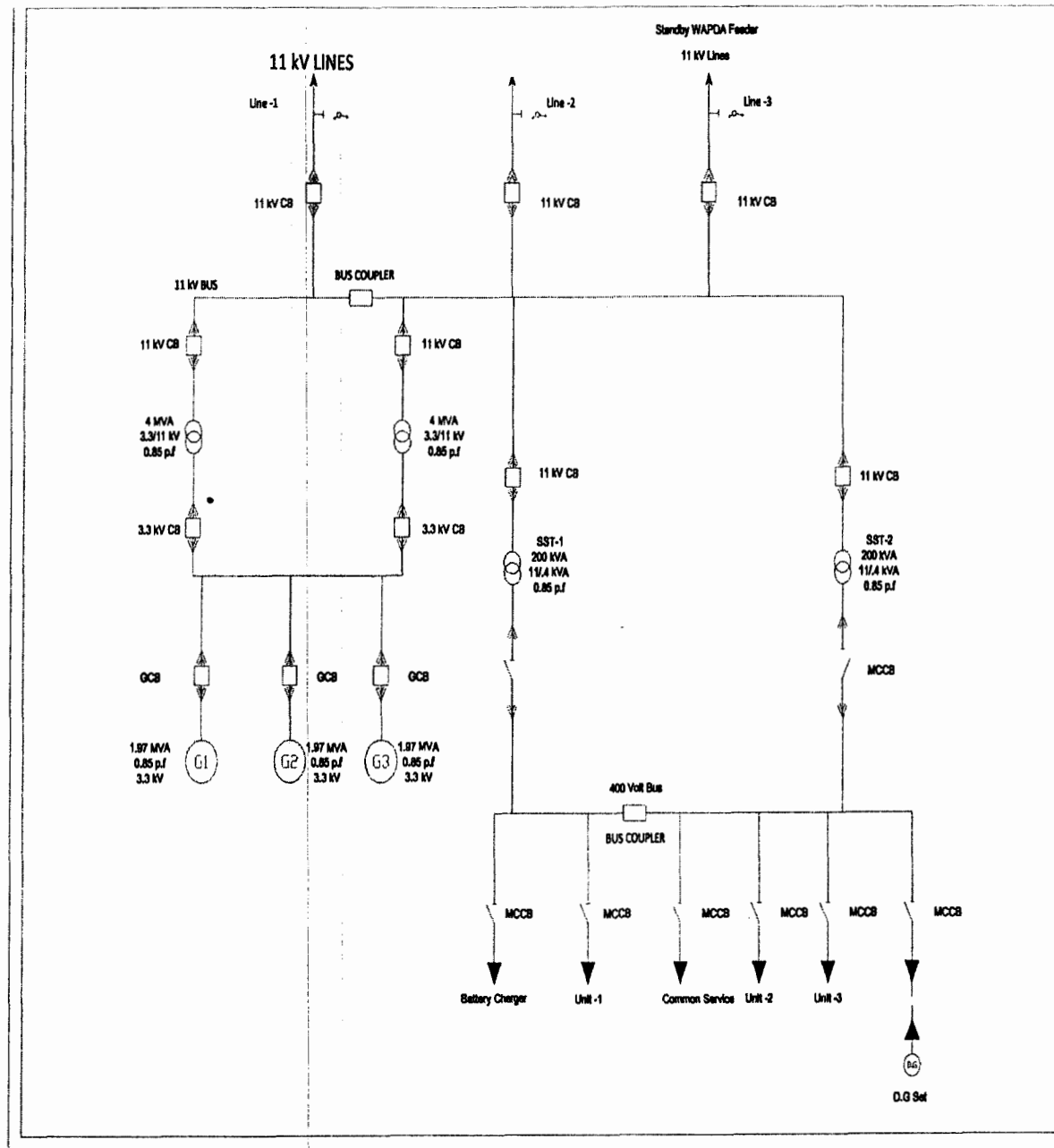




LOCATION MAP



SINGLE LINE DIAGRAM



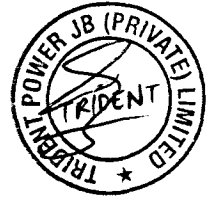
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Job Title: Ramt Hydropower Project				
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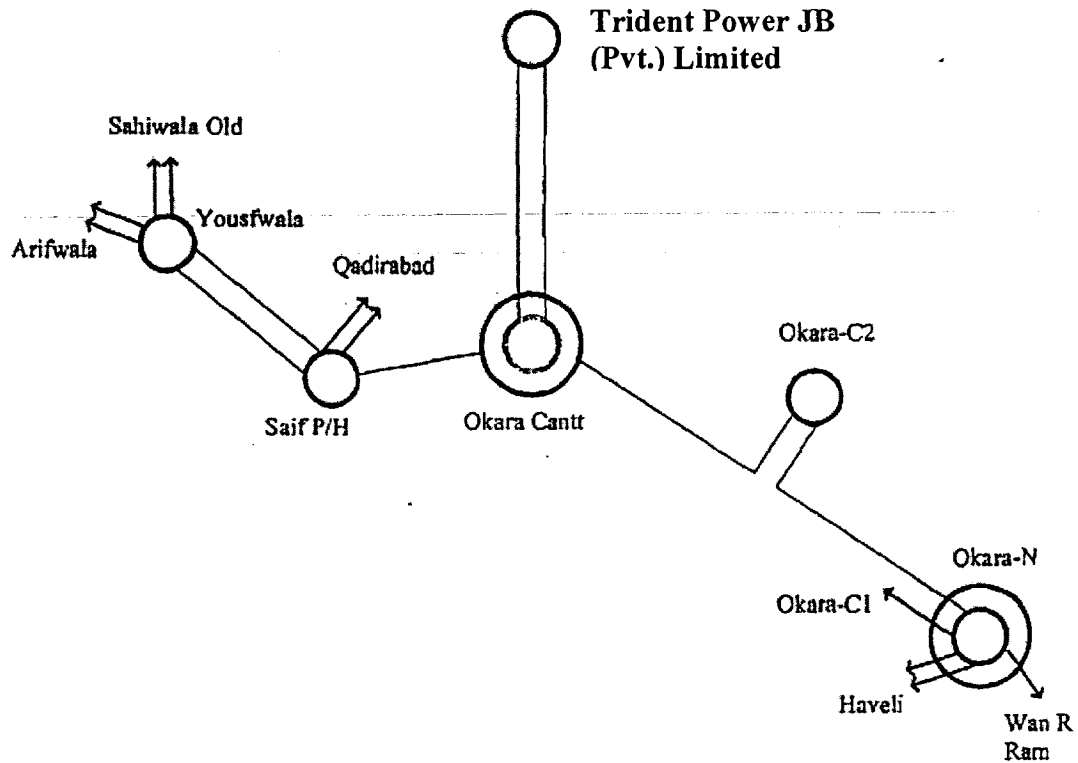
**Interconnection/Transmission Scheme for Dispersal of
Power from Trident Power JB (Private) Limited
(TPJBPL)**

The Power generated by the Hydro Power Plant (HPP) of TPJBPL will be dispersed to the Load Center Lahore Electric Supply Company Limited (LESCO) at 11 KV voltage level.

Any change in the final Interconnection and Transmission Arrangement(s), for the dispersal of power other than the above, as agreed by TPJBPL and LESCO shall be communicated to the Authority in due course of time.



Schematic Diagram
for Interconnection/Transmission Arrangement for Dispersal of
Power from APPL



	Technical Parameters of Civil Works	<i>TRIDENT</i>

6.1. GENERAL

Lower Bari Doab Canal (LBDC) system is situated in the East-South of Punjab Province. LBDC off takes from Balloki Head Works at River Ravi and main canal has a length of 209.3 Km (686,504 feet). The canal was commissioned along with Balloki Headworks in 1914.

The Ravi Hydropower Project is proposed on LBDC. The Project site is located on north of Multan Road (N5) almost 137 Km from Lahore in District Sahiwal, Punjab Province of Pakistan. It consists of two falls at RD 258+654 and RD 285+454 of LBDC. These two existing falls shall be demolished and new falls at RD 260+000 and RD 287+255 which are being constructed by Project Management Unit (PMU) of Punjab Irrigation Department shall be considered for power generation purpose. A gross head of 6.23 ft. is available across the first fall, and the second fall has a gross head of 5.02 ft. It is planned to lower the bed of the canal in this reach by 5 ft. for combining the two drops thus utilizing the gross head of about 11.23 ft. and net head of 10.2 ft. at RD 260+000 for power generation.

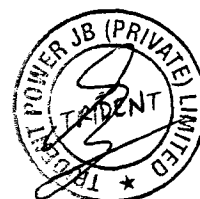
This chapter provides the description of layout of the Ravi Hydropower Project.

6.2. PROJECT LAYOUT

The site for construction of Ravi Hydropower Project is located at RD 260+000 of LBDC near Okara Cantt, District Sahiwal. Distributary 5R off takes from upstream of the proposed Powerhouse. There is a village road bridge upstream of the fall structure at RD 258+350 connecting to the main Lahore-Multan road. The Canal alignment is almost parallel to the Sahiwal – Okara section of railway line running on left side.

The Project has been planned on right side of LBDC. The Ravi Hydropower Project utilizes a gross head of 11.23 ft. available from the combination of two falls at RD 260+000 and RD 287+255. The scheme envisages diverting the flow of the canal from its right bank through a 1092 ft. long headrace channel, off-taking from upstream of the fall RD 260+000, for conveying water to run the three turbo-generator units housed in a pit-type powerhouse. From the power station, water will ultimately outfall back into the LBDC through the 1300 ft. long tailrace channel.

6.2.1. HEADRACE CHANNEL



	Technical Parameters of Civil Works	

The Headrace channel has been designed for the maximum discharge of 6000 cusecs. It will be brick lined, 1092 ft. long and 200 ft. wide at bed. With an overall depth of 11.51 ft., it will have a longitudinal bed slope of 1 in 10000 and side slopes of 1 V: 1.5 H. The free board is of 5 ft. An upstream transition will lead the headrace channel into the forebay chamber. For design of headrace Manning constant value of "n = 0.018" has been adopted.

6.2.2. POWERHOUSE

The powerhouse structure consists of an intake and main service building to accommodate loading bay and control room. The intake of water from the head race channel to 3 turbo-generator units will be through the forebay having three bays. The span of three bays is 24.5' each. The powerhouse will be constructed in an open pit, The bottom elevation of the pit would be 543.65 ft. On the right of powerhouse, a loading bay and at downstream of loading bay area, transformer platform is provided.

The powerhouse will be constructed in RCC. The piers will rise above from the walls of the 3 bays resting on a mat slab acting as raft. This foundation slab will also provide support to the three turbo-generator units.

The elevation of loading bay is 579.65 ft. The bottom elevation of roof slab of powerhouse is 607.73 ft. Powerhouse foundations at elevation 549.65 ft. have been designed to accommodate pit type Kaplan turbine and draft tube.

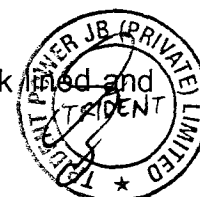
The hydraulic gates provided on the upstream side of the powerhouse intake will facilitate closing of flow for inspection purpose, if and when required.

In order to prevent the entry of tree branches, bushes and other floating material into the turbines bays, a trash rack arrangement has been provided on the upstream of the forebay.

A 20 ton bridge Crane shall be installed in the powerhouse. A double storey office building has been provided on left side of powerhouse containing store, O&M staff room, R.E room, Battery and Control room.

6.2.3. TAILRACE CHANNEL

The tailrace channel has a design capacity of 6000 cusecs. It will be brick lined and



	Technical Parameters of Civil Works	<i>TRIDENT</i>

1300 ft. long. With a transition from the downstream of the forebay, the channel assumes a bed width of 200 ft., overall depth of 10.95 ft., bed slope of 1 in 10000 and side slopes of 1 V: 1.5 H. It will outfall into the main canal. The transition plan, longitudinal and cross section of the channel have been shown on Drawing Nos. RHP-GR-F-AA-09, RHP-GR-F-AA-11 and RHP-GR-F-AA-25.

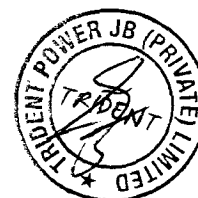
For design of Tailrace Manning Constant "n" is taken as 0.018.

6.2.4. LOWERING OF CANAL BED

The canal bed is proposed to be lowered by 5 ft. in the reach lying between the two falls at RD 260+000 and RD 287+255 to combine the two falls for availing the increased head for power generation.

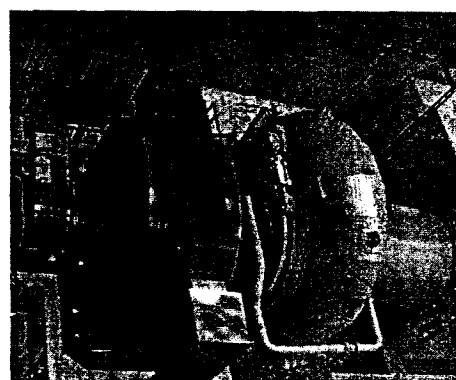
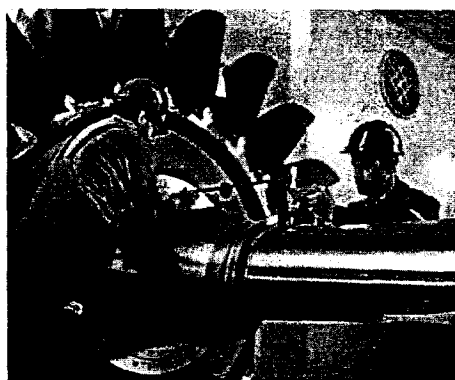
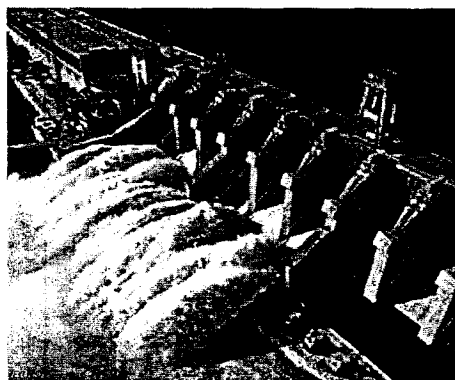
6.2.5. DEWATERING SYSTEM

The boreholes drilled by M/s Geoscience Associates in August, 2013 indicate the ground water table at a depth of about 18 ft. (El. 559.80 ft.) from the ground surface elevation of 577.80 ft. The foundation elevation of the pit of the powerhouse is 543.65 ft. It has been estimated that to facilitate the construction of the powerhouse, existing ground water table will have to be lowered by about 16 ft. It has, therefore, been worked out that 24 Nos. pumps of 0.75 cusec capacity each, can achieve this objective by running 10 hours daily in 30 days.



ANDRITZ HYDRO

Worldwide leader in hydropower business



The ANDRITZ GROUP is a global market leader for customized plant, process technologies and services for the hydropower, pulp and paper, metals, and other industries (solid/liquid separation, feed and bio-fuel). The Group is headquartered in Graz, Austria and has a staff of approx. 13,000 employees worldwide. ANDRITZ operates more than 150 production sites, service and sales companies all around the world.

In a world trying to join forces to reduce emissions of greenhouse gases and pollution, we in ANDRITZ HYDRO support our customers in their environmental efforts by providing technologies that maximize generation of energy from hydropower.

Hydropower is the most important renewable resource of energy by far. According to the IEA (International Energy Agency), only one third of realistic hydropower potential has been developed and so, a large amount of new hydropower projects are to be expected in the future.

ANDRITZ HYDRO is one of the worldwide leaders in the supply of electromechanical equipment and services 'From water to wire' for hydropower plants. Our range of products and services cover the supply of equipment and services for new hydropower plants as well as for the refurbishment and overhaul of existing facilities. ANDRITZ HYDRO is the global leader in the market of small hydropower stations.

One of our goals is to provide innovative technology for the best return on investment and benefit to our customers. ANDRITZ HYDRO is constantly improving the energy efficiency of its equipment and technologies through continued Research & Development.

Our commitment to serve our customers locally all around the world and our proven experience and state-of-the-art technologies are reasons why you can be assured to obtain the best energy application from us.

Highlights

- More than 170 years of experience in turbines, which represents over 30,000 units with more than 400,000 MW installed
- More than 120 years of experience in electrical equipment
- Complete range up to 800 MW
- Leading in service and rehabilitation
- World leader for small hydropower plants

COMPACT HYDRO

The best solution up to 30 MW

Based on the experience and know-how gained through intensive Research & Development activities for hydropower plants, DRITZ HYDRO has developed a modular design concept for the equipment to be installed in small hydropower plants.

COMPACT HYDRO provides solutions in products and services for all types of small hydro power plants up to an output of 30 MW per unit including complete electro-mechanical installation ("From water to wheel").

The modular design by COMPACT HYDRO minimizes the number of components and sizes, covering all types of turbines with a wide range of applications. It also allows an economic development of small hydropower potentials with power houses perfectly fitting into the landscape.

Highlights

- Clean and renewable energy
- Low environmental impact
- Modular equipment design
- Single source of supply
- Workshop assembly
- Short periods of implementation
- Low investment cost
- Optimized annual energy production

All these characteristics improve your return on investments.

Every week, another two COMPACT HYDRO units start producing energy somewhere around the world.

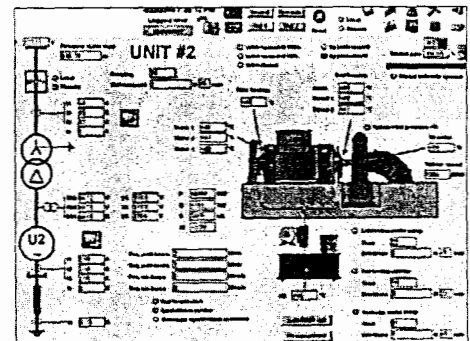
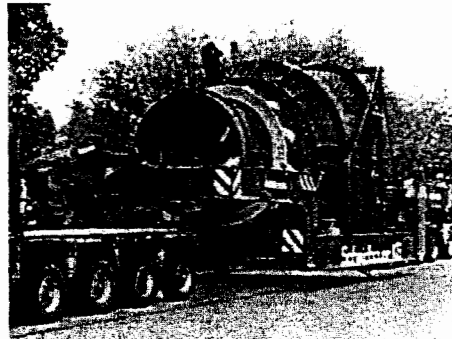
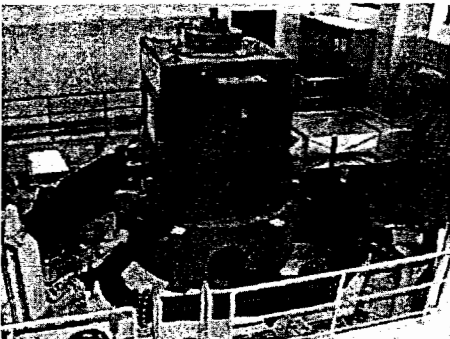
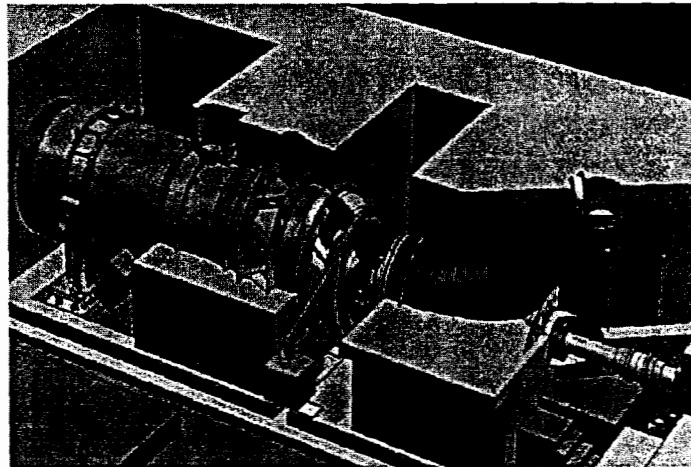
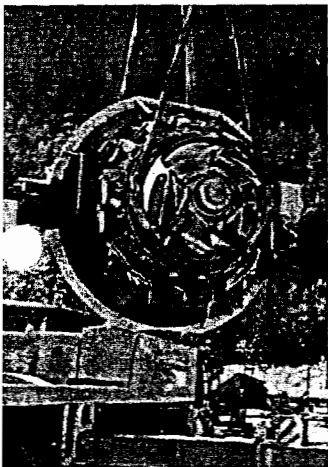
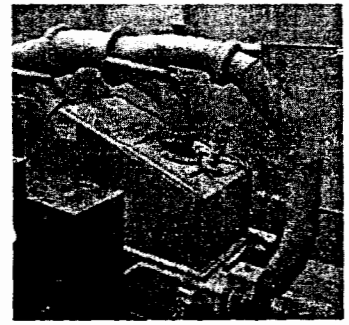
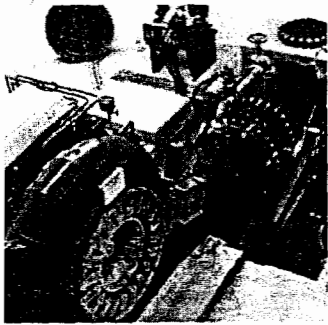


From water to wire

COMPACT HYDRO's 'From water to wire' concept covers the electromechanical equipment including turbine, gear, generator, inlet valve, control-protection-measuring systems as well as complete mechanical and electrical balance of plant equipment.

Highlights

- Single source responsibility
- Simplification of interfaces
- Short total installation time
- Short commissioning time
- Only one software and hardware solution for the unit
- Single source training of customer's operating personnel

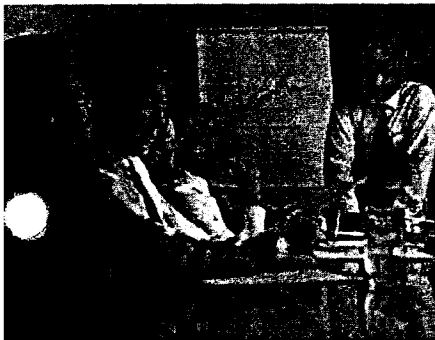
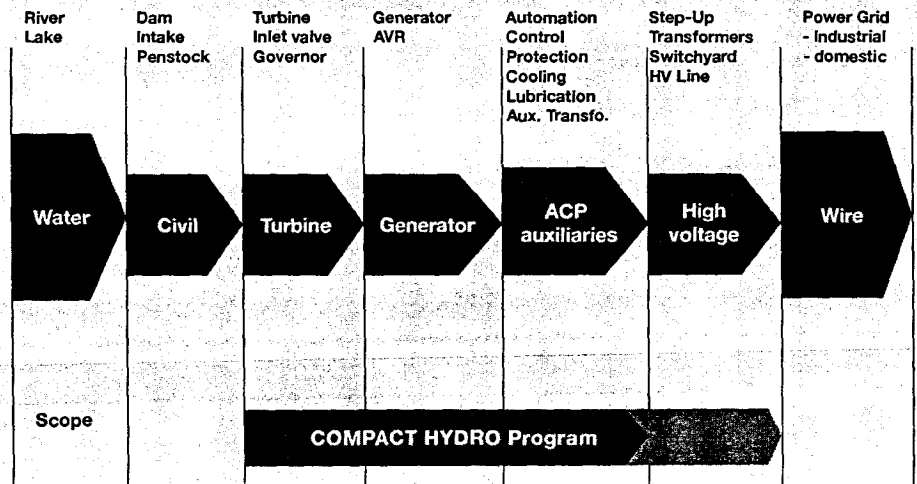


Services

Customers consulting services begin at a project feasibility stage with support continuing throughout the implementation phase and training of the operators.

ADRIZ HYDRO is bound to advise customers competently and handle their projects with particular care.

IMPACT HYDRO solutions are complemented with a wide range of services such as project management, engineering, manufacturing, quality control, transport, installation, commissioning and training.



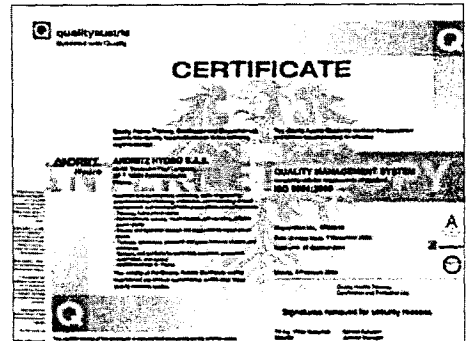
Project management

We take care of the contract progressing considering our customer's specific needs. We provide project management expertise designed to develop teamwork with customers and consulting engineers.



Layout optimization

We provide solutions for the layout of the plant to optimize the number and type of units, plant capacity, annual energy production, dimensions of the power plant and many other parameters.



Quality

For us, quality is the priority. All our sites around the world are qualified to ISO 9000 and handle their projects taking particular care to monitor the results of each phase of progress.

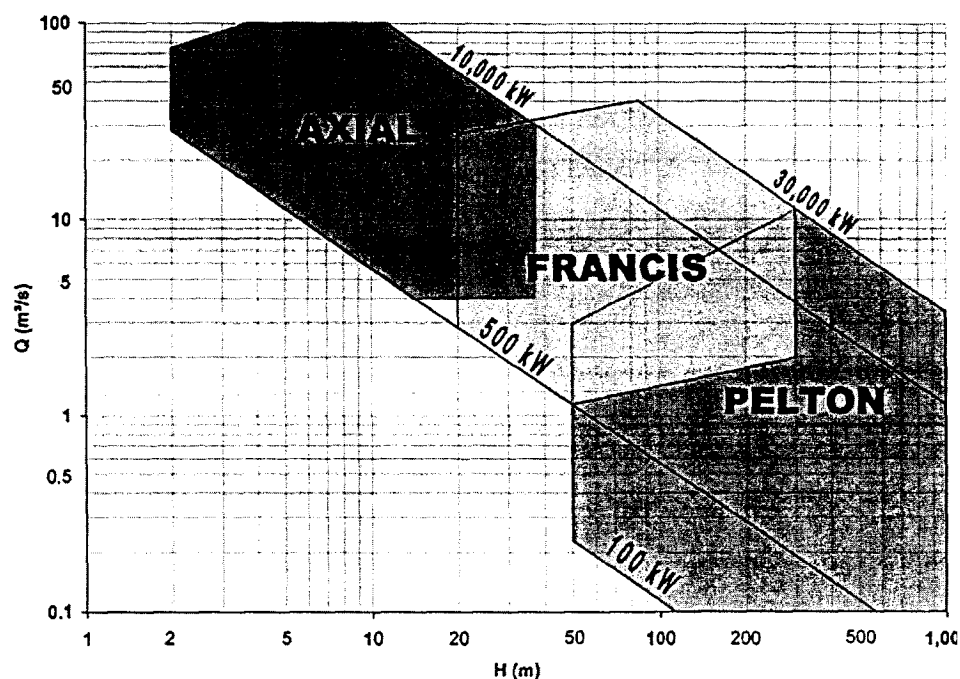
Products

Single source solution

Our COMPACT HYDRO program covers a wide application range with different arrangements. Due to the modular design special concepts have been developed resulting in optimized energy production, short delivery times, reduce site erection based upon workshop pre-assembling and minimizing civil construction costs.

Application range

Head	H	up to	1,000 m
Flow	Q	up to	100 m ³ /s
Output	P	up to	30 MW



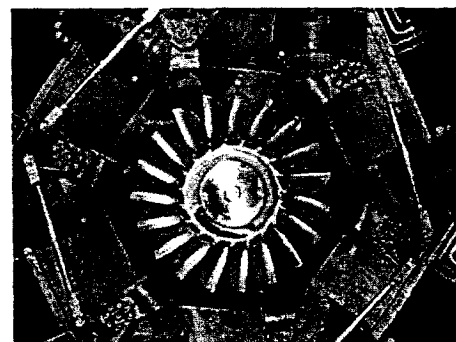
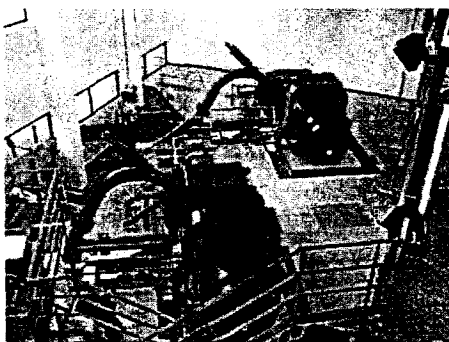
Pelton Turbines

Technical data:

- Head up to 1,000 m
- Output up to 30 MW

We provide a full range of Pelton units to match all high-head applications:

- Horizontal axis with 1 to 3 nozzles
- Vertical axis with 2 to 6 nozzles
- Inner or outer actuated nozzles



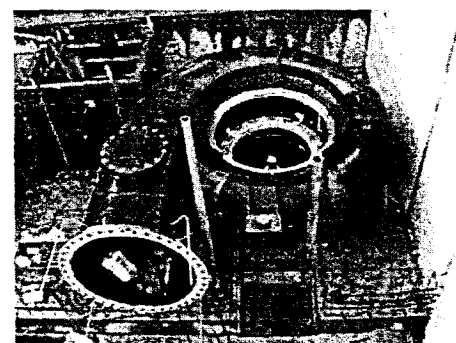
Francis Turbines

Technical data:

- Head up to 300 m
- Output up to 30 MW

We can meet all specific requirements with customized units based on an extensive set of modules including:

- Single or double discharge runners
- Horizontal or vertical axis
- Spiral or flume intakes



axial-Flow Turbines

Technical data:

Head up to 35 m

Output up to 10 MW

Our program includes:

3 to 6 bladed runners

Double or single regulated

Horizontal, inclined or vertical axis

The complete range is covered:

Belt driven

Revel gear driven

Lib

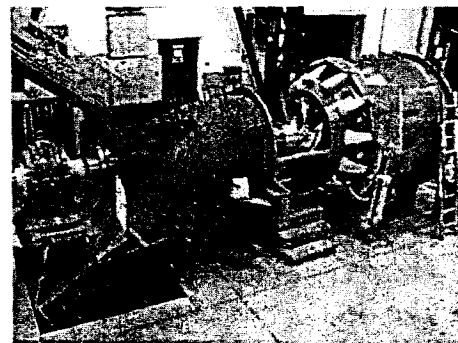
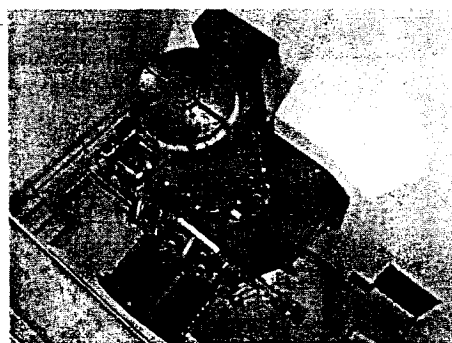
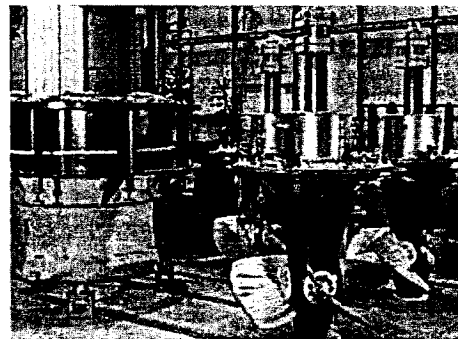
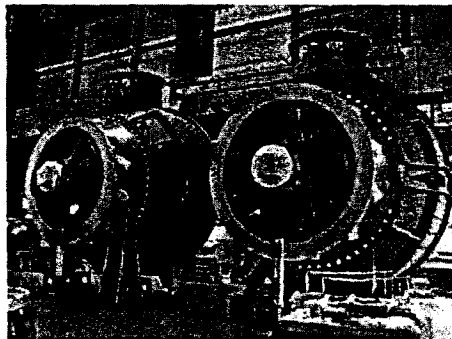
ECO Bulb™

PIT

Spiral case or semi spiral case Kaplan

S-Type

CAT



Electrical equipment

Following the modular concept of the mechanical equipment, we also implement the same approach with the electrical balance plants:

Generators with AVR

Control-protection-measuring system

Digital turbine governor

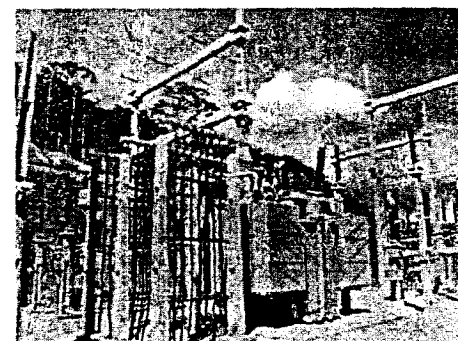
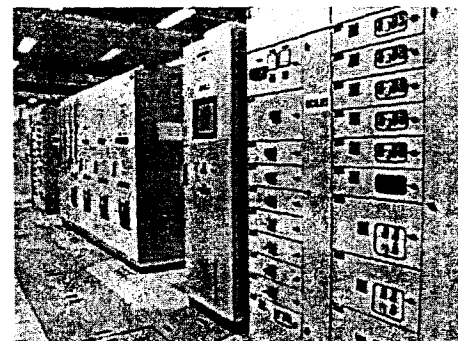
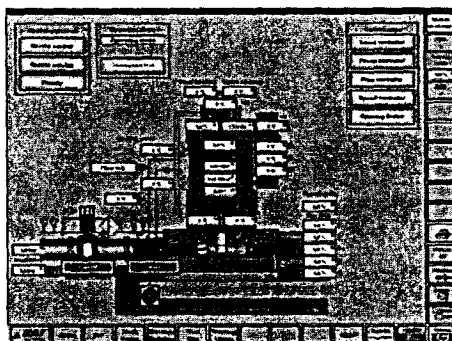
SCADA

AC-DC distribution

Auxiliary transformer

LV and MV-switchgear

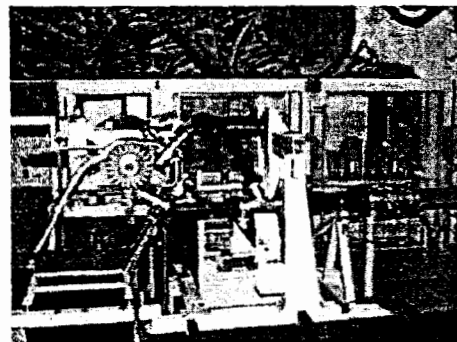
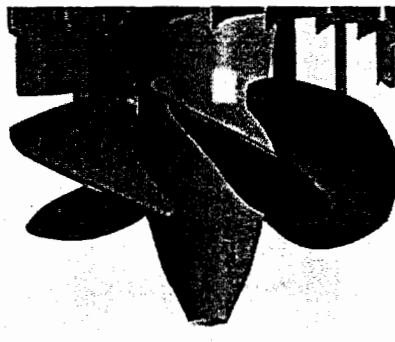
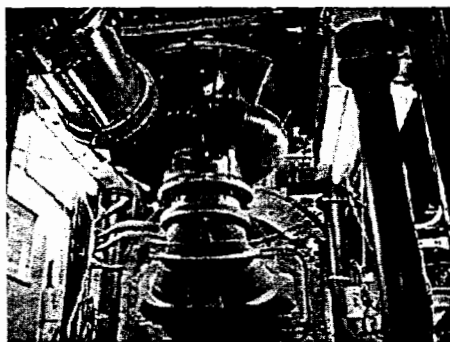
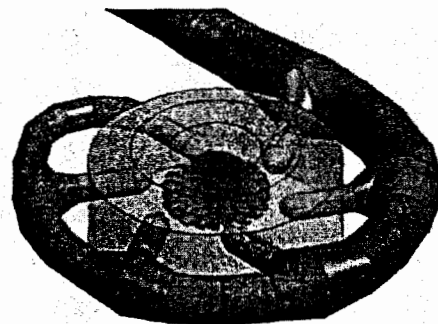
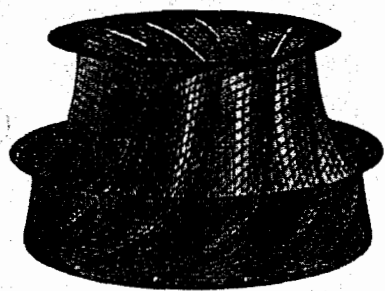
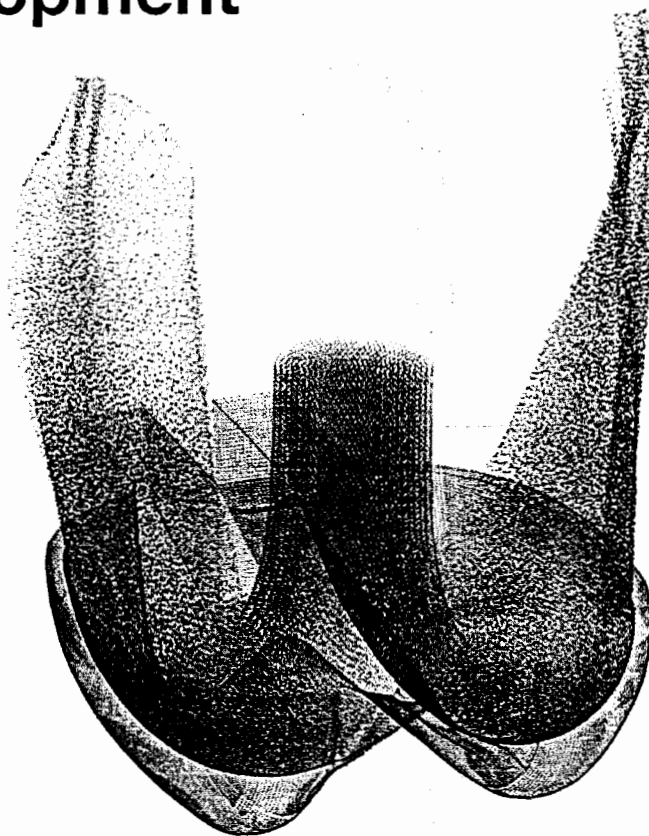
Main transformer



Research & Development

Our efforts in research & development keep us at the front line of innovation to offer our customers maximum user benefit.

Research findings from our model test laboratories, numerical flow simulation, electronics and electro technology innovations are all combined into optimal overall solutions. It is this comprehensive approach to product innovation which keeps the COMPACT HYDRO range on the forefront of technology.



n harmony with nature

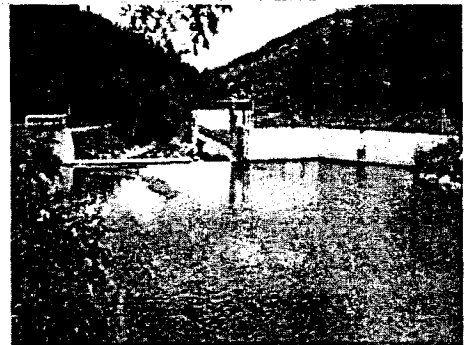
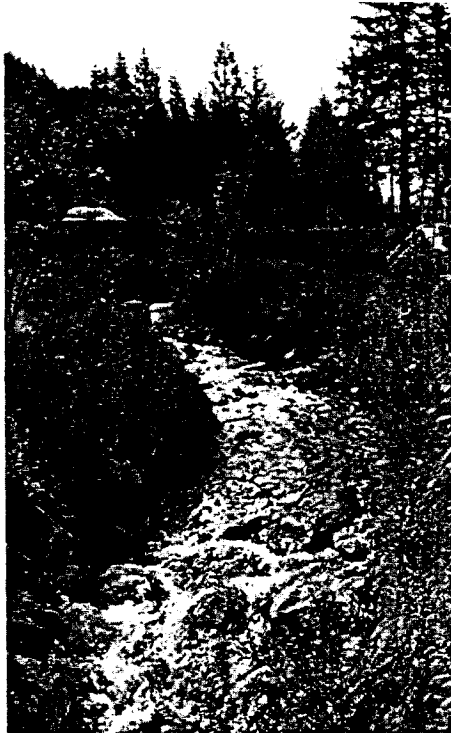
In the face of gradual global warming and increasing environmental pollution, nations worldwide have joined forces to reduce emissions of greenhouse gases. These are considered as a possible cause of climate change and measures to curb the use of scarce commodities are to be implemented.

As an environmentally friendly and renewable energy source, hydropower is increasingly becoming a focal point of global interest. For general public acceptance today, hydroelectric power plants must unquestionably meet environmental and water protection requirements.

Hydropower is the leading source of renewable energy, supplying the world with about one-fifth of its electricity. It is clean, leaves behind no waste, and neither emits pollutants nor significant amounts of dangerous greenhouse gases. Every kWh generated from hydropower compared to fossil sources of energy prevents about one kilogram of CO₂ emission.

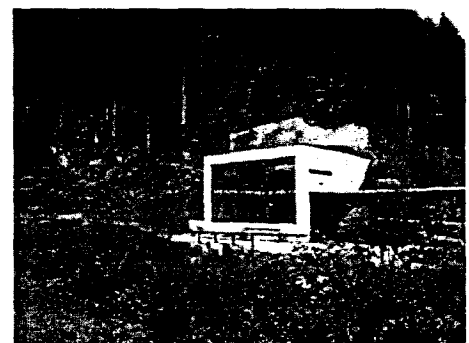
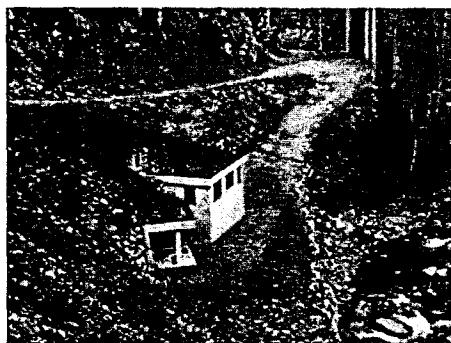
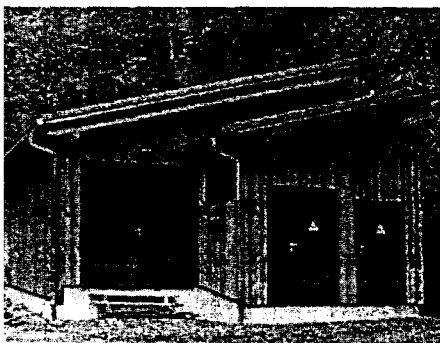
We strongly commit to the sustained protection of the environment in parallel with economic growth and social progress.

COMPACT HYDRO plants harmonize optimally with the environment also in areas where landscape protection takes priority.

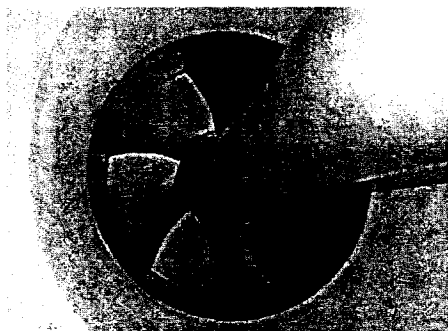


Ecology-oriented

Our COMPACT HYDRO ranges proves that water power can become even more environmentally compatible. Our latest designs pay particular attention to eliminating water pollution.



The global world leader in COMPACT HYDRO

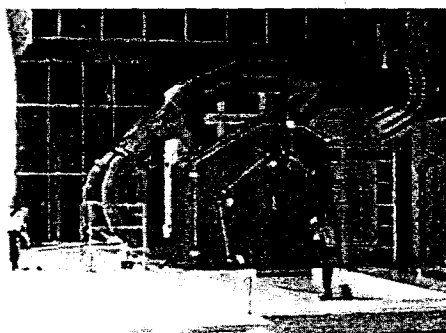


IMBATA HPP, Canada

z Axial S-Type

$D_1 = 2,200 \text{ mm}$

$P = 2 \times 11.7 \text{ MW}$, $H = 34.1 \text{ m}$

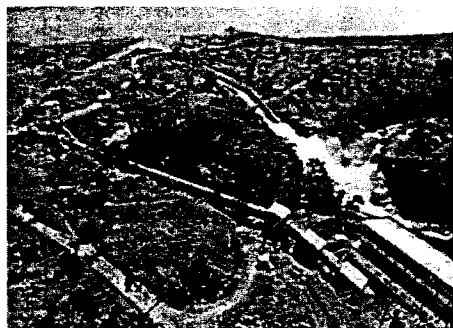


LAS VACAS II HPP, Guatemala

z horizontal 3 nozzle Pelton

$D_1 = 1,310 \text{ mm}$

$P = 2 \times 10.7 \text{ MW}$, $H = 285.6 \text{ m}$

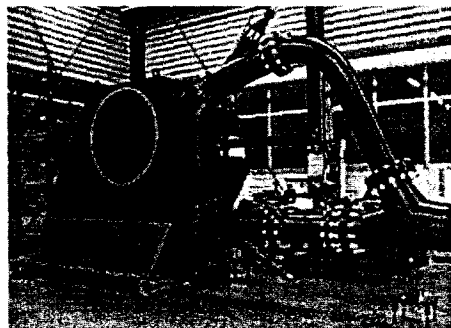
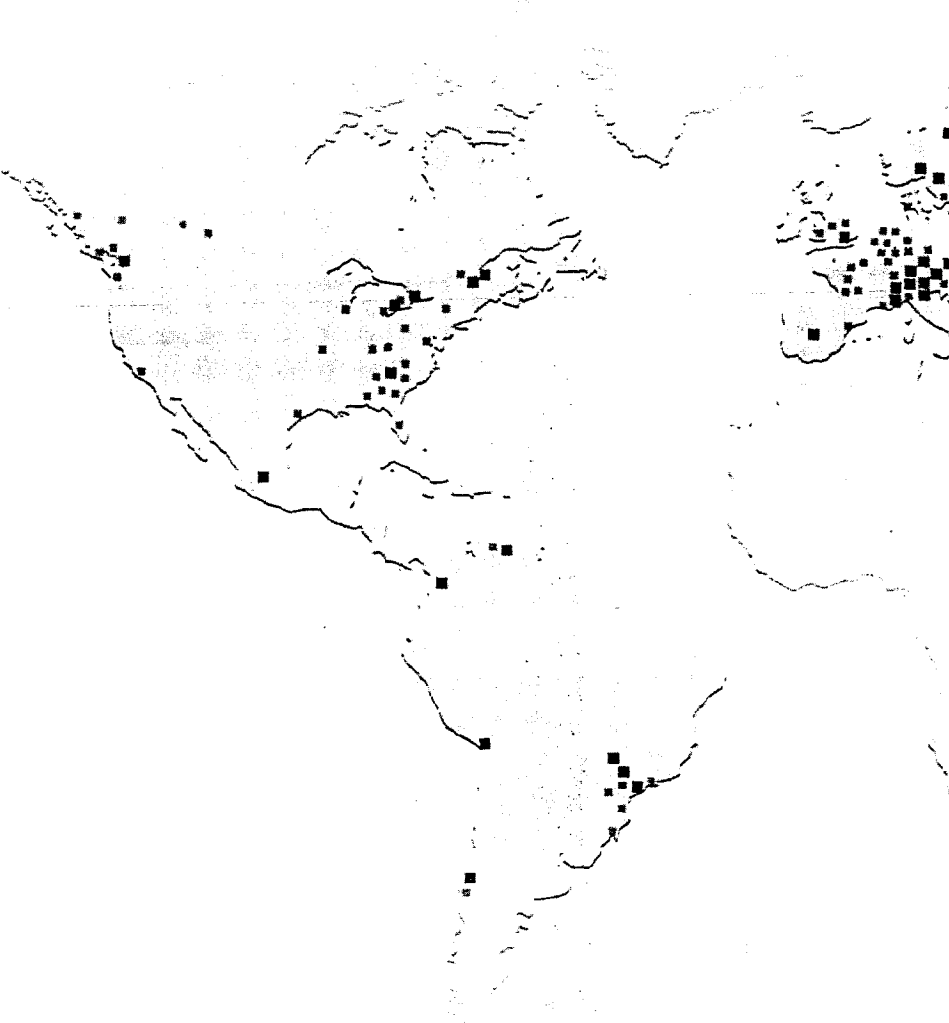


IRARA HPP, Brazil

3 horizontal Francis

$D_2 = 1,650 \text{ mm}$

$P = 3 \times 10.5 \text{ MW}$, $H = 31.5 \text{ m}$

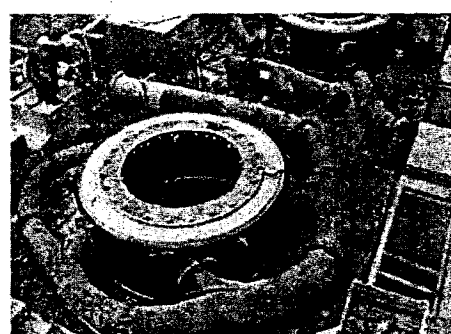


ELANDSRAND HPP, South Africa

1 horizontal 2 nozzle Pelton

$D_1 = 675 \text{ mm}$

$P = 3.8 \text{ MW}$, $H = 620 \text{ m}$

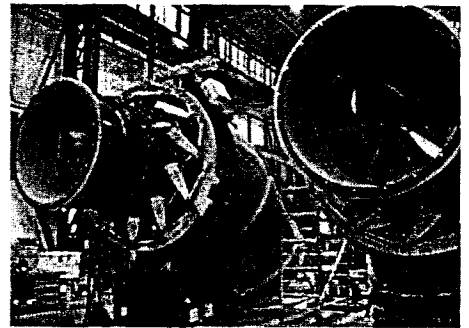


LAMAS IV HPP, Turkey

2 vertical 5 nozzle Pelton

$D_1 = 1,210 \text{ mm}$

$P = 2 \times 10.8 \text{ MW}$, $H = 325 \text{ m}$

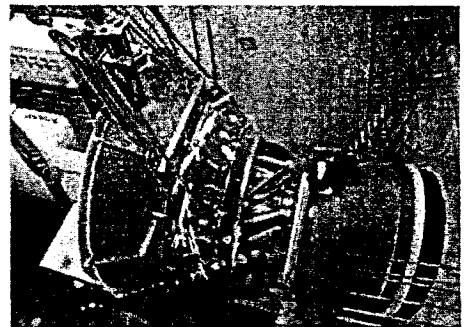


KRIEBSTEIN HPP, Germany

2 Axial CAT vertical

$D_1 = 1,600 \text{ mm}$

$P = 2 \times 3.7 \text{ MW}$, $H = 22.8 \text{ m}$



GSTATTERBODEN HPP, Austria

1 Axial Bulb

$D_1 = 1,950 \text{ mm}$

$P = 2.0 \text{ MW}$, $H = 9.4 \text{ m}$



ELEOUSSA HPP, Greece

2 Axial PIT

$D_1 = 3,150 \text{ mm}$

$P = 2 \times 3.3 \text{ MW}$, $H = 5.7 \text{ m}$

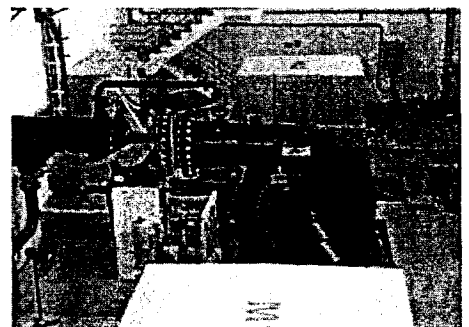


SAMAL HPP - India

5 Axial S-Type

$D_1 = 2,800 \text{ mm}$

$P = 5 \times 4.8 \text{ MW}$, $H = 11.8 \text{ m}$

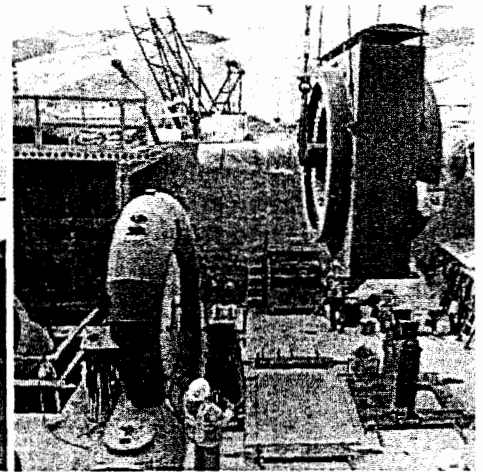
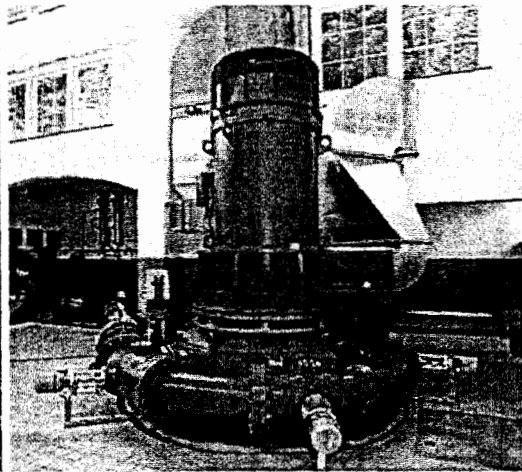
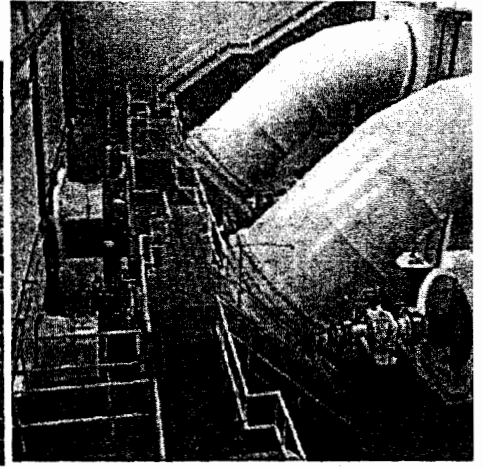
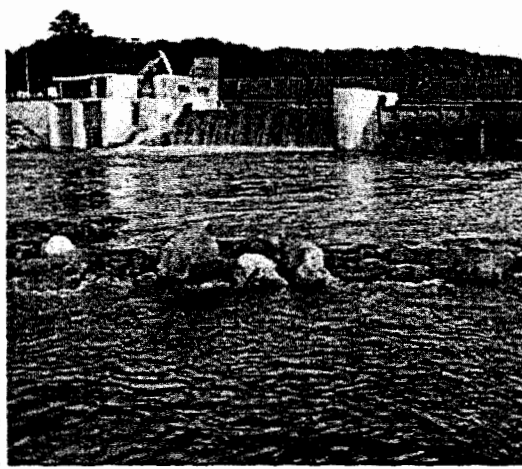


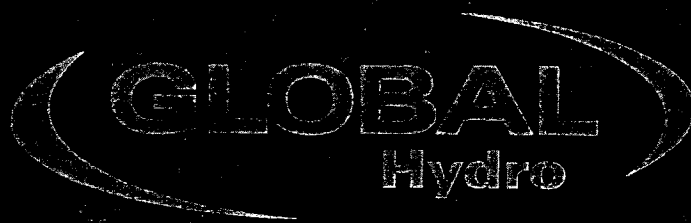
THAC TRANG HPP, Vietnam

2 horizontal Francis

$D_2 = 663 \text{ mm}$

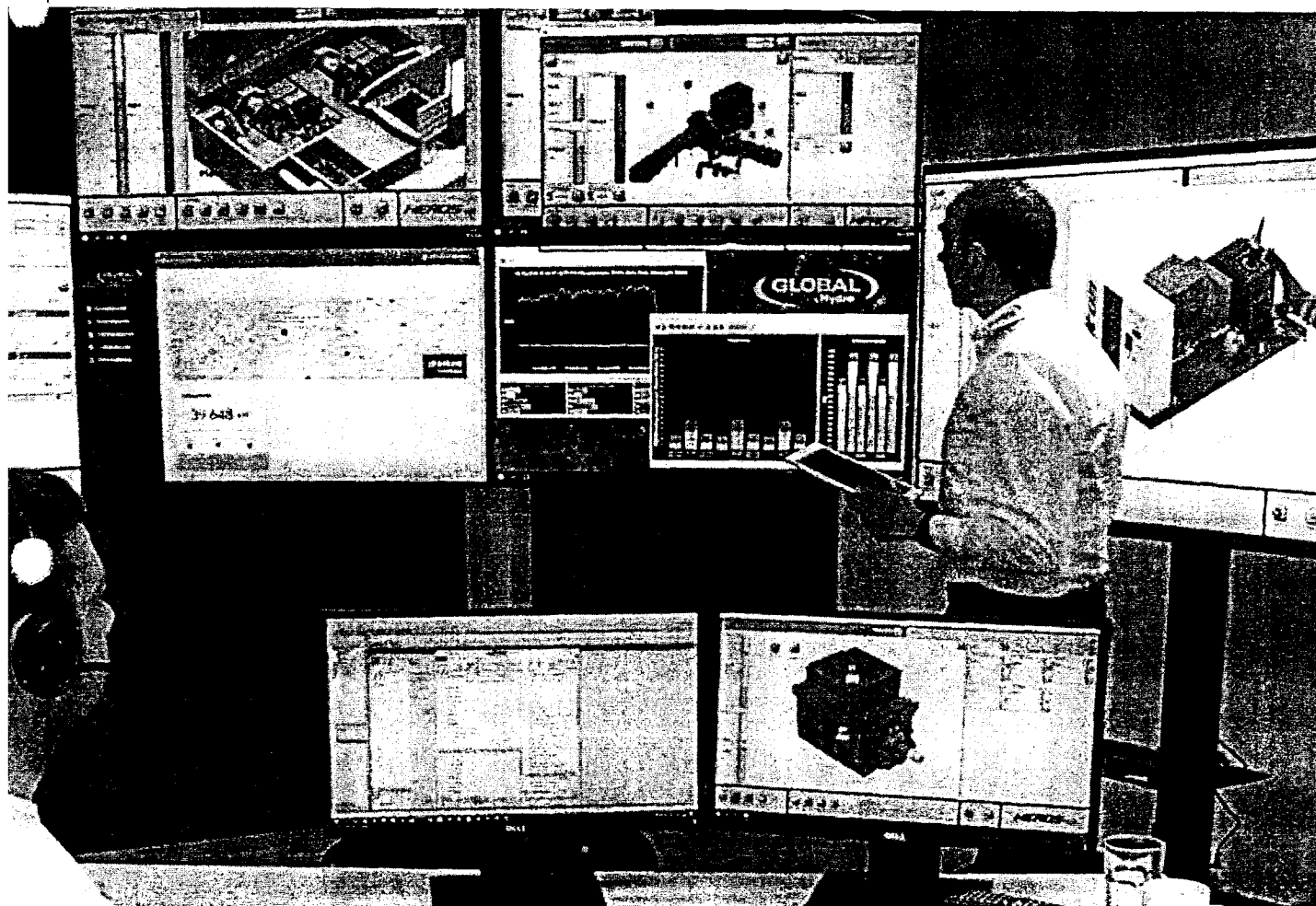
$P = 2 \times 3.0 \text{ MW}$, $H = 115 \text{ m}$





OCA (OPERATION CONTROL ASSISTANCE) OUR PASSION - YOUR SUCCESS

With OCA we offer professional support for your Powerplant and optimize it during operation. To facilitate this service we established a state of the art monitoring area in our Customer Service department in Niederranna.

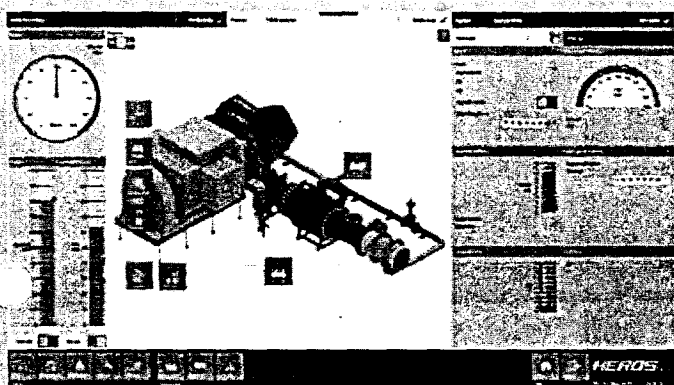


EVERY ACHIEVEMENT BEGINS AT THE STARTING LINE

We carefully look after your power plant from ther very first moment - for
the success of your investment!



OCA - INCREASE THE AVAILABILITY OF YOUR POWER PLANTS



In accordance with the quality standards of GLOBAL Hydro, we are always verifying and improving the offered products and services for our customers. A great innovation of GLOBAL Hydro is the implementation of the monitoring system OCA. This is another important step towards the early detection and therefore minimization of plant downtimes. In combination with our information system, faults are detected at an early stage and thus a very short reaction time and a high availability of your power plant is guaranteed.

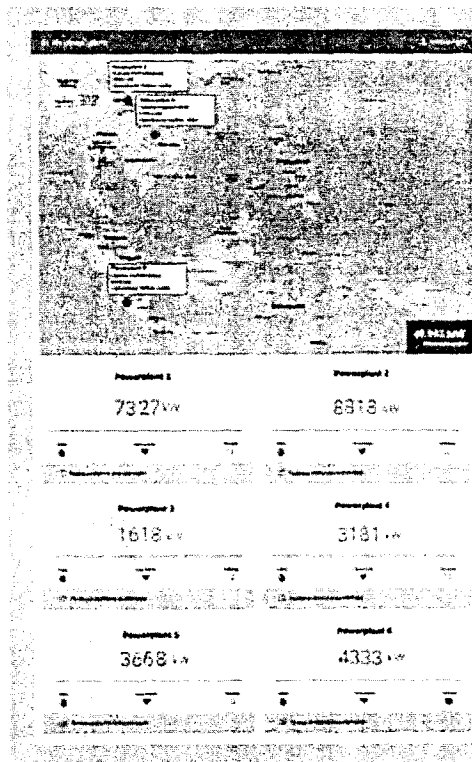
YOUR BENEFIT AS CLIENT OF GLOBAL Hydro

OCA starts already during commissioning respectively the first tests and escorts the hydro power plants of our clients for six months from which the following benefits arise for our clients:

- Adjustments and readjustments of the parameters during and after commissioning
- Data analysis, optimization and recommendations for improvements during operation
- Early detection of wear and tear to avoid costly downtimes
- Fast reaction times through our failure alarm system (e-mail or text message) in combination with HEROS Connect
- Automatized monthly reports on the status of the power plant including suggestions for optimizations

AVAILABLE PACKAGES

- OCA as an included service for of 6 months during and after commissioning
- OCA as part of a service contract
- OCA for particular cases (eg. holidays, ...) during an agreed time period



www.global-hydro.eu

GLOBAL Hydro Energy GmbH . 4085 Niederranna 41 . AUSTRIA
T: +43 7285 514 . F: +43 7285 514 20 . service@global-hydro.eu

Trident Power JB (Private) Limited

359H, Street 4, DHA, Phase V, Lahore Pakistan

Subject: Expression of Interest for Design, Manufacturing, Supply, Installation, Testing & Commissioning of Powerhouse Equipments for 4.6 MW Ravi Hydropower Project

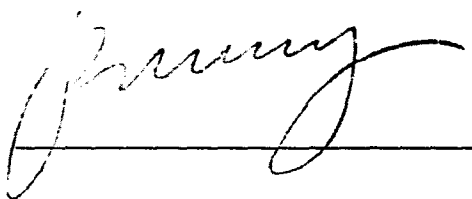
Dear Sir,

ANDRITZ HYDRO is one of the major global suppliers of powerhouse equipment. We are very much interested in executing the electromechanical works as well as hydraulic steel structures of 4.6 MW Ravi Hydropower Project, located on Lower Bari Doab Canal (LBDC) at RD 260+000, Okara Cantt. We are fully capable and prepared to undertake this project.

It is to express our keen interest in full cooperation with Trident Power JB (Private) Limited for the execution of the said project. We will execute the manufacturing and engineering works for the electromechanical equipment and hydraulic steel structures upon award of the contract. Our brief company profile as well as a reference list of equipment is also enclosed with this letter and you may contact us anytime shall you require any information.

Best Regards,

For and on behalf of ANDRITZ (China) Ltd.



Fritz Holzinger

Business Development Director

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Fax: +86 (10) 6561 4192
P.C.: 100004
www.andritz.com/hydro

ANDRITZ (China) Ltd.
Beijing Branch Office
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Beijing, P.R.China

电话: +86 (10) 6561 3388
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安德里茨(中国)有限公司
北京分公司
汉威大厦西区
18层 B.1-7
朝阳区光华路7号
中国北京

GUGLER Water Turbines GmbH | Gewerbeweg 3 | 4102 Goldwörth, Austria

**Trident Power JB (Pvt.) Ltd.
House # 359-H, Street # 4, DHA,
Phase-V, Lahore Pakistan**

Florian Altendorfer
Sales Manager
GUGLER Water Turbines GmbH

+43 7234 83902-62
+43 676 73 56 737
f.altendorfer@gugler.com

Page 1 of 1
05.08.2020

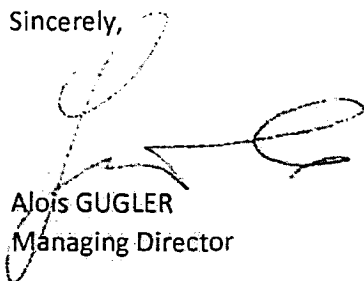
Subject: Expression of Interest for 4.6 MW Ravi Hydropower Project

GUGLER Water Turbines GmbH is a leading supplier of – state of the art – turbine technology, supplying all types of Francis, Kaplan and Pelton turbines up to 25 MW per unit and related electro-mechanical equipment for small and medium sized hydro power plants (water to wire).

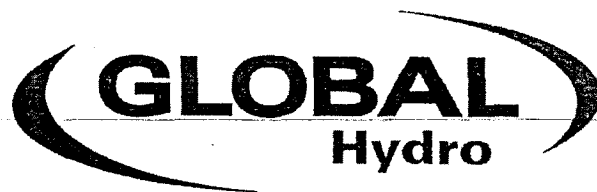
For more than 100 years, our family has been dedicated to the development and construction of water turbines, small hydropower plants and the generation of electricity from hydropower. With more than 1,000 successfully installed turbines, the third-generation GUGLER family is one of the world's leading suppliers of water turbines

It is to express our keen interest that we will fully cooperate with Trident Power JB (Private) Limited for the execution of the said project. We will participate in the EPC Bidding and execute the construction and detailed engineering works upon award of the contract. A brief company profile of our company is also enclosed with this letter and you may contact us anytime if you require any information.

Sincerely,



Alois GUGLER
Managing Director



Global Hydro Energy GmbH, A-4085 Niederranna 41

Trident Power GR (Pvt.) Ltd.

**House # 359-H, Street # 4, DHA, Phase-V,
Lahore**

Pakistan

Niederranna 06.08.2020

Official / Department:

Christian Thaller / Area Sales Manager

Short mark / Ext. / Email:

CT / 0074 / christian.thaller@global-hydro.eu

Subject: Expression of Interest for 4.6 MW Ravi Hydropower Project

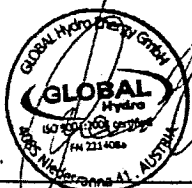
Dear Sirs,

we at GLOBAL Hydro Energy are specialized in developing, designing, engineering and manufacturing Turbines for small and medium hydro power plants up to a unit capacity of 30 MW for Pelton and Francis and up to 20 MW for Kaplan Turbines. All key components are produced in our own factory in Niederranna, Austria.

Furthermore, we have developed our own Digital Turbine Control System as well as the SCADA System for a perfect operation of the whole hydro power station. This state-of-the-art system is also produced in our manufacturing workshop in Austria.

We are the only company operating out of Western Europe in the field of small and medium Hydro Power offering such a complete equipment package. We are amongst the market leaders in many countries like Turkey, Romania, Chile, Sri Lanka, Vietnam, Malaysia etc. and are going very strong in Central and South Asia. I kindly invite you to visit our website for more details.

It is to express our keen interest that we will fully cooperate with Trident Power GR (Private) Limited for the execution of the said project. We will participate in the EPC Bidding and execute the construction and detailed engineering works upon award of the contract. A brief company profile of our company is also enclosed with this letter and you may contact us anytime if you require any information.



Ewald Karl – Director Sales



Christian Thaller – Sales Manager

Date: 12th August 2020

Trident Power JB (Pvt.) Ltd.

House # 359-H, Street # 4, DHA, Phase-V, Lahore Pakistan

Subject: Expression of Interest for 4.6 MW Ravi Hydropower Project

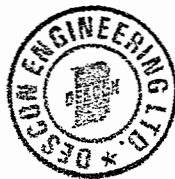
Introduction to Descon

Company originated from Pakistan in 1977, Descon has evolved into a multi-faceted conglomerate. Over the last four decades, the company has spawned into group of ventures, giving it a diverse activities portfolio, which include (but not limited to) Engineering, Procurement, Manufacturing, Construction, Operations & Maintenance, Power Solutions, Chemicals. While the group companies operate independently on a corporate structure, Descon Engineering remains the flagship company and provides the associated identity to its affiliates.

The company is unique in its resource base, with in-house capabilities for Design Engineering, Manufacturing, Construction and Maintenance Services. These are applicable to a wide variety of projects related to Industrial plants, Automobile, FMCG, Petrochemicals, Energy and Infrastructure developments for which services are provided on turnkey / EPC basis as well as selectively. Project management expertise vested through customized software with sophisticated IT based systems is one of the key elements to achieving successful culmination of projects. The company operations span Pakistan, The UAE, Kingdom of Saudi Arabia, Kuwait, Qatar & Oman. The roster of clients and end-users is replete with auspicious names in Pakistan and overseas markets.

It is to express our keen interest that we will fully cooperate with Trident Power JB (Private) Limited for the execution of the said project. We will participate in the EPC Bidding and execute the construction and detailed engineering works upon award of the contract. A brief company profile of our company is also enclosed with this letter and you may contact us anytime if you require any information.


Imran Khan Cheema
Head Marketing & Sales
Infrastructure Division
Descon Engineering Limited



M a v e l, a.s.

Jana Nohy 1237, 256 01 Benesov, Czech Republic

Phone: +420 317 728 483 E-mail: info@mavel.cz

MAVEL

www.mavel.cz

Trident Power  (Pvt.) Ltd.

**House 359-H, Street 4, DHA, Phase-V, Lahore
Pakistan.**

Benešov, July 12, 2020

**Sub.: Expression of Interest for the participation in the 4.6 MW Ravi HPP in Pakistan by M a v e l, a.s. from
the Czech Republic**

To whom it may concern,

M a v e l, a.s. hereby expresses its keen interest to cooperate with Trident Power  (Pvt.) Ltd. for the execution of
above mentioned project as a supplier and engineering company of the hydro electrical equipment.

Mavel is a premier global manufacturing and engineering company specializing in turbines and related technology
for hydroelectric power plants, utilizing turbines with a capacity from 30 kW to 30+ MW per unit.

Mavel has more than 100 proprietary Kaplan, Francis, Pelton and Micro turbine designs, state of the art European
production facilities and worldwide service capability.

In case more information is needed, please feel free to contact us.

Yours sincerely

Gijsbertus Johannes Brands

ales Dept.,
M a v e l, a.s.

Jana Nohy 1237
256 01 Benešov
Czech Republic
www.mavel.cz

 
akciová společnost
Jana Nohy 1237
256 01 BENEŠOV
CZECH REPUBLIC
- 48 -

Tel: +420 317-755-122 Mob.: +420 607 478 67

E-mail: brands@mavel.cz



SINOTEC CO., LTD

Our Ref: SINOTEC/RAVI/158
Dated August 07, 2020

M/s Trident Power JB (Pvt.) Ltd.

House # 359-H, Street # 4, DHA, Phase-V, Lahore Pakistan

Lahore

TEL: +92 51 2870422-23

usufkhan@gmail.com

SUBJECT: 4.6 MW Ravi Hydropower Project at Lower Bari Doab Canal, Okara Cantt
— EXPRESSION OF INTEREST AS AN EPC CONTRACTOR

Attention: **Mr. Yousuf Mehboob Khan**
Chief Executive Officer (CEO)

Dear Sir,

SINOTEC CO., LTD. (SINOTEC) is a multinational integrated technology and service provider for delivering more efficient & reliable solutions for global customers in various fields such as energy, water resource, industry and transportation etc. Our key projects in the Hydropower Sector of Pakistan are as under:

1. 36.6 MW Design, Procurement and Construction of Daral Khwar Hydropower Project (DKHP) Contract No: ICB/DK-01
2. Procurement of Plant, Design, Supply and Install of Marala HPP (7.62 MW) ICB-Pb-001
3. Procurement of Plant, Design, Supply and Install of Chianwali HPP (5.38 MW) ICB-Pb-002
4. Procurement of Plant, Design, Supply and Install of Deg-Outfall HPP (4.04 MW) ICB-Pb-003
5. Procurement of Plant, Design, Supply and Install of Pakpattan HPP (2.82 MW) ICB-PB-005

It is to express our keen interest that we will fully cooperate with Trident Power JB (Private) Limited for the execution of the said project. We will participate in the EPC Bidding and execute the construction and detailed engineering works upon award of the contract. A brief company profile of our company is also enclosed with this letter and you may contact us anytime if you require any information.

Thanking and assuring you of our best services and cooperation.

With Best Regards,

(Guo Chun Jiang)

Chief Representative - Pakistan



Al-Fajr International

Our Ref: AFI/EOI/RAVIHPP/08/20

Dated: 7th August 2020

Trident Power JB (Pvt.) Ltd.

House # 359-H, Street # 4, DHA, Phase-V, Lahore Pakistan

Subject: Expression of Interest for 4.6 MW Ravi Hydropower Project

AL-FAJR International (AFI) is one of the fast growing Integrated Companies in Pakistan, established during the year 1979. Head Office of the Company is located at Office No. 1, Mezzanine Floor, Pak Plaza, Fazal-e-Haq Road, Blue Area, Islamabad, Pakistan. The primary purpose of establishing AL-FAJR International is to provide Engineering based proper project facilitation in order to technologically strengthen Pakistan through:

- Project Co-Development
- Turnkey Solutions for Various Sectors
- Technology Transfer Assistance and Capacity Buildings Facilitation
- Project Management Support
- Hydropower EPC/Turnkey Contractor
- Waste Water Treatment Solutions
- SIS/AVC System EPC/Contractor
- Fire Fighting Equipment Contractor
- Producers of Rock Salt from own Mines
- Operation & Maintenance of Hydropower Plants
- Rehabilitation of Hydropower Plants
- Supply of Spare Parts for Power Plants

We are pleased to inform you that Al-Fajr International (AFI) is one of the Pioneers in development of small Hydro Power Projects in Pakistan particularly in the region of Gilgit Baltistan, KPK and AJK. AFI played a vital role in the development of Hydro power Projects of high quality and executed more than 60 Projects in northern part of Pakistan. AFI is involved in EPC / Turnkey Hydro Power projects. We are also specialized in Operation & Maintenance Services of Hydro Power Projects in Pakistan (KPK and Punjab). Looking at present energy shortages and resource constraints in the country, AFI is now engaged in PPP (Public Private Partnership) Projects, IPP (Independent Power Projects) and EPC / Turnkey Projects.

AFI believes that economic development in Pakistan is only possible with sufficient clean energy at an affordable cost. Therefore, hydropower shall always remain a key sector of activity in AFI

It is to express our keen interest that we will fully cooperate with Trident Power GR (Private) Limited for the execution of the said project. We will participate in the EPC Bidding and execute the construction and detailed engineering works upon award of the contract. A brief company profile of our company is also enclosed with this letter and you may contact us anytime if you require any information.

Thanks & Regards,

TAHIR HASSAN
Managing Director



10.1. GENERAL

The Project area lies on the right bank of Lower Bari Doab Canal (LBDC) at RD 260+000 near Okara Cantt, District Sahiwal. Main project components i.e. headrace channel, tailrace channel and powerhouse are at a distance of about 120ft. from the right bank of the main canal.

The overall duration of the Ravi Hydropower Project is planned to be 36 months (1077 days) including 14 months (420 days) for pre-construction activities and 22 months (660 days) for construction of the project.

10.2. CONSTRUCTION PLANNING

The Ravi Hydropower Project is planned to be constructed in a period of 22 months (660 days). This includes Civil, Electromechanical and interconnection works from installation to commissioning. The pre-construction activities shall precede the construction work for the Ravi Hydropower Project. These include:

- Approval of Tariff and Power Generation Certificate by NEPRA.
- Issuance of NOC by the Punjab, EPA.
- Appointment of Project Management Consultant.
- Acquisition of Land.
- Detailed Engineering Design.
- Preparation of Tender Documents.
- Tendering and Award of Contract.

The dedicated time of 22 months is to be staggered, shared and distributed in such a way that the project works are executed, completed and commissioned within the period of 22 months. This task is to be achieved through the construction management.

Experience shows that valuable time is lost due to poor construction planning. In some cases, the construction plant idles due to lack of essential spares. In other cases, the material delivery is not well timed to allow uninterrupted execution of site works. Important considerations for timely completion of the project are:

- i. Assess requirements of construction material, skill and number of construction workers and types of tools and plants.
- ii. Arrange logistic supports for an efficient supply chain.

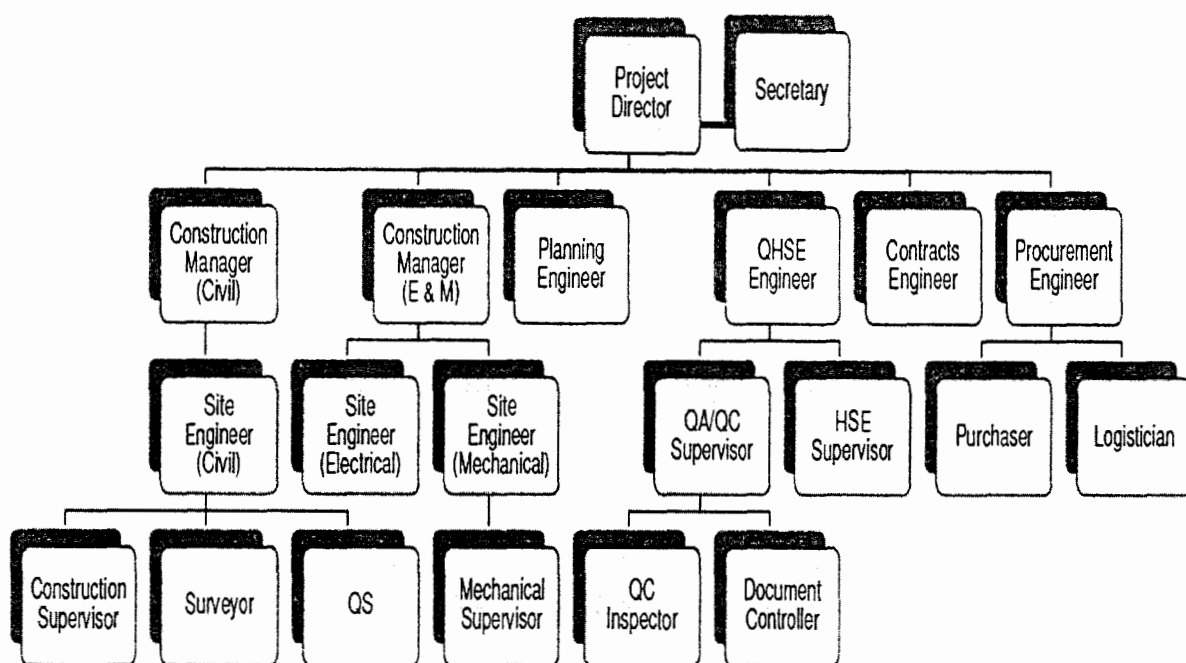


- iii. Minimize idling of plant and resources through critical paths.
- iv. Maximize work output by keeping the plant and resources at optimum level of performance and operation.
- v. Anticipate problems and analyse them for their likely time impacts.
- vi. Suggest contingent plans and means to ward off problematic situation.

10.3. PROJECT ORGANIZATION

The construction of the Ravi Hydropower Project could be conveniently managed with an efficient, professional and dedicated team. The project organization proposed for successful execution of the Project is given in Figure-8.1.

Figure-8.1 Project Organization



The overall responsibility of management of the entire project shall rest on the Project Director, who shall be assisted by Construction Manager (Civil), Construction Manager (E&M), Planning Engineer, Contracts Engineer, Procurement Engineer, & QHSE Engineer. Down the line of organizational hierarchy are the Site Engineer (Civil), Site Engineer (Mechanical) & Site Engineer (Electrical). The Site Engineers shall be responsible for the execution of works in accordance with the specifications and the





schedule of progress.

10.4. SEQUENCE AND SCHEDULE OF CONSTRUCTION ACTIVITIES

The Construction activities at the Project site shall begin with the mobilization of the Contractor at the Project site followed by the preparatory works including Clearance of site area, Construction of Contractor's camp & offices, Stores areas, mobilization of Batching Plant and Construction of access road.

The construction work of civil works of the major components of the project can be commenced simultaneously.

10.4.1 POWERHOUSE

Implementation schedule of the powerhouse would depend upon the most critical activity of the pit excavation. The depth of the pit is about 34ft. The water table is at a depth of about 18ft. Hence, out of 34ft. excavation, about 16ft. will be under water. Excavation in the powerhouse has to proceed from El. 577.80ft. (NSL) to El. 543.65ft. It will be excavated in two stages. In the first stage, excavation will be carried out up to ground water El. 559.80ft. in dry.

At this stage, dewatering shall be done by installing pumps at the periphery of the excavation to depress the water table. The dewatering will continue until water level shall be lowered to El. 543.65ft., so that excavation could be started for second stage.

The dewatering will be continued to maintain the water table at El. 543.65ft. so as to facilitate the second stage excavation in dry up to the powerhouse foundation elevation 543.65ft. The elevation of 543.65ft shall be kept dry until the foundation structure of powerhouse elevates above the original ground water elevation of 559.80ft. The pumped ground water will be tested and if found clean, shall be fed to LBDC.

Soon after the completion of excavation, sheet piling will be done followed by the concrete works of foundations of powerhouse.

When the depressed water table will be at the El. 543.65ft. which is lower than the foundation levels of the upstream & downstream transition and intake forebay. It is





therefore, imperative that during the second stage, construction of these structures should also be taken up simultaneously along with the super structure of the powerhouse.

The construction of civil works of the powerhouse is estimated to be completed in 14 months.

10.4.2 UPSTREAM & DOWNSTREAM TRANSITION

Construction of upstream & downstream transition shall be taken up alongside the construction of powerhouse. The excavation and compaction will consume 1.5 months followed by concreting of foundation slab and walls in 3 months.

10.4.3 HEADRACE & TAILRACE CHANNEL

While the excavation for powerhouse will be in progress, the excavation of the headrace and tailrace channel will also be commenced simultaneously. The excavation will be started from the powerhouse side. The excavation including compaction will consume 2 months, embankments including compaction will consume 1.5 months while 2 months will be needed for brick lining in the bed and side slopes.

10.4.4 REMODELLING OF 5R DISTRIBUTARY

The 5R Distributary will off-takes from Headrace Channel and will consume about 2 months including its excavation & compaction, embankments including compaction and brick lining.

10.4.5 LOWERING OF CANAL BED BETWEEN RD 260+000 & RD 287+255

The excavation involved between the two falls is a critical activity and can only be accomplished during canal closure period 26 December till 15 January. In this regard very precise and efficient planning is required. In order to accomplish this activity within stipulated time, it is planned that the required equipment shall be mobilized at the Project site well ahead of the start of canal closure period.

10.4.6 INSTALLATION OF E&M EQUIPMENT

The E&M equipment would be delivered at the site latest before the end of 13th month of the schedule. The turbo-generator units and transformer will be installed from month 16 to 20. Transmission line will also be installed by the end of month 20.



Construction Planning & Development

TRIDENT

10.4.7 CONNECTION OF HEADRACE & TAILRACE WITH LBDC

The portion between the main canal and headrace channel as well as the portion between canal and tailrace channel will be removed at the last stage of project construction before testing and commissioning of the units

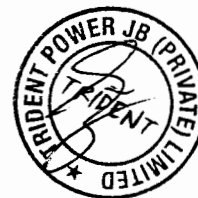
10.4.8 TESTING AND COMMISSIONING

Trial run shall be carried out and completed during month 21. Defects, if any, would be removed by the start of 22th month. Commercial operation shall commence from the month 22.

10.4.9 MISCELLANEOUS WORKS

The Miscellaneous works include rectification of punch list items, if any, dumping of the excavated earth fill and landscaping works.

The excavated material will be spread on LBDC banks and tracks throughout along the Project area to strengthen them, filling of low-lying areas and stabilization of slopes along the headrace & tailrace channel and landscaping of the Project area.





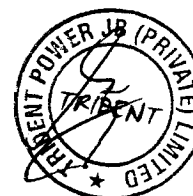
01. PROJECT BACKGROUND

Punjab Power Development Board (PPDB) issued a letter of Intent (LOI) to Trident Power JB (Private) Limited (The Sponsor) for the development of Ravi Hydropower Project in the Punjab Province of Pakistan. In this connection, M/s Aipel was engaged by the sponsor to carry out the feasibility study and evaluate the energy and power potential of the Project site on the basis of available historic data and existing site conditions. The generated electricity shall be sold to LESCO. The feasibility study has been approved by the panel of experts (POEs) of PPDB. Besides this, initial environmental examination (IEE) from Environment Protection Agency (EPA), Government of Punjab and Interconnection study from Lahore Electric Supply Company (LESCO) has been approved. This document is being furnished as part of Application being submitted to National Electric & Power Regulatory Authority (NEPRA) for the acquisition of Power Generation License and the measures which shall be taken by the Sponsor during operation & maintenance of the power plant.

The Project site is located near Okara Cantt in District Sahiwal of Punjab Province. The powerhouse is proposed at RD 260+000 on Lower Bari Doab Canal (LBDC), Okara Cantt. The Project area can easily be accessed through railway and road. Okara Cantt and Sahiwal are linked with Lahore through Lahore-Multan Highway (N5). The Project site is 133 Km from Lahore and 33 Km from Sahiwal and accessible from Karachi Port through a good road network.

02. INTRODUCTION

Usually canals in Punjab carry lot of silts and clay with flow and that is why canal closure and maintenance is carried out at LBDC from 27th December till 16th January each year. The power plant proposed at LBDC at RD 260+000 shall require maintenance for civil as well as electromechanical works and the same has been addresses in this document accordingly and shall be taken care of during operations of the plant. Furthermore, it is experienced that even after careful project planning and good quality control measures from construction to commissioning, unforeseen problems do occur in service resulting in unplanned outages / low generation and load shedding etc. A contributing factor to these operational problems is the fact that hydro power equipment and plant is custom built. The equipment cannot be fully assembled or tested in a factory before sending it to site.





Maintenance activities at predetermined time intervals shall be conducted in order to ensure the following:

- ❖ Quality and reliable operation of equipment in the service environment through planned, periodic inspection and checking of components and systems together with replacement or rectification of parts wherever required.
- ❖ Maximum availability of equipment and a minimum of unplanned shut downs by using planned / periodic shutdowns to inspect all equipment (serviceable and non-serviceable).
- ❖ Eradication of operational problems by a timely analysis of the cause of faults / problems and replacement of short term solutions by long lasting and permanent ones.

03. PREVENTIVE MAINTENANCE OF HYDRO TURBINE

In order to achieve above objectives of maintenance, time has to be allotted every year for each machine. Normally the periodicity and the procedure for maintenance is recommended by the manufacturer of the equipment. However, maintenance is required according to the following guidelines:

3.1 ROUTINE MAINTENANCE

Normally there will be daily, weekly, monthly and quarterly checks as per the maintenance schedules. These checks are necessary for controlling any change in the installed clearances, commissioning characteristics etc. connected with the performance of equipment. Rectification and adjustment wherever required should be carried out in order to arrest any deterioration of the equipment.

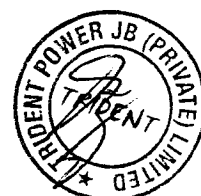
3.2 DAILY MAINTENANCE CHECKS

Foundation Parts and Expansion Joints

Check for any leakage in draft tube manholes, spiral casing manhole, expansion joint.

Vacuum Breaking Valve

Check the working of both vacuum breaking valve and see that there is no abnormality in the springs, seats etc.





Water Seal and Air Seal

Check the position of water leakage around the water seal and check that there is no excessive splashing and water level do not rise in top cover.

Turbine Guide Bearing

- ❖ Check the oil level (stand still machine/running machine).
- ❖ Note the temperature of bearing and check that the temperature of oil and guide bearing pads are within limits.
- ❖ Note the maximum and minimum temperature of the previous day.
- ❖ Check for any oil leakage from the bearing housing and check that oil is flowing above the bearing pads.

Guide Apparatus

- ❖ Check any leakage from GV servomotor and its piping.

Oil Leakage Unit

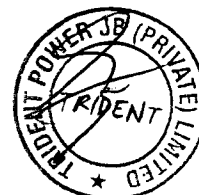
- ❖ Check any leakage from pipe line joints.
- ❖ Check its satisfactory running on 'Auto'. Top Cover Drain System:
- ❖ Main supply of 'ON' for DPM.
- ❖ Vibration noise in the pump motor.
- ❖ Any leakage from the water piping.
- ❖ Working and water pressure of the ejector.

Centralized Grease Lubrication System

- ❖ Check for any leakage from grease pipes, unions and nipples.
- ❖ Check grease container and fill grease, if required.

Oil Header

- ❖ Check from Perspex sheet manhole any splashing of oil from top and bottom bush.





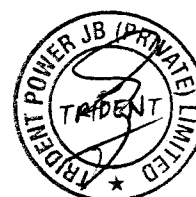
- ❖ Check any oil leakage from the joints.
- ❖ Note the pressure difference of opening and closing side of runner. Oil Pressure System:
- ❖ Check if there is any abnormal sound in the running of the motor and pump unit of OPU.
- ❖ Check the oil level in pressure accumulator.
- ❖ Check any oil leakage from oil piping and its valve.
- ❖ Check for overheating of motor.
- ❖ Note the timing of OPU pumps running.

Mechanical Cabinet of Governor

- ❖ Pressure in transducer.
- ❖ Check any oil leakage from joints of piping.

3.3 WEEKLY MAINTENANCE CHECKS

- ❖ Greasing of guide vanes and servomotor with centralized grease lubrication system and manually.
 - Oil in the gear box shall be checked.
 - Check for any leakage
 - Working of end pressure relay and solenoid valves, if defective, should be reported.
- ❖ Cleaning of OPU filters
- ❖ Cleaning of throttle filters in the governor mechanical cabinet.
- ❖ Cleaning of governor compressor air filters and checking of oil levels.
- ❖ Checking physically oil of OPU of the running machine after sample taking through the sampling cock and do the crackle test for detecting presence of water. Take remedial measures.
- 6. Check oil level of all the bearings. Check wobbling of shaft at coupling flange and at oil header servo-tube.





3.4 MONTHLY MAINTENANCE CHECKS

All the checks covered as part of the weekly maintenance are also carried out as part of the monthly check. In addition to these checks, more attention is paid and short shutdowns, if required, for rectification are taken.

3.4.1. ANNUAL PREVENTIVE MAINTENANCE OF HYDRO TURBINES

After successful running of plant for about one year, a few weeks are required to inspect rotating parts, control equipment and measuring instruments and to analyze the cause of changes in the performance characteristics, if any. Modify, repair or replace (wherever required) worn out parts in order to prevent unplanned outages of plant at later date. After every five years it is necessary to inspect the machine more critically for abnormalities like fatigue defects or excessive wear and tear of some parts or any change in original parameters/clearances etc. This exercise becomes very essential in cases where performance level has been observed to have gone down in 5 years operation. The checks for annual maintenance specified for Ravi Hydropower Plant are enlisted below:

3.4.1.1 Foundation Parts:

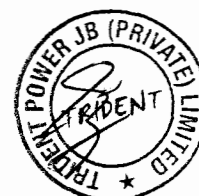
- i. Check condition of water path system. The damage due to capitation and wear to be rectified.
- ii. Check painting of spiral casing.

3.4.1.2 Runner:

- i. Check the condition of the surfaces of the runner hub and the blades. The damage due to cavitations & wear to be rectified by welding and grinding.
- ii. Check the runner blade seals by pressurizing the system. Change seals if necessary. No oil leakage is to be allowed.
- iii. Check the runner sealing for hermetic tightness, leakages of water in the runner hub is not to be permitted.

3.4.1.3 Guide Apparatus:

- i. Check the presence of rubber sealing cords and the tightness of the rubber sealing between the adjacent guide vanes in fully dosed position of guide apparatus.





- ii. Change oil in the regulating ring.
- iii. Replace damaged shear pins.
- iv. Check cup sealing of guide vane journals and replace, if necessary.
- v. Check the bushes of guide vanes and change the worn out bushes of guide vanes journals.
- vi. Inspect the servomotor and change the seals, if these are worn out.

3.4.1.4 Guide Bearing:

- i. Check the condition of rubbing surfaces of guide bearing. Clean the surface and polish it with the help of chalk powder.
- ii. Adjust the clearances by moving the segments with the help of adjusting bolts.
- iii. Thorough cleaning of housing if necessary.

3.4.1.5 Shaft Gland Seal and Air Seal:

- i. Check the condition of rubbing surface of sealing rings. In case found damaged change the same.
- ii. Check pipe lines and piping joints for any leakage if any, attend the same.

3.4.1.6 Emergency Slide Valve:

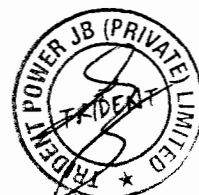
- i. Check the functioning of emergency slide valve and the condition of inner surfaces.
- ii. Swift return of the valve in its original position after emergency operation should also be checked.

3.4.1.7 Centralized Grease Lubrication System:

- i. Check satisfactory working of CGLS system.
- ii. Attend wherever fault is located.

3.4.1.8 Oil Header:

- i. Measure clearances of upper and lower bushes, if found increased get the bushes replaced.
- ii. Clean the oil bath.





- iii. Check the rubber cord fixed below the guide to check any oil dipping on the exciter winding.

3.4.1.9 Oil Leakage Unit:

- i. Check satisfactory working on Auto as well as manual.
- ii. Clean the tank.
- iii. Check the pipeline joints and valves for leakage, attend wherever necessary.

3.4.1.10 Oil Cooling Unit:

- i. Check all the oil and water pipe lines for leakage and attend if necessary.
- ii. Check satisfactory working of all cooling unit.

3.4.1.11 Governor Mechanical Cabinet:

- i. Check filter and throttle if found damaged replace the same.
- ii. Attend leakage of oil through pipe line joints and valves.
- iii. Check auto rod setting, if found disturbed; set the same.

3.4.2. Turbine Auxiliaries

3.4.2.1. DPM

- ❖ Inspect top cover drain system, overhaul the ejector and drainage pumps.
- ❖ Check pipe lines and valves. Replace gaskets and other parts, if necessary.

3.4.2.2. Oil Cooling Unit

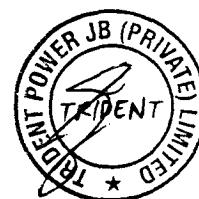
- ❖ Overhaul cooling pumps
- ❖ Attend all the valves and pipe lines for leakage.

3.4.2.3. Centralized Grease Lubrication System

- ❖ Overhaul greasing pumps ii) Check whole greasing lines. Replace worn out valves and gaskets etc.
- ❖ Check all the nylon pipes connected with the guide vane bushes. Replace damaged pipes.
- ❖ Check that all the guide vanes are receiving grease properly.

3.4.2.4. Oil Leakage Unit

- ❖ Check the oil leakage unit overhauls the pumps.
- ❖ Clean tank and check that float is properly working.
- ❖ Checking all the pipe lines and valves for leakages.

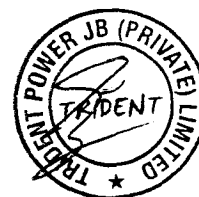




04. REQUIREMENT OF EFFECTIVE MAINTENANCE

In addition to planning maintenance and implementing a suitable schedule (on the basis of seasonal water availability perhaps), the following items also require attention otherwise it may be difficult to keep to the schedules in practice:

- Man Power Planning and arrangement is essential as without experienced and skilled staff any maintenance programme may fall.
- Planning and arrangement of spares and consumable in advance so that time is not lost in re-commissioning the plant after the shut down.
- The maintenance engineers should have in his possession all the erection and commissioning log sheets documents to establish a record of installed clearances, parameters, alignment results, test characteristics of all the power plant equipment. These may be required at the time of diagnosis of the operational problems as well as defined maintenance purpose.
- Log sheets of the previous maintenance exercise carried out on the machines. These may be required to compare with the clearances / settings / characteristics achieved during present maintenance.
- History registers of all plant should be kept with records of all the abnormalities observed on the machine and details of action taken. This data can be used to as a guideline for future maintenance work at the power station.
- Some of the major problems encountered in the hydro turbines are damage in runners due to erosion, cracking and cavitations due pressure pulsation in draft tube, instability of operation at partial gate opening. Other serious issues include failure of turbine guide bearings, leakages of water through turbine guide bearings, leakage of water through guide vane seals and turbine gland seals.



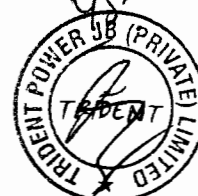
4.6 MW RAVI HYDROPOWER PROJECT

ISLAMIC / SYNDICATED LONG TERM FINANCE FACILITY UNDER SBP SCHEME FOR FINANCING POWER PLANTS USING RENEWABLE ENERGY AMOUNTING UP TO PKR 1,848 MILLION

INDICATIVE TERM SHEET ("ITS")

(Highly Confidential & Not to be disclosed to any Third Party)

BORROWER	Trident Power JB (Private) Limited ("Trident" or the "Company").
PROJECT	Proposed 4.6 megawatt ("MW") Ravi Hydropower Project (or the "Project") at Lower Bari Doab Canal, Okara Cantt.
SPONSORS	There are four sponsors in the project company to be collectively referred to as the "Sponsors": 1. Zafar Ikram Shaikh (Spec Energy) – 26% 2. Fiaz Ahmed (Trans Tech Pakistan) – 25% 3. Yousuf Mehboob Khan (Trans Tech Pakistan) – 25% 4. Syed Hadi Ali Rizvi (Pak Carpet Industries) – 24%
PROJECT COST	PKR 2,309 Million
DEBT TO EQUITY RATIO	80 : 20
FACILITY LIMIT	Up to PKR 1,848 Million.
PURPOSE	To finance the debt portion of the Project Cost.
LEAD ARRANGERS & STRUCTURING AGENT	Pak Brunei Investment Company Limited ("Pak Brunei"). Pak Brunei may co-opt any other institution as it may deem necessary.
LEAD ADVISORS	Awwal Modaraba ("Awwal").
PROPOSED FACILITIES	The debt portion may be provided under two facilities as given below, the aggregate of which will not exceed the total Facility Limit. Facility I: Islamic / Syndicated Long Term Finance Facility ("Facility I") proposed under State Bank of Pakistan ("SBP") Financing Scheme for Renewable Energy ("SBP Scheme") issued on July 26, 2019. Facility to be advanced will be on the terms of and subject to the availability of SBP Scheme at the time of financial close. Facility II (if required) Any debt portion which is not covered under SBP Scheme in Facility I will be arranged through separate financing by same lenders on proportionate basis.



LENDERS	A consortium of financial institutions, including but not limited to the Lead Advisors & Arrangers, eligible to provide financing under the proposed Facilities.
FACILITY EFFECTIVE DATE	Facility Effective Date ("FED") is the date of first drawdown on which the Conditions Precedent to the Facility are satisfied, as specified in Facility Documents. If FED is not achieved within 150 days of the execution of the Facility Documents, the Facility would expire, unless extended in writing by the Participants.
TENOR	Twelve (12) Years including Grace Period from the FED.
GRACE PERIOD	Two (02) Years from FED in line with the Availability Period.
AVAILABILITY PERIOD	The Availability Period will commence from FED and extend upto COD or two (02) years, whichever is earlier during which the Facility will be available for drawdown. Any sums un-drawn under the Facility on the expiry of the Availability Period will stand cancelled subject to clause 6 of Drawdown below.
DRAWDOWN	1. Facility drawdown may be allowed in multiple tranches during the Availability Period; 2. Trident will agree to a Project Drawdown Schedule with the Participants which should be approved by the Lenders Technical Consultant ("LTA"); 3. Each disbursement request to the Lenders should be accompanied by certification of the Independent Auditor ("IA") of proportionate equity injection in specified account by the equity holders. To be applicable on the aggregate outstanding of both Facilities; 4. Further, LTA and IA will certify all drawdown requests based on achieved milestones for the Project and will maintain supporting documents (invoices, quotations, progress reports) provided by the Company during the Construction Period; 5. LTA will issue a monitoring report on monthly basis and any red flags/ material concerns highlighted in the report will have to be addressed before the next drawdown date unless a valid reason is provided; 6. Any sums undrawn under the Facility on the expiry of the Availability Period shall stand cancelled. However, for abundant clarity, any LCs established up to the expiry of availability period and already communicated to lenders shall continue to be retired and any committed outstanding payments/ accrued payables pertaining to the Project Cost, subject to verification by the LTA and IA, as applicable, will be available for drawdown.

**PRINCIPAL & MARKUP
REPAYMENT**

The principal payments will commence after the end of Grace Period and will be paid in Forty (40) consecutive quarterly installments as per schedule - the first such payment falling due not later than Twenty Seven (27) months from FED and subsequently every three (3) months thereafter.

Markup payments will be made quarterly in arrears. Mark-up will be calculated on the basis of actual number of days elapsed in a year of 365 days on the outstanding balance of the Facility. The first such payment will fall due in three (03) months from FED and subsequently every three (03) months thereafter.

MARK-UP RATE
Facility I:

Markup Rate: SBP Refinance Rate under the applicable Scheme prevailing at the time of first drawdown plus FI margin, currently as under:

Total Markup Rate of 6% p.a.: 3% p.a. (SBP Rate) + plus 3% p.a. (FI Margin)

Markup to be paid quarterly in arrears.

Note: Commercial rate will be applicable for the period taken by SBP to provide Refinance Facility. It will also be applicable for the period that any overdues are outstanding from the respective installment dates.

Commercial rate: Three (03) month KIBOR + spread of 3% p.a.

Facility II:

Three (03) month KIBOR plus a spread of 3% p.a.

KIBOR is defined as average rate; ask side for three (03) month Karachi Inter Bank Offered Rate ("KIBOR") as published on Reuters page or as published by the Financial Markets Association of Pakistan in case Reuters page is unavailable.

KIBOR will be set one (01) working day (last applicable business day) before disbursement of each tranche, which will then be revised after three (03) months of disbursement.

If at any time during the currency of this agreement, KIBOR is discontinued or ceases to be a realistic representation of the prevailing cost of funds in the money markets, in the opinion of the Lenders, the same would be replaced by a relevant rate of a similar nature or an alternate basis would be agreed upon for determining the base rate.

COLLECTION MECHANISM

- COLLECTION ACCOUNT
- DEBT PAYMENT ACCOUNT
- DEBT SERVICE RESERVE

Following accounts to be set up under lien of Security Agent on behalf of the Lenders:

Collection Account ("CA"): All energy payments received from the Power Purchaser ("Central Power Purchasing Agency" or "CPPA") to

ACCOUNT

be routed through this account. Security Agent will give irrevocable instructions to the bank to deposit one-third of the upcoming instalment payment every month in the Debt Payment Account, after receiving the energy payments.

Debt Payment Account ("DPA"): DPA to be funded through the CA as mentioned above. In the event that there is a shortfall in the account to meet the upcoming instalment payment, Company shall deposit remaining funds prior to three (03) working days before due date.

Debt Service Reserve Account ("DSRA"): DSRA to be funded by the borrower within one month of achieving COD upto the extent of maximum installment payment (principal and markup) as per schedule. In the event of shortfall in DPA to meet the upcoming installment payment, funds may be utilized from DSRA upto the extent of the shortfall. The shortfall to be met from the next upcoming energy payment.

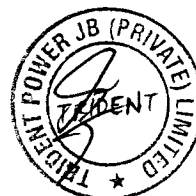
Funds in the Collection Account to be utilized under the following waterfall mechanism:

1. Transfer to DPA as defined above
2. To meet the shortfall in the DSRA account (as discussed above)
3. Any fee / amounts outstanding under the Financing Agreements
4. Remaining funds to be released to the borrower

SECURITY

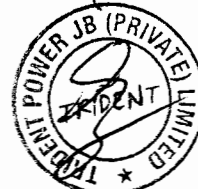
Facility security structure to be finalized after consultation with the legal counsel and to include but not limited to the following:

- Exclusive hypothecation charge over all present and future moveable fixed assets with a 25% margin over the Facility Amount (the "Hypothecation");
- Exclusive mortgage charge over land and building, and any other immovable property of Trident with a 25% margin over the Facility amount (the "Mortgage");
- Exclusive Assignment over receivables from Government of Pakistan / Power Purchaser and/or any of its successors, assignees and transferees, due under the Energy Purchase Agreement;
- Exclusive Assignment of the Security Trustee on all Project Insurances of the Borrower, Security Trustee to be designated as co-insured/beneficiary/co-loss payee status in all Project Insurances and cut-through agreements for reinsurance;
- Exclusive Assignment over the Borrower's rights and benefits under the key Project Documents and any amendments thereto;
- A lien and set-off right over all Project accounts including but not limited to the Collection Account, Debt Payment Account, and Debt Service Reserve Account;
- Pledge of shares up to 51% of the share capital to the Lenders;



	- Corporate Guarantee of the Sponsor's company; - Project Funds Agreement ("PFA") to be executed by the Sponsors guaranteeing to meet through injection of fresh equity and/or subordinated loans throughout the tenor of the facility under the following events: - Any shortfall in Debt Payment Account; - Cost Overruns in the Project; - Personal Guarantees of all Sponsors / Directors of the Company along with all net worth statements; Any other security that Lenders and/or Legal Counsel deems necessary to be incorporated in the transaction documents.
STEP-IN RIGHTS	In the event of default, Lenders will have step-in rights in the Company. Step-in rights to be defined in greater length in the transaction documents.
ACCOUNTS BANK	To be decided.
PROJECT MONITORING BANK	To be decided.
LEGAL COUNSEL	To be decided. All legal and other professional service expenses/charges for the Facility including but not limited to lawyer fees, security perfection costs etc. shall be borne by Borrower and will be payable at actual whether or not the transaction proceeds to signature.
LENDERS TECHNICAL ADVISOR	To be decided. The Lenders Technical Advisor ("LTA") will be responsible for monitoring the construction progress and general oversight of the project during the construction phase. It will also issue a certificate prior to all drawdowns and officially mark the commercial operations of the project. The professional fees of LTA and related expenses, to be laid down in the contract agreement, will be borne by the borrower.
INDEPENDENT AUDITOR	The Company will appoint, at its own costs, an Independent Auditor ("IA") for the benefit of Participants. Broad scope of work will include monitoring of construction progress, certifying incurred project costs and drawdown requests, certification of all commissioning tests and declaration of COD. Appointment of IA and TORs to be finalized after consultation and written approval from the Lead Advisors. The professional fees of IA and related expenses, to be laid down in the contract agreement, will be borne by the borrower.
INSURANCE ADVISOR	The Lenders shall require Trident to appoint, at its own cost, an independent Insurance Advisor for a period as determined by arrangers and advisors. The Insurance Advisor will advise the arrangers and advisors on issues including, but not limited to, the

	types and amounts of insurances required separately during the construction and operations phases. In addition, the Insurance Advisor will also advise on the insurers/re-insurers for the transaction.
ACCOUNTS BANK	To be decided.
PROJECT MONITORING BANK	To be decided.
PREPAYMENT OPTION	Prepayment will be made with Thirty (30) days prior notice to the Lenders. Prepayment will be allowed only on a mark-up payment date and in integral multiples of PKR 25 million.
OTHER TERMS AND CONDITIONS	Company shall comply with all relevant terms and conditions mentioned in SBP Scheme issued on July 26, 2019 and any subsequent changes thereto; - No change in shareholding of the Company without Lenders' approval; - Borrower to comply with all possible positive & negative covenants that will be incorporated in Facility Documents; - Sponsors will arrange working capital facility three (3) months prior to the Commercial Operation Date; - Lenders shall have the right to sell down the financing extended to Trident to any other financial institution; - Company shall arrange bank statements of DPA, DSRA and CA within three (03) days of month-end to the Security Agent; - Dividends shall only be allowed in case of timely instalment payments to the lenders and with Security Agent's due consent; - Company shall co-ordinate with LTA and arrange monthly progress reports during the construction period to the lenders; - All additional borrowings during the tenor of the facility shall require no-objection certificate from the Security Agent; Any other terms and conditions that Lenders and/or Legal Counsel deems necessary to be incorporated in the transaction documents.
CONDITIONS PRECEDENT	Conditions Precedent to the drawdown to be mutually agreed upon in the Facility Documents and shall include, without limitation, the following: - Execution and delivery of all documentation and security perfection required for the Facility in form and substance satisfactory to both Lenders and the Legal Counsel and receipt of a satisfactory legal opinion in this regard; - Board resolution from the Borrower certified by a duly authorized officer granting corporate approval for the Facility; - Borrower shall ensure that all consents, approvals (including



	regulatory approvals), registrations and authorizations, both government and corporate, that are required to be in place, are in place, and in full force and effect prior to drawdown; d. Compliance by the Company with Prudential Regulations or other local laws applicable; e. All relevant insurances are in full force and effect to the satisfaction of Lead Advisors & Arrangers; f. Receipt of all required internal credit and / or board approvals and regulatory approvals by the Syndicate members; g. Auditor's certificate evidencing injection of equity by the sponsors & plan for equity injection of balance amount of equity acceptable to the syndicate. h. Receipt of certificate from the LTA certifying that the disbursement request is consistent with the project plan; i. Receipt of a legal opinion from legal counsel, confirming inter alia the validity, enforceability and binding effect of the obligations of the Borrower under the Facility documents, in form and substance acceptable to the arrangers; and Any other condition that Lenders and/or Legal Counsel may deem necessary.
ADVISORY FEE	2% of the facility amount payable in the following manner: - 25% - Signing of the Indicative Term Sheet ("ITS") - 25% - Signing of Transaction Documents - 50% - At the time of first Disbursement Any fees payable during the course of the transaction, upon payment, shall be non-refundable.
COMMITMENT FEE	Commencing from the FED till the end of the Availability Period, 0.25% per annum, payable quarterly in arrears on the undrawn balance of the facility.
SECURITY TRUSTEE & AGENT	Pak Brunei Investment Company Limited
TRUSTEE & AGENCY FEE	PKR 2,000,000 payable to the agent at the time of signing of Facility documents and thereafter on every anniversary thereof.
PARTICIPATION FEES	0.5% of participation amount of each lender.
OUT OF POCKET EXPENSES	To be borne by the Borrower. Out-of-pocket expenses include, but are not limited to, travel, accommodation, utilities, printing, advertisements, etc. and shall be based on actual. Out-of-pocket expenses do not include fees payable for professional services of legal counsel, LTA, IA etc. or any other fees, charges, taxes, levies, duties,

**MATERIAL ADVERSE
CHANGE**

surcharges or expenses explicitly highlighted herein.

If, on or prior to the disbursement of the Facility (notwithstanding signing of any transaction documents), in reasonable judgment of Lead Advisors and Arrangers, any material adverse change in:

- a) Any business, financial conditions, operations, performance, properties, concessions, consents or prospects of the borrower or its Sponsors; or
- b) Any circumstance, change or condition (including the continuation of an existing condition) in the bank, sector, loan syndication, financial or capital markets generally,

Occurs and impairs the Facility or economic feasibility for the Facility, Lead Advisors and Arrangers shall have the right to renegotiate the terms hereof, or else, withdraw the offer.

INDEMNIFICATION

Until signing of the Facility Documents, the Company hereby indemnifies and agrees to hold Lead Advisors & Arrangers harmless and its subsidiaries and affiliates and each of its officers, directors, employees, agents, advisors and representatives (each an "Indemnified Party") from and against any and all claims, damages, losses, liabilities, costs and expenses (hereinafter collectively referred to as "Claim"), joint and several, that may be made against, incurred by or awarded against any Indemnified Party, in each case arising out of or in connection with or relating to performance of the Indemnified Party under the Offer, except to the extent such claim(s) have resulted from such Indemnified Party's gross negligence or willful misconduct.

CLEAR MARKET PROVISION

From the date of acceptance of this offer until the closing date of the Facility, no other external borrowings or guaranteed facility by and/or involving the Borrower or their subsidiaries, associated or related companies shall be mandated, syndicated or privately placed which might, in the opinion of the arrangers and advisors, have the effect of prejudicing the successful completion of this transaction without the arrangers and advisors prior written consent.

TAXES

The Company shall make all payments under this Offer without any setoff or counterclaim and free and clear of, and without any deduction or withholding for or on account of, any taxes, duties, costs or expenses.

In the event that the Lenders are required to pay withholding tax in respect of the Facility, the Facility Documents and or any security created by the Company to secure the Facility, the Company shall reimburse the whole amount of the tax so paid by the Lenders, within a period of seven (7) business days of receiving a demand from them in this respect.

In the event, the Company is required by any applicable law, to deduct any tax from such payment on behalf of the Lenders, the Company

**GOVERNMENT EXCISE,
LEVIES AND CHARGES**

shall provide to the Security Agent original copies of the tax challans, duly made out in the name of Lead Advisors & Arrangers as applicable, in respect of the tax so deducted within a period of fourteen (14) days from the date on which such deduction is made by the Company.

PAYMENTS

Borrower shall pay all excise, levies, stamp duties, other duties or surcharges payable in connection with the Facility and the Project.

VALIDITY

Payments by the Company of all dues under the Offer will not be subject to counterclaim or setoff for, or be otherwise affected by, any claim or dispute relating to any matter whatsoever and all such payments shall be made in immediately available free and clear funds without deduction for or on account of any present or future taxes, charges, deductions or withholdings except the withholding of tax in the event it is required by applicable law.

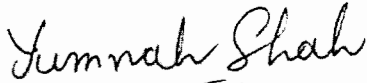
**GOVERNING LAW AND
JURISDICTION**

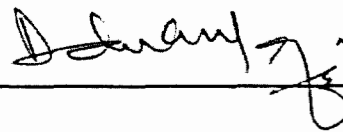
This terms and conditions mentioned herein are valid for acceptance up to seven (07) business days after delivery of the offer to your office, unless extended in writing by Lead Advisors & Arrangers.

Facility and its documents will be governed by and construed in accordance with the laws of the Islamic Republic of Pakistan and will provide for submission by the Company to the exclusive jurisdiction of courts of Pakistan.

END OF SUMMARY OF INDICATIVE TERMS AND CONDITIONS

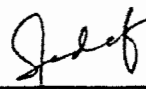
FOR & ON BEHALF OF PAK BRUNEI INVESTMENT COMPANY LIMITED



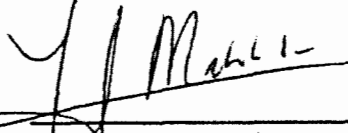


FOR & ON BEHALF OF AWWAL MODARABA

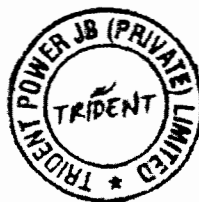




ACCEPTED FOR & ON BEHALF OF TRIDENT POWER JB (PRIVATE) LIMITED



YOUSUF MEHBOOB KHAN
CHIEF EXECUTIVE



COMPANY STAMP

AUTHORISED SIGNATORY

DATE: MARCH 20 2020



RAVI HYDROPOWER PROJECT

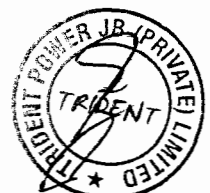
3.1. GENERAL

This document comprises of the analysis of available hydrological and meteorological data relevant for the estimation of flows available for power generation at RD 258+654 and RD 285+454 at Lower Bari Doab Canal. A brief account of Balloki Barrage with related irrigation network and rehabilitation and up-gradation of Lower Bari Doab Canal is also discussed in order to provide comprehensive information to the reader. The project area can easily be accessed through railway and road. Okara Cantt and Sahiwal are linked with Lahore through Lahore- Multan highway (N5). Proposed project site is 133 Km from Lahore and accessible from Karachi Port through a good road network. The road distance between Okara and Karachi is about 1200 Kilometers.

3.2. BALLOKI BARRAGE AND LOWER BARI DOAB CANAL SYSTEM

Balloki Barrage was commissioned in 1914 with the design discharge capacity of 140,000 cusecs. It is located southwest of Lahore at a distance of about 65 km and situated at 31°12'52"N and 73°51'51"E. Total length of barrage is 501.8 m (1646 feet) with 35 No. of Bays (12.19 meter each). Salient features of Balloki Barrage are mentioned below.

Width of Barrage between abutments	1646.5 ft
Number of bays	35 with 34 piers each 7.25 ft. wide
Clear width of bays and waterway	40 ft. each with total waterway of 1,400 ft.
Upstream floor level	R.L 621 feet
Weir Data after remodeling in 1965:	
Crest Level	RL 624.5 feet
Max. Flood capacity (Designed)	225,000 cusecs
U/s Floor length	119.5 feet
D/s Floor length	116.3 feet
Maximum head across	17.5' (restricted to 13')
Crest width	5.0 ft
U/s High Flood Level	RL 638 feet
Discharge of LBDC (Original)	6,900 cusecs
1st Remodelling	7,600 cusecs
2nd Remodelling	8,650 cusecs



HYDROLOGY

RAVI HYDROPOWER PROJECT

3rd Remodeling (in progress)

9800 cusecs

3.2.1. Lower Bari Doab Canal

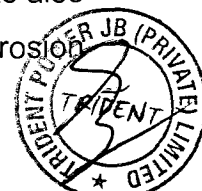
There are two off-taking canals from the left bank of Balloki Barrage i.e., Balloki-Sulemanki Link Canal and Lower Bari Doab Canal (LBDC). LBDC off- takes from Balloki Head Works at River Ravi and main canal has a length of 209.3 Km (686,504 feet). The canal was commissioned along with Balloki Headworks in 1914 and remodeled in 1965 and 1984-1986 respectively. At present, rehabilitation and improvement of canal is also in progress and expected to be completed in 2014. LBDC serves a cultivable command area of about 1.7 million acres in Districts Kasur, Okara, Sahiwal and Khanewal and remains closed for annual repairs and maintenance normally from late December till third week of January or longer periods during dry spells. Salient features of LBDC are mentioned in Table 3.1.

Table 3.1: Salient Features of LBDC

No	Details	Features
1	Designed Capacity at Head	9,841 cusecs
2	Canal Command Area	1,700,000 acres
3	Present Carrying Capacity (Kharif)	8,600 cusecs
4	Water Allowance	3.33 cusecs/1000 acres
5	Length of Main Canal	209.3 Km (686,504 feet)
6	Length of Distributaries and Minors	2414 Km (7,920,000 feet)
8	Fall Structures	20
9	Head Regulators	55
10	Bridges	17
11	Outlets	3,927 No's

3.2.2. Improvement of Lower Bari Doab Canal Project

Balloki Barrage and Lower Bari Doab Canal system being almost a century old were facing serious operational and maintenance problems. LBDC was unable to get across the authorized discharge of 9,841 cusecs owing to a number of functional and safety issues like inadequate capacity and deterioration of old structures and canal prism. Its distribution network was also deteriorated and facing serious operational problems. Excessive erosion



RAVI HYDROPOWER PROJECT

downstream of all structures caused by the erratic hydraulic behavior of the falls had taken place and the afore-mentioned reasons drastically changed the flow and sediment regime of the canal.

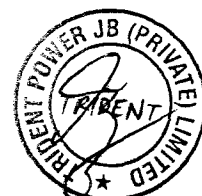
Consequently, Project Management Unit (PMU) of Punjab Irrigation Department, Government of Punjab has been authorized to carry out remodeling of the canal in this regard. Rehabilitation and up-gradation of LBDC comprises of seven packages as mentioned in Table 3.2 below:

Table 3.2: LBDC Improvement Project

Sr. No	Project Reference No.	Project Description
1	LBDC/ICB-01	Rehabilitation and Upgrading of LBDC RD 0+000 to RD 227+454 (69.34 Km) covering two (2) Canal Divisions; Balloki and Okara
2	LBDC/ICB-02	Rehabilitation and Upgrading of LBDC RD 227+454 to RD 527+216 (91.39 Km) covering Sahiwal Canal Division
3	LBDC/ICB-03	Rehabilitation and Upgrading of LBDC RD 527+216 to RD 660+700 (40.69 Km) covering Khenawal Canal Division.
4	LBDC/ICB-04	Rehabilitation of Balloki Barrage and Head Regulators of off-taking canal
5	LBDC/ICB-05	Rehabilitation and Upgrading of Branch Canals and Distributry Systems Covering Sahiwal Canal Division
6	LBDC/ICB-06A	Rehabilitation and Up-gradation of Branch Canals & Distributary Systems covering Khanewal Canal Division
7	LBDC/ICB-06B	Rehabilitation and Up-gradation of Branch Canals & Distributary Systems covering Khanewal Canal Division

Since, our proposed project comprises of two existing fall structures at RDs 258+654 and 285+454 and incorporated in Package LBDC/ICB-02, therefore, we have only discussed LBDC improvement falling in our project's domain which includes the following:

- ❖ Dismantling of existing fall structures at RD 258+654 and RD 285+454.
- ❖ Construction of new cross regulators at RDs 260+500 and 287+255. while maintaining and furnishing almost the same head differences of the existing falls.



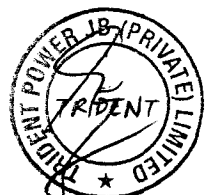
RAVI HYDROPOWER PROJECT

- ❖ Side protection, strengthening and raising of canal banks up to 4 feet.
- ❖ Construction of new district road bridge at RD 258+654.
- ❖ Construction of new foot bridge at RD 265+500.
- ❖ Remodeling of head regulator of 5R at RD 285+200.
- ❖ Construction of New Village Road Bridge at RD 285+452.
- ❖ The canal bed has been deteriorated over a period of time and the entire bed of the canal is being improved keeping in the view the desired/designed velocity and bed slope.
- ❖ Construction of metalled roads connecting the VR/DR bridges in order to provide access across the canal to the respective villages and nearby towns.
- ❖ Construction of temporary diversions for uninterrupted water supply.

It is proposed to utilize the potential of available discharge and energy at RDs 258+654 and 285+454. However, the above mentioned two falls shall be demolished once the remodeling of LBDC is completed and new cross regulators being constructed at RDs 260+500 and 287+255 shall substitute the previous falls. A detailed account of the same is described below.

3.2.2.1. Existing Fall Structure at RD 258+654 & Construction of New Cross Regulator at RD 260+500

Existing fall at RD 258+654 is an un-gated, old and outdated fall structure with 6 Nos. piers and 7 spans whereas the village road bridge of length 180 feet and width 14 feet exists as shown in Figure 3.1. The last designed discharge at the fall structure was 7334 cusecs ($207.7 \text{ m}^3/\text{s}$) whereas the existing capacity of the fall structure is 6251 cusecs ($177 \text{ m}^3/\text{s}$) only. Full Supply Level (FSL) at upstream and downstream of the fall structure is 584.78 feet and 577.95 feet respectively. A fall of 6.83 feet (2.08 m) is available at this location. The crest level of the fall is at 578.33 feet m.a.s.l. Gauges have been installed for recording stage and discharge data at upstream and downstream of the fall structure on left and right sides correspondingly.



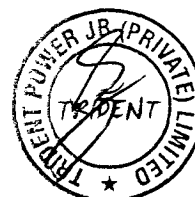
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Figure 3.1: Fall Structure at RD 258+654



While the remodeling of Lower Bari Doab Canal is in progress, a new Cross Regulator at RD 260+500 is also being constructed which will enable the dismantling of existing fall at RD 258+654 after its completion. New Cross Regulator is a gated structure with 9 spans and 8 Nos of piers. The existing bed elevation on the upstream side of the cross regulator is 566.85 feet whereas the proposed bed elevation is 574.34 feet meaning thereby the canal bed within this reach shall be raised up to 7.49 feet as per the designed level by filling the compacted earth fill. The proposed Full Supply levels at upstream and downstream of the cross regulator are 585.85 feet and 579.62 feet respectively which provide a Gross Head of 6.23 feet (1.9 meters). Bank elevation is also being raised with compacted earth fill accordingly up to an elevation of 588.85 feet. Existing and proposed hydraulic data of RDs 258+654 & 260+500 is provided in Table 3.3. Figure 3.2 is also provided below where construction of new cross regulator is in progress and it is expected that it shall be commissioned in early 2014.

Figure 3.2: Construction of New Cross Regulator at RD 260+500 in progress



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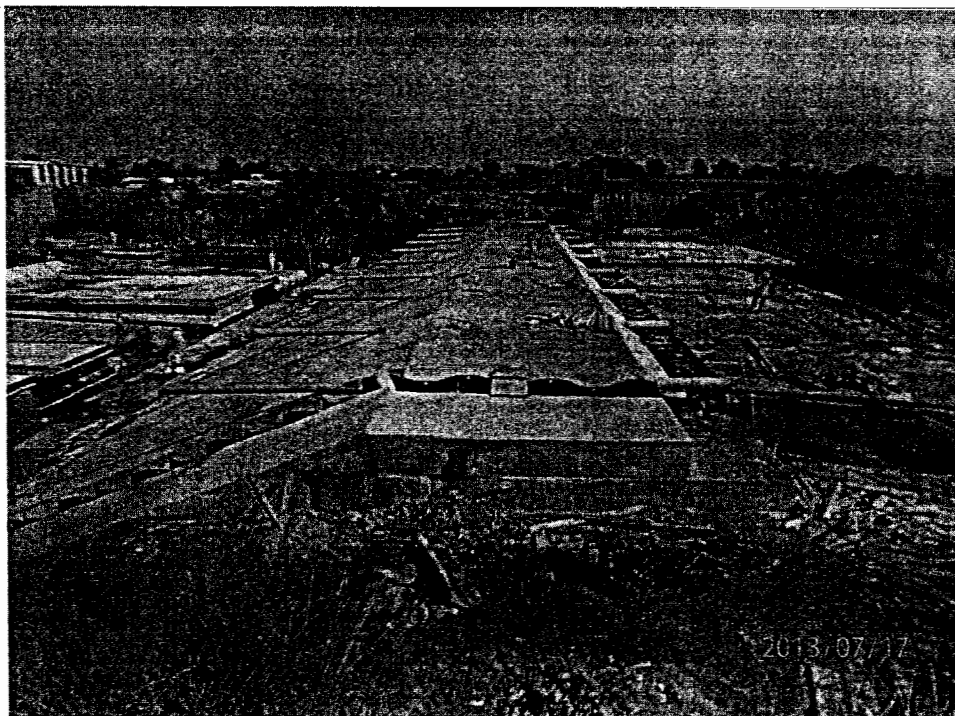


Table 3.3: Basic Hydraulic Data (RDs 258+654 & 260+500)

Description	Unit	RD 258+654 (Existing Fall)		RD 260+500 (New Fall)	
		Existing Data	Proposed Data	Existing Data	Proposed Data
Discharge	(Ft ³ /s)	6251	7334	6251	7334
Full Supply Level (u/s)	Ft	584.78	586.03	577.80	585.85
Full Supply Level (d/s)	Ft	577.95	586.03	577.80	579.62
Bed Level (u/s)	Ft	573.75	574.52	568.35	574.34
Bed Level (d/s)	Ft	573.75	574.52	566.85	568.67
Gross Head	Ft	6.83	0	1.5	6.23
NSL	Ft	578.33	578.33	577.80	577.80



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Bed Slope (longitudinal)	-	1:10000	1:10000	1:10000	1:10000
Side Slope	-	1:1.5	1:1.5	1:1.5	1:1.5
Manning's Coefficient 'n'	-	0.023	0.023	0.023	0.023

3.2.2.1. Existing Fall Structure at RD 285+454 & Construction of New Cross Regulator at RD 287+255

Existing fall at RD 285+454 is also an un-gated and outmoded fall structure with 6 Nos. piers and 7 spans whereas the village road bridge of length 160 feet and width 14 feet exists as shown in Figure 3.3. The existing capacity of discharge is 5600 cusecs (159 m³/s) whereas the last designed discharge was 6920 cusecs (196 m³/s). The full supply level of canal at upstream and downstream of the fall structure is 575.84 feet and 570.83 feet respectively. Accordingly, a fall of 5.01 feet (1.52 m) is available at this location. The crest level of the fall is at 570.97 m.a.s.l. Gauges have been installed for recording stage and discharge data at upstream and downstream of the fall structure on left and right sides respectively.

Figure 3.3: Fall Structure at RD 285+454



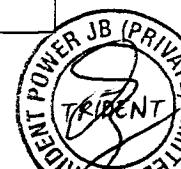
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Likewise previous fall, a new Cross Regulator 1801 feet downstream of RD 285+454 is being constructed at RD 287+255. However, it is an un-gated structure with upstream and downstream Full Supply Levels 576.81 feet and 571.79 feet respectively. Available Gross Head is 5.02 feet. Existing fall at RD 285+454 shall be demolished after the completion of new cross regulator at RD 287+255. Existing and proposed hydraulic data of RDs 285+454 & 287+255 is presented in Table 3.4 below. The construction of cross regulator is near completion as shown in Figure 3.4 and it is expected to be commissioned early next year.

Table 3.4: Basic Hydraulic Data (RDs 285+454 & 287+255)

Description	Unit	RD 258+654 (Existing Fall)		RD 260+500 (New Fall)	
		Existing Data	Proposed Data	Existing Data	Proposed Data
Discharge	(Ft ³ /s)	5600	6920	5600	6920
Full Supply Level (u/s)	Ft	575.84	577	570.68	576.81
Full Supply Level (d/s)	Ft	570.83	577	570.68	571.79
Bed Level (u/s)	Ft	564.03	566.05	558.63	565.86
Bed Level (d/s)	Ft	564.03	566.05	559.75	560.92
Gross Head	Ft	5.01	0	0	5.02
NSL	Ft	577.97	577.97	570.07	570.07
Bed Slope (longitudinal)	-	1:10000	1:10000	1:10000	1:10000
Side Slope	-	1:1.5	1:1.5	1:1.5	1:1.5



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Manning's Coefficient 'n'	-	0.023	0.023	0.023	0.023
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Figure: 3.4: Construction of New Cross Regulator at RD 287+255



In the light of above mentioned discussions, it is concluded that the existing falls at RDs 258+654 & 285+454 shall be demolished and new falls at RDs 260+500 and 287+255 shall be considered for power generation purpose. A gross head of 6.23 ft. is available across the first fall, and the second fall has a gross head of 5.02 ft. It is planned to lower the bed of the canal in this reach by 5 ft. for combining the two drops thus utilizing the gross head of about 11.23 ft. and net head of 10.2 ft at RD 260+500 for power generation. Details are provided in Chapter 5 (Alternative Studies).

3.2.2.2. Distributaries (5L, 4R & 5R)

HR of 5L at Gamber and HR of 4R at Jhilwala, Okara Cantt off-takes from LBDC at RD 257+505 and 258+164 respectively. 5L and 4R will remain un-disturbed even after remodeling of the main canal. However, HR of 5R at



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Yousafwala off-taking from main canal at RD 285+200 is being remodeled and given due importance as it is the only outlet within the reach of the proposed power plant and details are provided in chapter 5.



3.3. METEOROLOGICAL DATA AND ANALYSIS

3.3.1. Data Collection

Meteorological data (Temperature, Rain fall, Humidity and Wind Speed) for Okara was collected from the office of the Director, Pakistan Meteorological Department Lahore for the period of last ten years (2003-2012).

3.3.2. Data Analysis

The country has four distinct climate seasons. April, May and June are extremely hot and dry months. July, August and September are hot and humid with intensive heat and scattered rainfall. The cool and dry period starts at the beginning of October and continues through November. December, January and February are the coldest months of the year. Due to the diversity of the climate, a large variety of crops



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grown to support the agricultural economy. The same is experienced at the project site and shall not affect the construction schedule of the project; however, Moonsoon season in July and August affects the area whereas March and April being the spring season are very pleasant months.

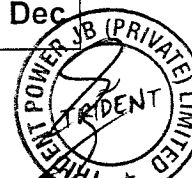
3.3.3. Temperature

Daily maximum and minimum temperature data for Okara was collected and presented in Table: 3.5 and Table: 3.6 respectively. The above referred table shows that June and July are the hottest months of the year with maximum temperature ranges from 40 °C to 46 °C while January and February are the coldest months of the year with temperature ranges from 4 °C to 9 °C. Sometimes, last few days of December and January are suffered with lot of fog with 2 to 5 meter visibility in the morning and evening.

Figure 3.5 & 3.6 are given below and shows the mean monthly maximum and mean monthly minimum temperature at Okara.

Table 3.5: Mean Monthly Maximum Temperature(°C) at Okara												
Years	Ja n	Feb	Ma r	Ap r	May	Ju n	Ju l	Aug	Sep	Oc t	Nov	Dec
2003	18	22	25	32	40	41	46	38	34	33	29	22
2004	19	20	27	34	38	44	44	41	33	32	30	17
2005	21	20	26	31	41	44	43	40	37	33	26	14
2006	21	21	28	35	43	41	44	39	38	33	28	16
2007	19	22	27	39	41	40	44	38	36	34	29	13
2008	16	20	28	38	39	43	41	39	33	32	31	12
2009	14	21	26	37	38	45	44	38	31	31	30	16
2010	18	24	29	33	40	42	42	39	30	30	27	11
2011	17	22	30	37	37	43	44	40	32	28	28	13
2012	11	20	26	39	38	43	43	36	32	29	29	11
Average	16	21	27	35	40	43	44	39	34	31	29	15

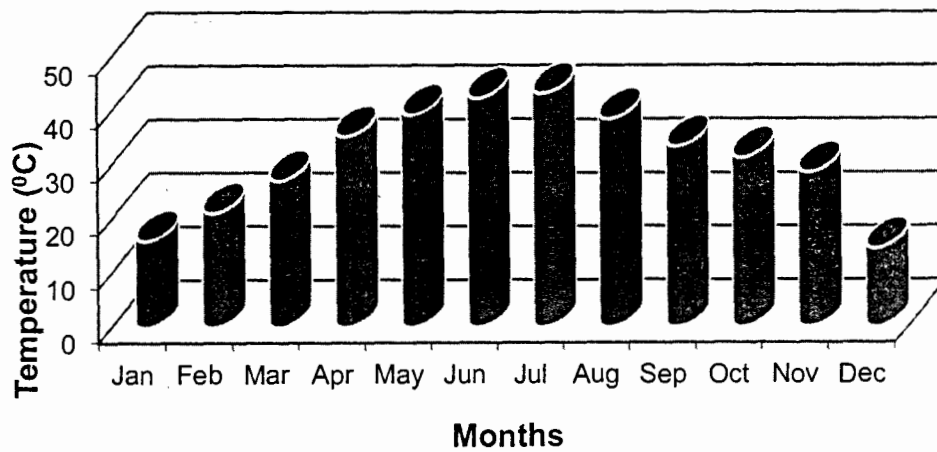
Table 3.6: Mean Monthly Minimum Temperature (°C) at Okara												
Years	Ja n	Feb	Ma r	Ap r	May	Ju n	Ju l	Aug	Sep	Oc t	Nov	Dec



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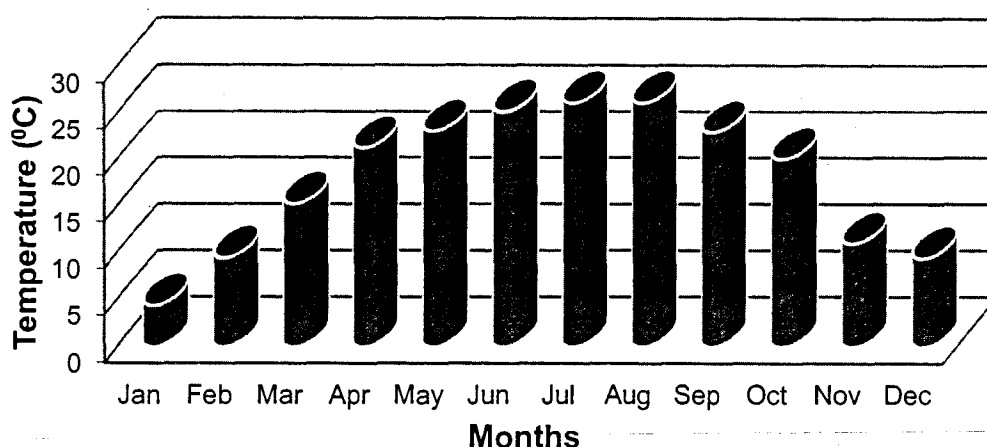
2003	4	7	14	21	21	23	27	26	25	19	19	13
2004	3	8	15	19	22	25	29	27	26	21	17	11
2005	4	11	14	20	24	23	25	26	24	21	15	12
2006	2	9	16	21	23	25	26	28	27	20	16	10
2007	6	12	13	21	25	27	25	28	25	19	17	7
2008	6	11	11	21	22	26	26	25	22	21	15	9
2009	5	9	16	23	24	25	27	26	21	21	16	11
2010	5	8	18	22	25	27	25	24	19	19	16	8
2011	4	10	17	23	23	25	27	26	21	20	14	6
2012	4	9	19	22	22	26	25	26	20	20	13	7
Average	4	9	15	21	23	25	26	26	23	20	11	9

**Figure 3.5: Mean Monthly Maximum Temperature(°C)
at Okara**



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**Figure 3.6: Mean Monthly Minimum Temperature (°C)
at Okara**



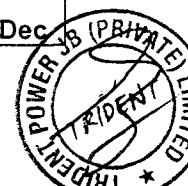
3.3.4. Rainfall

In Pakistan the mean annual rainfall ranges from 4 to 30 inches in the lower Indus region to the northern foot hills. Only a small proportion of this annual rainfall makes any direct or useful contribution to irrigation water supplies. According to World Bank Consultants' report, the figure ranges from 1 to 17 inches. The rest is either converted to Direct Runoff or becomes a part of the ground water. While a small proportion is lost by evaporation. According to estimation the present direct contribution to the crops is 9 MAF / Annual. Daily rainfall data for Okara was collected and processed for monthly and annual rainfall basis.

Monsoon hit the area in July, August till first week of September. Heavy rains are expected in these months. Considerable rains are also expected in December and January due to western disturbance. Average monthly rainfall for (2003-2012) is presented in Table: 3.7.

Table 3.7: Average Monthly Rainfall Okara (Inch)

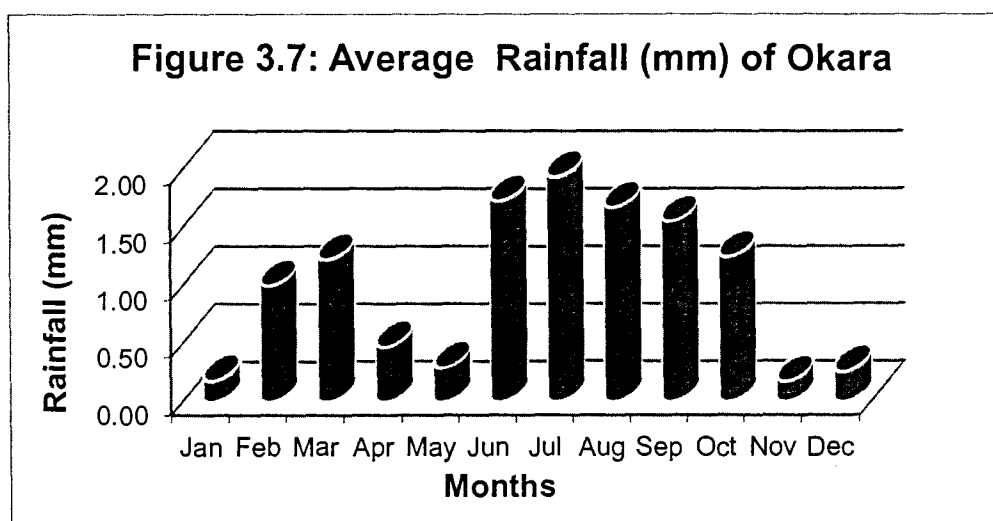
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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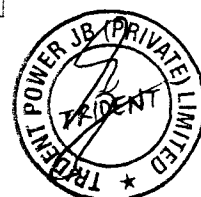
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2003.00	0.00	0.61	1.23	0.00	0.00	1.55	2.90	2.06	1.91	1.53	0.00	0.00
2004.00	0.39	0.00	0.93	0.38	0.50	1.00	1.60	3.00	2.79	2.23	0.00	0.06
2005.00	0.13	0.32	0.95	0.44	0.79	1.20	1.95	1.00	0.93	0.74	0.15	0.03
2006.00	0.00	1.00	1.32	0.49	1.00	1.52	3.00	2.00	1.86	1.49	0.30	0.00
2007.00	0.00	4.00	1.00	0.80	0.00	0.61	1.00	1.00	0.93	0.74	0.15	1.00
2008.00	0.70	1.20	1.20	1.00	0.16	1.10	0.29	0.21	0.19	0.15	0.00	0.05
2009.00	0.56	0.49	1.78	0.40	0.16	2.30	1.23	0.87	0.81	0.65	0.13	0.00
2010.00	0.00	1.00	2.11	0.60	0.07	4.80	3.00	4.00	3.72	2.98	0.60	1.00
2011.00	0.00	0.56	0.80	0.50	0.20	1.87	2.50	1.00	0.93	0.74	0.15	0.41
2012.00	0.00	0.89	0.99	0.10	0.05	1.45	2.00	1.71	1.59	1.27	0.25	0.00
Average	0.18	1.01	1.23	0.47	0.29	1.74	1.95	1.68	1.57	1.25	0.17	0.26

Average annual total rainfall for the period of 2003 through 2012 of Okara is 2.30 mm. Most of the rainfall occurs during the summer monsoon period (June to July). December is the month of minimum rainfall and July is the month of maximum rainfall. The maximum annual rainfall recorded so far (2003-2012) is 4 inches in the year 2010.



3.3.5. Wind Speed



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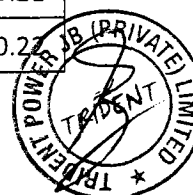
Average monthly (maximum and minimum) wind speed calculated at 8 AM and 5 PM and at Okara is presented in Table: 3.8 and 3.9 respectively. Figure 3.8 shows the average monthly wind speed measured during the period of 2007 to 2012 at 8 AM and 5PM, respectively. Figure 3.8 shows that May, June, July and August are the month of maximum wind speed.

Table 3.8: Mean Monthly Wind Speed (Knot) at Okara 5 PM

Years	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	0.66	1.46	1.40	0.78	1.68	2.11	1.87	1.74	1.50	0.08	0.29	0.39
2004	0.59	1.55	1.40	0.81	1.65	2.00	1.87	1.72	1.56	0.07	0.22	0.33
2005	0.67	1.46	1.36	0.76	1.61	1.17	1.90	1.72	1.41	0.05	0.31	0.32
2006	0.62	1.61	1.40	0.82	1.69	2.22	1.83	1.78	1.47	0.07	0.33	0.33
2007	0.68	1.46	1.42	0.80	1.68	2.13	1.87	1.74	1.47	0.06	0.27	0.39
2008	0.61	1.30	1.49	0.81	1.66	2.29	1.93	1.66	1.50	0.10	0.26	0.43
2009	0.51	1.41	1.52	0.79	1.63	2.00	1.91	1.69	1.43	0.11	0.25	0.39
2010	0.63	1.49	1.44	0.84	1.64	2.11	1.89	1.74	1.57	0.05	0.24	0.42
2011	0.66	1.39	1.47	0.87	1.61	2.12	1.92	1.81	1.39	0.08	0.22	0.41
2012	0.69	1.40	1.40	0.89	1.60	2.19	1.93	1.77	1.40	0.09	0.20	0.40
Average	0.63	1.45	1.43	0.82	1.64	2.03	1.89	1.74	1.47	0.08	0.26	0.38

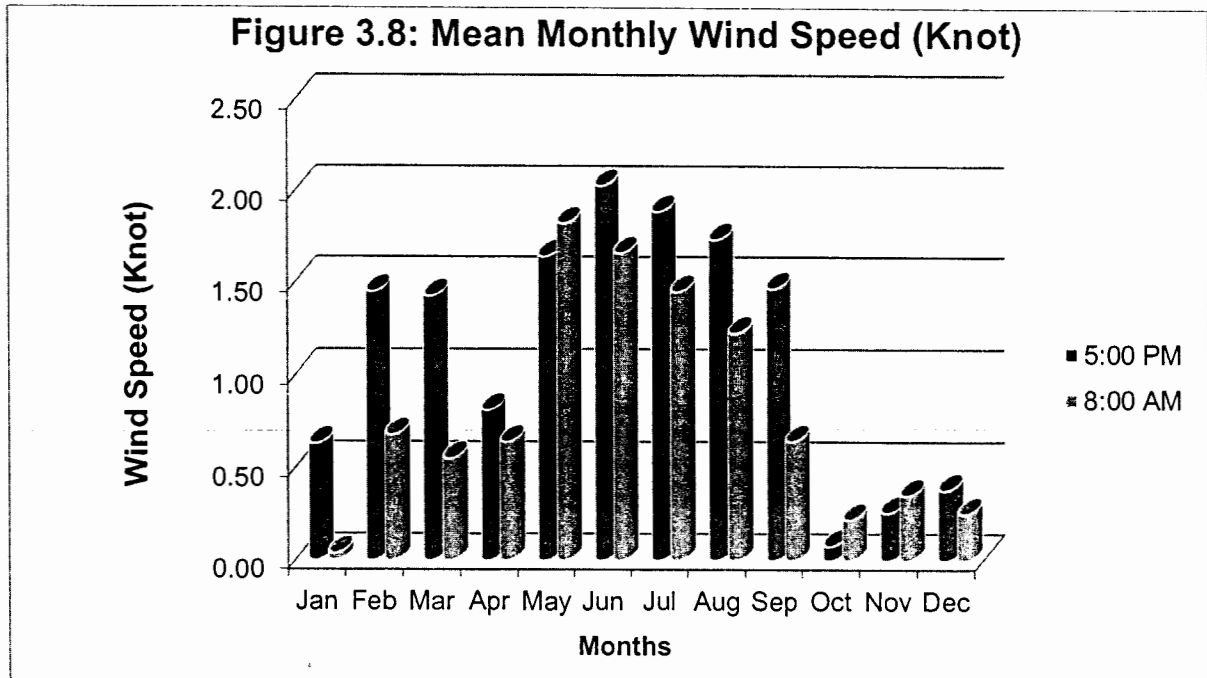
Table 3.9: Mean Monthly Wind Speed (Knot) at Okara 8 AM

Years	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	0.00	0.31	0.58	0.59	1.29	1.87	1.66	1.11	0.89	0.30	0.39	0.29
2004	0.02	0.56	0.61	0.58	1.56	1.90	1.29	1.34	0.88	0.22	0.35	0.32
2005	0.01	0.47	0.56	0.41	1.70	1.70	1.33	1.29	0.71	0.24	0.31	0.26
2006	0.01	0.66	0.55	0.44	2.23	1.54	1.54	1.45	0.72	0.16	0.40	0.27
2007	0.00	0.82	0.58	0.47	2.45	1.87	1.61	1.54	0.73	0.00	0.40	0.26
2008	0.00	0.78	0.61	0.49	2.22	1.88	1.66	1.22	0.71	0.10	0.36	0.22
2009	0.00	0.70	0.32	0.71	2.40	1.23	1.32	1.00	0.66	0.23	0.42	0.21
2010	0.03	0.82	0.49	0.82	1.11	1.56	1.33	0.99	0.56	0.11	0.29	0.26
2011	0.01	0.88	0.59	0.81	1.31	1.60	1.49	1.11	0.29	0.43	0.32	0.21
2012	0.29	0.80	0.62	1.11	2.00	1.49	1.30	1.23	0.30	0.40	0.28	0.22



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Average	0.04	0.68	0.55	0.64	1.83	1.66	1.45	1.23	0.65	0.22	0.35	0.25
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3.3.6. Humidity

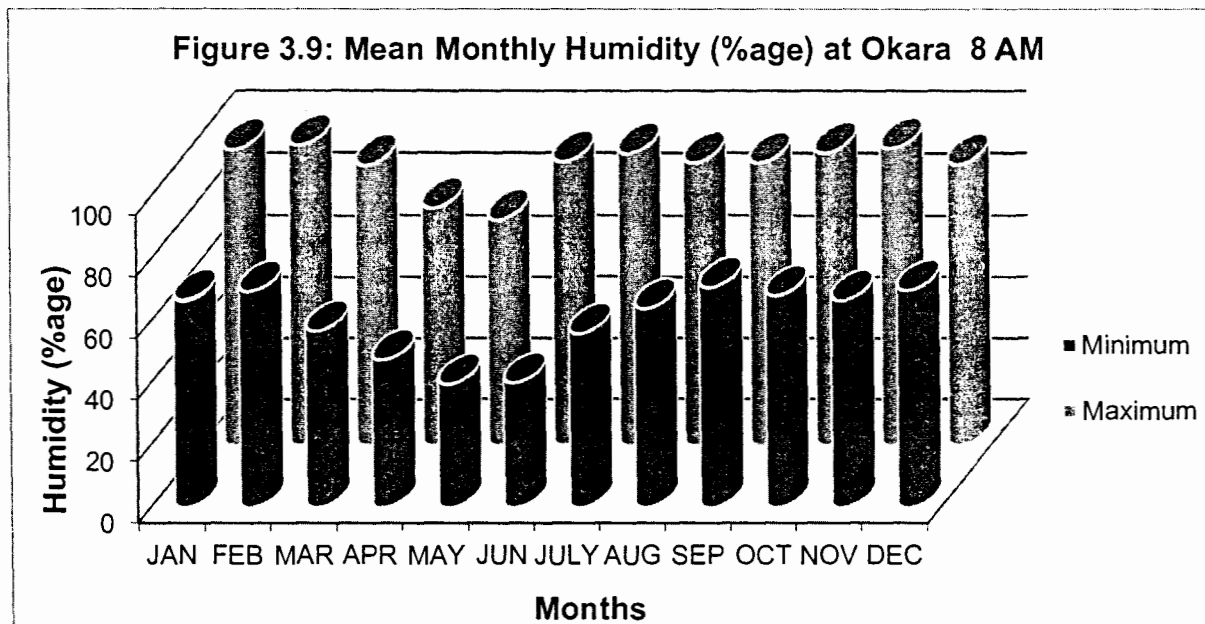
Average maximum and minimum percentage of humidity observed at Okara at 8 AM is 91 % and 61 % respectively. Mean monthly maximum and minimum percentage of humidity for the last ten years is provided in Tables 3.10 and 3.11 correspondingly and graphically presented in Figure 3.9.

Table 3.10: Mean Monthly Minimum Humidity (%age) at Okara 8 AM												
DAYS	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2003	63	70	55	59	39	37	56	65	69	64	62	66
2004	66	68	52	51	43	43	56	69	65	69	63	68
2005	51	78	55	50	39	38	67	70	80	67	66	72
2006	62	72	55	43	45	41	61	55	77	69	71	78
2007	70	78	61	48	43	41	62	72	77	71	69	73
2008	73	70	60	48	43	44	56	49	69	70	70	71
2009	79	66	58	49	40	39	41	42	71	70	72	70
2010	71	69	53	51	37	38	49	73	70	72	66	70
2011	70	70	63	40	30	44	56	81	68	68	61	69
2012	66	61	61	40	41	39	61	70	69	69	73	70
Average	67	70	57	48	40	40	56	65	72	69	67	71



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Table 3.11: Mean Monthly Maximum Humidity % at Okara 8 AM												
DAYS	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
2003	99	100	91	79	69	90	100	92	97	90	98	94
2004	100	91	93	71	66	99	97	93	98	98	98	89
2005	91	92	98	89	67	98	99	92	98	100	92	90
2006	98	99	97	91	62	98	100	93	96	97	99	91
2007	100	100	100	77	69	96	100	92	90	97	100	94
2008	97	100	99	72	71	90	89	95	92	89	97	90
2009	97	98	89	76	70	92	91	90	89	91	98	87
2010	89	98	82	70	89	89	90	88	80	98	92	89
2011	91	98	80	77	80	80	89	89	89	91	96	100
2012	98	98	80	70	91	89	92	94	89	98	94	89
Average	96	97	91	77	73	92	95	92	92	95	96	91



3.4. HYDROLOGY

3.4.1. Discharge Data Collection

The daily discharge data of Lower Bari Doab Canal at RDs 258+654 & 285+454 was collected from the office of Executive Engineer, LBDC, Sahiwal. Here, it is pertinent to mention that our proposed project site for the power plant is located at RD



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260+500 which is located at 1846 feet downstream of existing fall structure at RD 258+654. Since, there is no outlet within this reach, therefore, discharge data for RD 258+654 (Existing Fall which will be demolished) and RD 260+500 (New) will remain the same. Furthermore, the discharge data of second fall available at RD 285+454 is not necessary to be considered for flow data analysis as it feeds 5R only where average daily discharge is 19 cusecs meaning thereby having a little less discharge as compared to previous fall. Accordingly, flow data analysis has been carried out using discharge data at RD 258+654 only.

3.4.1.1. Flow Data Analysis

3.4.1.1.1. Flow Duration Curves

Flow duration curves have been developed using two different options i.e., on yearly and average yearly basis for a period of 2003-2012 in order to estimate the availability of water for power generation.

i. Flow Duration Curve using Average Daily Discharge Data of each Year

Figure: 3.10. show the average daily flow duration curve for the year 2003. The graph indicates that the canal runs more than 50% of time at discharge of 140 m³/s (5225 ft³/s) whereas average discharge is 118.43 m³/s (4181 cusecs) which is available 70 % of the time. Flow duration curves developed for respective years from 2003 to 2012 are shown in Figures 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 3.18 and 3.19 respectively.



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Figure 3.10: Flow Duration Curve (2003)

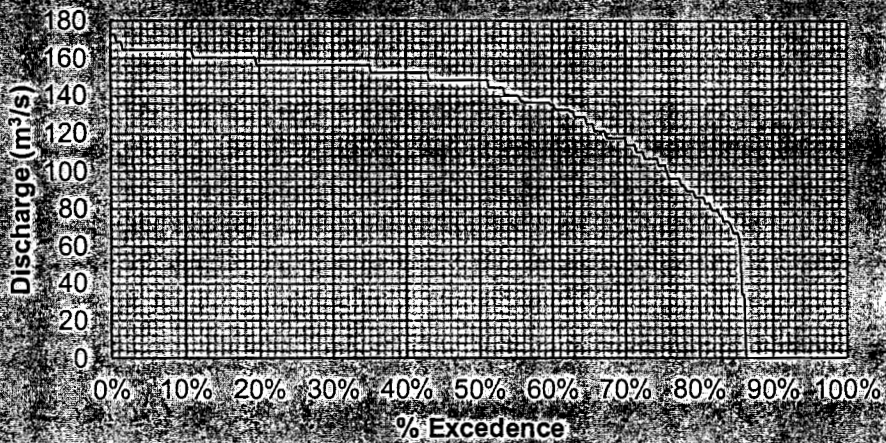


Figure 3.11: Flow Duration Curve (2004)

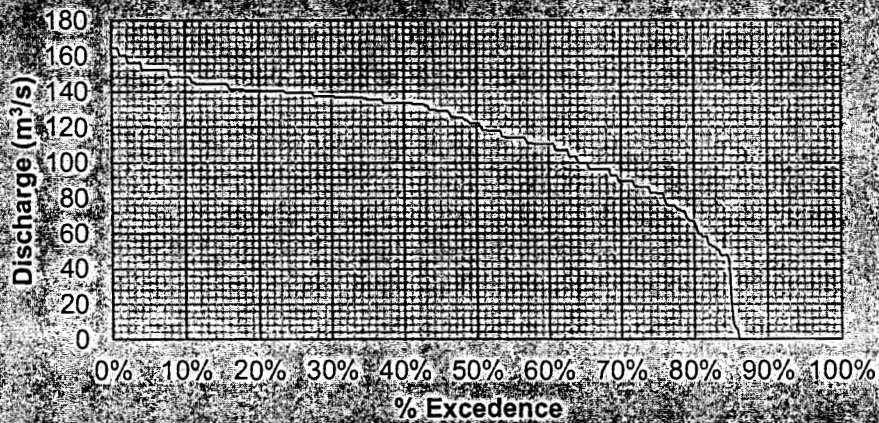
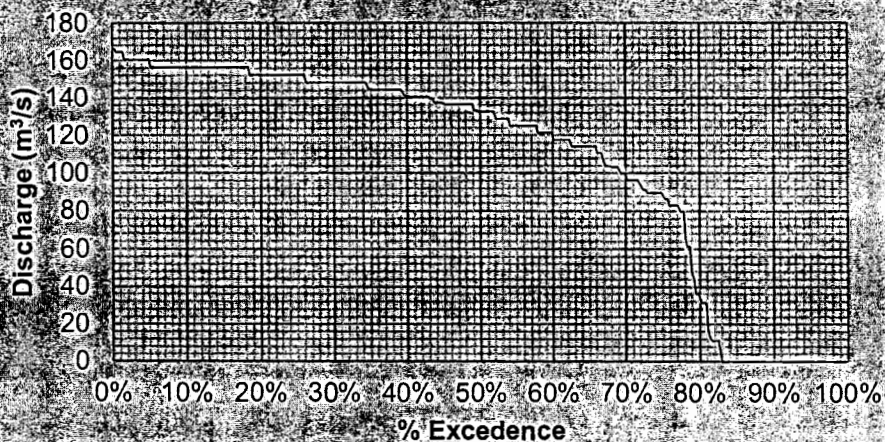


Figure 3.12: Flow Duration Curve (2005)



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Figure 3.13: Flow Duration Curve (2006)

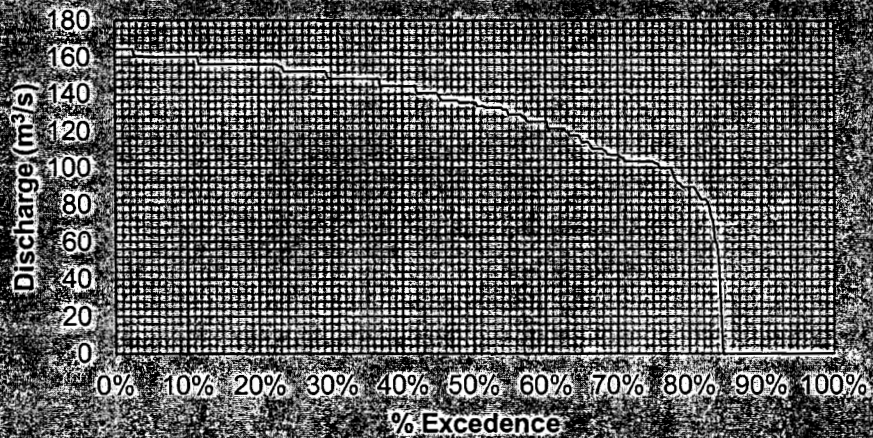


Figure 3.14: Flow Duration Curve (2007)

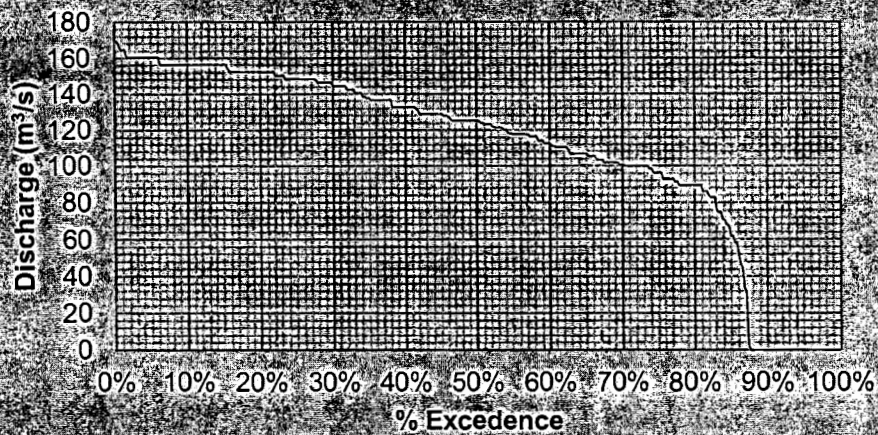
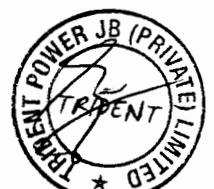
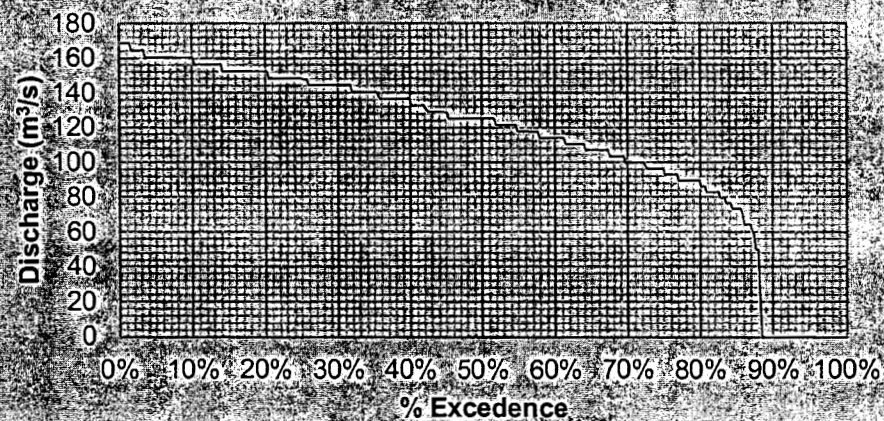


Figure 3.15: Flow Duration Curve (2008)



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Figure 3.16: Flow Duration Curve (2009)

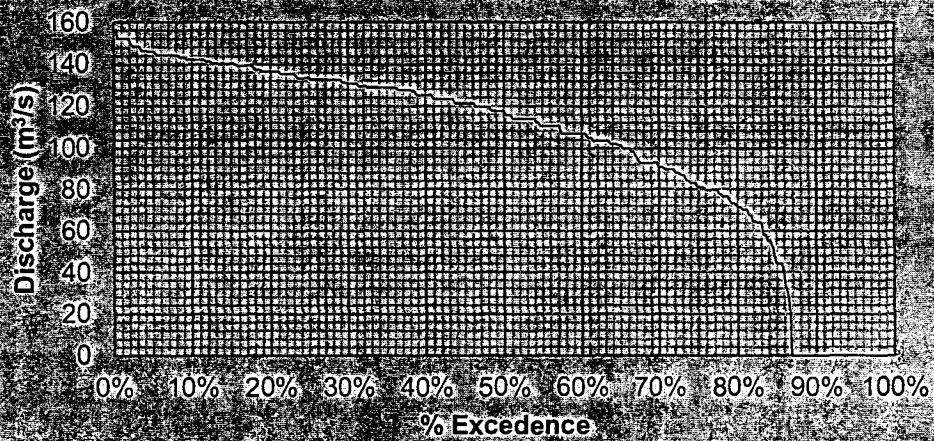


Figure 3.17: Flow Duration Curve (2010)

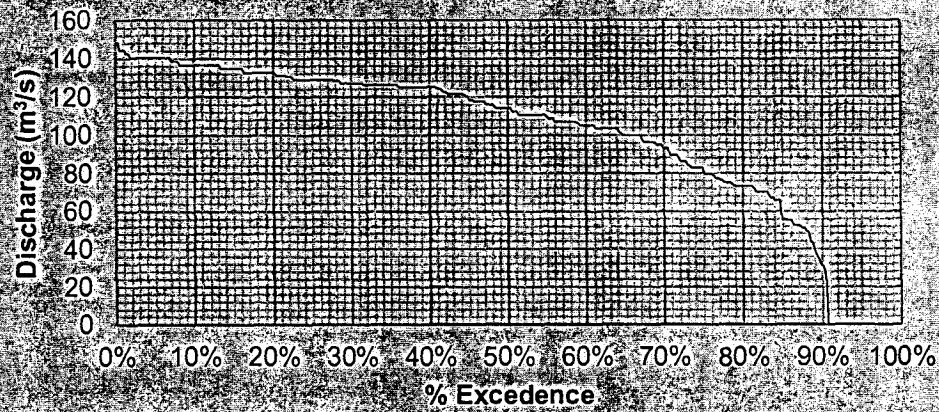
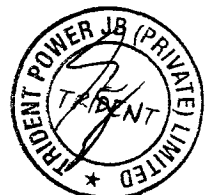
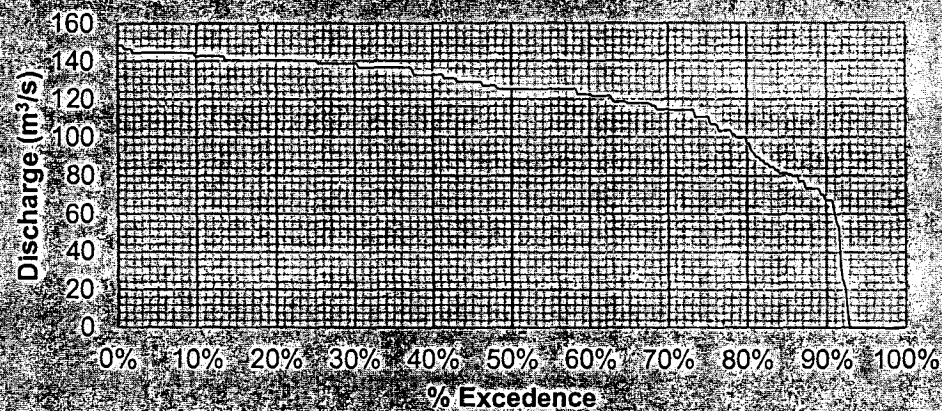
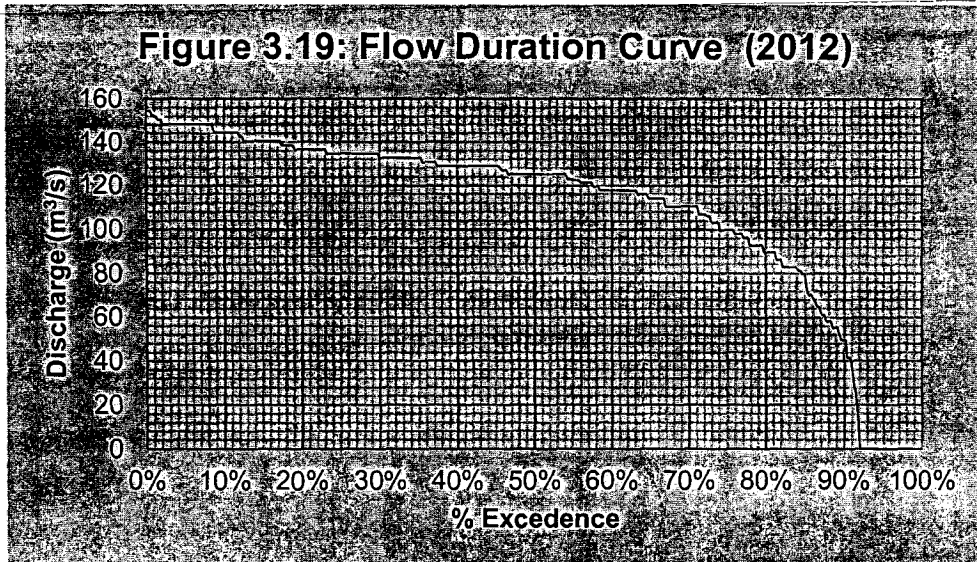


Figure 3.18: Flow Duration Curve (2011)

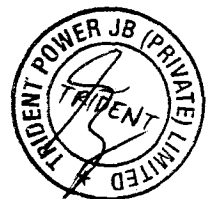


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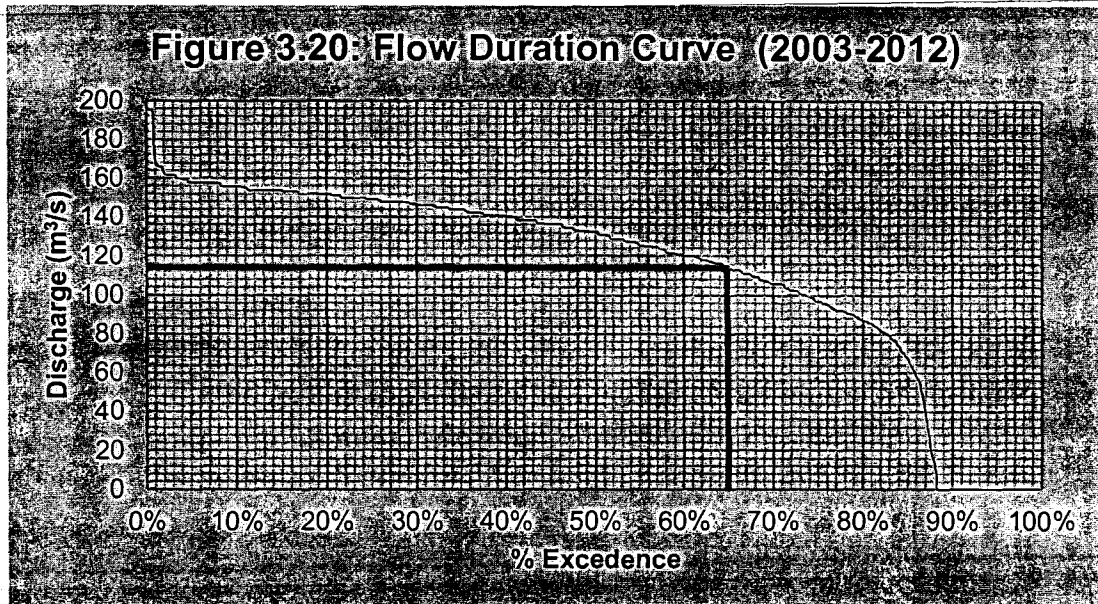


ii. **Flow Duration Curve using Mean Daily Discharge Data for the Period of 2003-2012**

Flow Duration curve for the mean daily discharge data for the period of 2003-2012 is provided in Figure 3.20. It is noticeable that canal runs 65 % of the time with discharge 114 m³/s (4025 cusecs) and available with discharge 133 m³/s (4696 cusecs) more than 50 % of the time. Throughout the year, average discharge remains between 110 m³/s (3844 cusecs) and 140 m³/s (4934 cusecs).

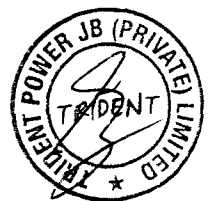


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3.4.1.1.2. Availability of Flows for Power Generations

10-Daily discharge data is processed on the basis of daily discharge data for the last ten years and provided in Table 3.12 below. Similarly, hydrograph developed and shown in Figure 3.21. Close examination of the flow duration curves and hydrographs reveals that canal flows for the period 2003 through 2012 are almost similar with some decrease or increase may be depending upon water availability or water demand. The maximum flow recorded during 2003-2012 is 195 m³/s (6891 ft³/s) in July 2010.



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Figure 3.21: Hydrograph (2003-2012)

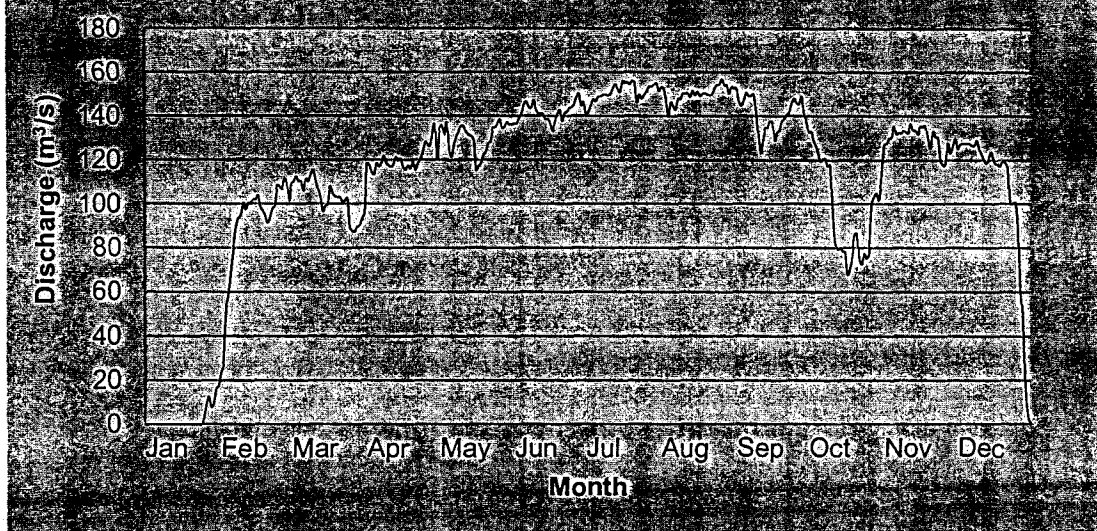
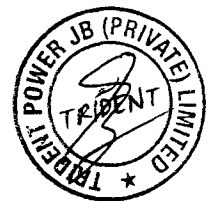
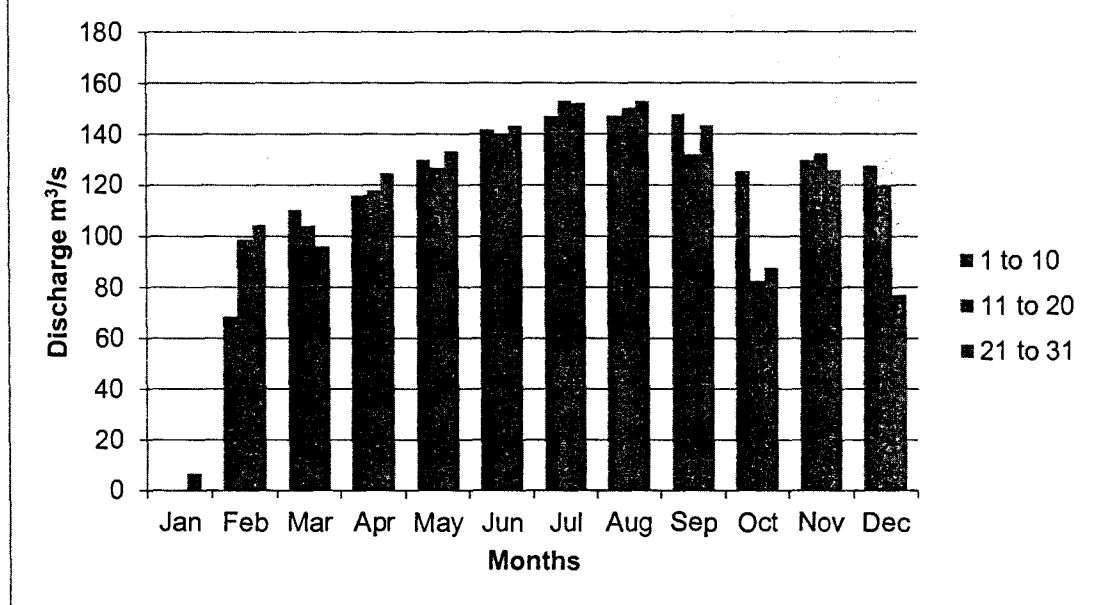


Figure 3.22: Average 10-Daily Discharge

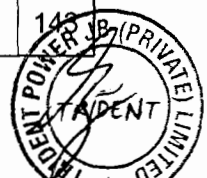


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Table 3.12: Average 10 Daily Discharge (m³/s)

Year	Dates	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	1 to 10	0	86	104	106	132	152	156	150	150	142	136	144
	11 to 20	0	48	90	138	152	153	155	151	152	116	145	150
	21 to 31	0	106	54	144	153	154	138	152	156	133	144	36
2004	1 to 10	0	38	110	108	139	141	138	150	144	85	137	115
	11 to 20	0	124	110	111	136	101	154	151	146	8	105	92
	21 to 31	0	132	120	90	143	145	123	150	126	58	103	56
2005	1 to 10	0	43	112	138	146	150	130	146	155	99	110	128
	11 to 20	0	10	131	148	149	154	132	158	145	14	120	127
	21 to 31	0	52	109	139	153	152	149	157	140	0	120	93
2006	1 to 10	0	54	138	104	131	149	147	145	151	151	140	114
	11 to 20	0	137	133	96	89	138	149	153	151	14	143	111
	21 to 31	0	121	112	108	104	118	153	156	153	112	90	94
2007	1 to 10	0	64	118	127	137	118	123	151	157	130	99	136
	11 to 20	0	94	96	135	145	139	146	153	158	100	108	116
	21 to 31	0	99	105	136	135	123	148	154	158	8	136	88
2008	1 to 10	0	76	83	96	96	152	127	146	154	96	125	125
	11 to 20	0	110	87	117	89	153	138	148	94	74	138	87
	21 to 31	0	115	7	128	137	154	139	151	110	113	115	42
2009	1 to 10	0	61	118	96	119	132	145	131	154	135	112	76
	11 to 20	0	105	108	99	124	141	146	150	146	116	125	90
	21 to 31	0	86	109	134	136	142	149	154	151	50	96	46
2010	1 to 10	0	50	87	109	120	138	195	134	155	141	145	148
	11 to 20	0	94	93	72	113	138	195	120	154	149	146	146
	21 to 31	0	77	87	84	114	138	195	139	155	124	147	110
2011	1 to 10	0	107	92	135	152	155	155	153	104	156	141	148



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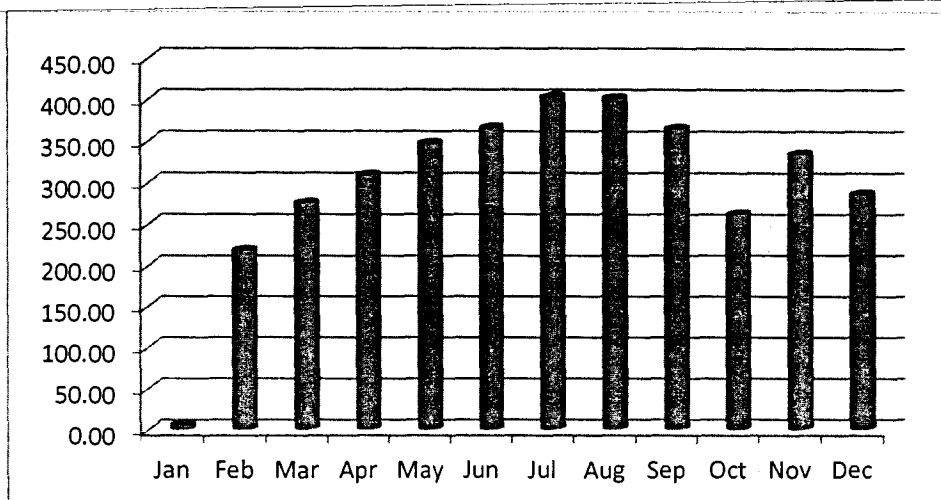


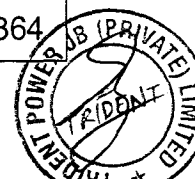
Table 3.14: Mean Monthly Maximum Discharge (m³/s)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	0.00	125.22	128.93	151.86	159.79	157.78	160.50	167.98	160.36	163.78	159.79	157.78
2004	0.00	136.43	153.82	140.22	155.80	155.80	159.79	157.78	155.80	132.66	142.24	132.66
2005	0.00	91.92	146.20	151.86	155.80	159.79	151.86	161.63	159.79	128.93	134.59	140.22
2006	0.00	144.08	144.08	140.22	151.86	153.79	155.69	157.72	157.72	153.79	147.96	132.13
2007	0.00	119.98	127.26	142.21	147.96	151.86	149.88	155.80	161.66	157.78	140.31	142.21
2008	0.00	125.64	132.49	136.54	146.03	155.80	149.88	157.72	165.65	159.76	132.66	100.89
2009	0.00	127.26	105.88	130.94	157.78	157.78	146.03	166.73	157.78	127.26	163.02	134.65
2010	0.00	105.88	117.20	132.83	130.40	144.95	195.13	157.44	159.54	157.44	153.22	157.44
2011	124.93	140.88	140.88	149.09	161.66	165.94	165.94	163.81	161.66	159.54	157.44	151.16
2012	68.02	140.88	142.91	149.09	147.02	155.32	172.42	172.42	165.94	157.44	165.94	151.16

3.4.1.2. Discharge Rating Curve

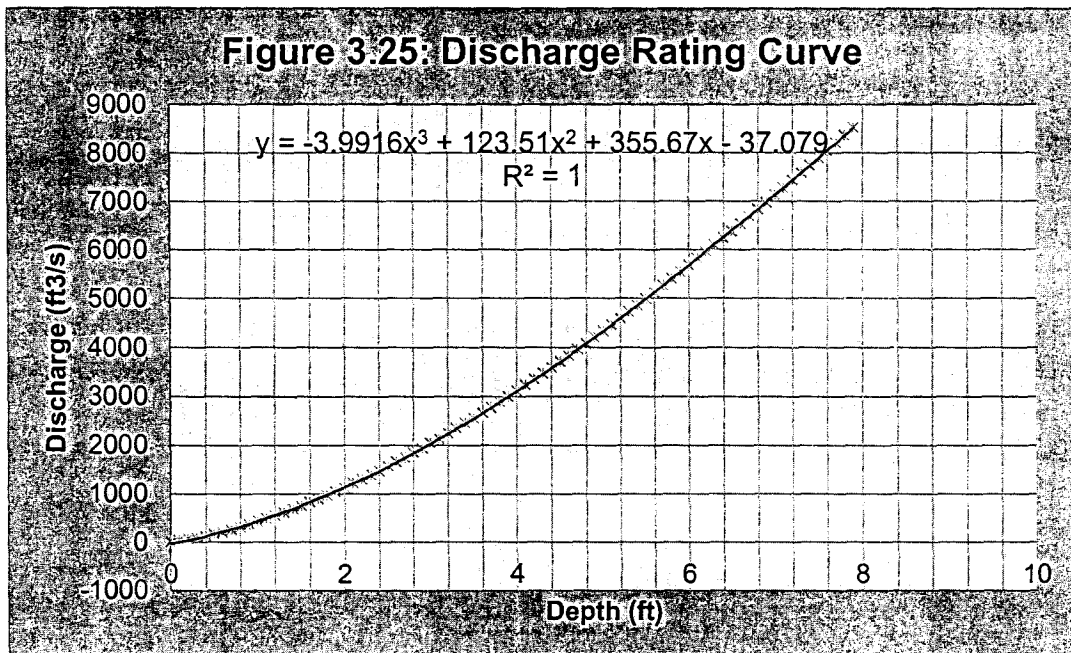
Table 3.15 Discharge Table Fall RD 258+654

No. of Bays =14		Width of each Bay =8.75			U/S Water Level= 586.02 feet			U/S Water Level= 579.55 feet		
Total B= 122.24 feet		Value of C = 3.1		Velocity of Approach = 3 ft/s			Full Supply Discharge =6920 cusecs			
Zero Error/ Correction of Guage =0.3				F.S.D=10.6 feet		U/S B =205 feet		Velocity of Approach=Va=3 ft/s		
Guage	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	8	27	54	87	124	165	210	258	310	364

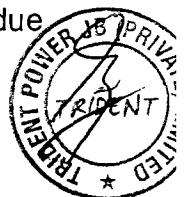


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1	422	482	545	610	678	748	821	895	972	105 1
2	1132	1215	1299	1386	1474	1565	1657	1751	1846	194 3
3	2042	2143	2245	2348	2454	2560	2668	2778	2889	300 2
4	3116	3231	3348	3466	3586	3707	3829	3953	4077	420 4
5	4331	4460	4589	4721	4853	4987	5121	5257	5395	553 3
6	5672	5813	5955	6098	6242	6387	6533	6681	6829	697 9
7	7129	7281	7434	7588	7743	7899	8056	8213	8372	853 2



Data for the discharge rating table at RD 258+654 was collected from the design office of Executive Engineer LBDC, Sahiwal. The same is considered for the selection of turbines on the upstream side of the proposed power plant at RD 260+500. There is no outlet within RDs 285+654 and 260+500 and therefore, the same data can be considered. The relationship between stage and discharge is established by measuring the stage and corresponding discharge in LBDC at u/s of RD 258+654. It is evident from the Table 3.15 and Figure 3.25 that there is constant variation in depth with respect to discharge and there will not be any negative impact on the power plant due



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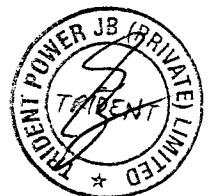
to sediment loads. The sediments are smaller in size and that is why a very smooth curve is furnished and sedimentation loading will not create any disturbance for the turbines. The stage relationship between discharge and depth at various intervals is obtained as follows:

$$y = -3.9916x^3 + 123.51x^2 + 355.67x - 37.079$$
$$R^2 = 1$$

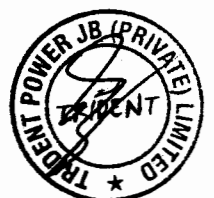
3.6 CONCLUSIONS

The following is concluded on the basis of above discussions:

- Design discharge of LBDC at the proposed project site after its remodeling shall be 7334 cusecs (207 m³/s). Flow duration curves during the last ten years indicate that 6000 cusecs (170 m³/s) is available 13 % of the time, 4100 cusecs (117 m³/s) is available 65 % of the time and 4800 cusecs (135 m³/s) is available 50% of the time. Maximum discharge data for the last decade is also considered and design discharge of 6000 cusecs is suggested for installed generation capacity whereas minimum discharge to be considered is 1500 ft³/s.
- To utilize the maximum energy potential peak and off-peak concept is being implemented.
- The upstream level will be kept constant at designed full supply level. For downstream water level rating curve is used while calculating heads for energy estimation.
- The average closure period during the last ten years is 29 days including the abnormal closure in March, April or October for warabandi. Therefore to get more benefits of energy it is proposed that closure period be kept in December and January only for annual maintenance.



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TRIDENT POWER JB (Pvt.) Ltd.

Ravi Hydropower Project				
Project Cost Estimate				
Item No	Description	Amount Rs	Total in Million Rs	USD Million
1	EPC COST			
1.1	Civil Works	923,653,780	924	5.43
1.2	Hydromechanical & Electromechanical Works	1,188,976,990	1,189	6.99
2	LAND COST (Privately Owned)	64,048,690	64	0.38
3	Development Costs	120,000,000	120	0.71
4	Insurance	24,000,000	24	0.14
5	Lender's Fee & Charges	72,000,000	72	0.42
6	Interest During Construction (IDC)	144,000,000	144	0.85
	Total in Million Rs	2,536,679,460	2,536.68	14.92
			1 USD	PKR 170



COST ESTIMATE - CIVIL WORKS

RAVI HYDROPOWER PROJECT

Sr. #	Description of Work				Amount (Rs.)
1	Excavation				397,806,177
2	Canal Lining				7,769,155
3	Dewatering				30,595,164
4	Road Works				15,054,520
5	Power House				163,000,000
6	Concrete				163,670,764
7	Reinforcement				68,558,000
8	Miscellaneous				77,200,000
	Sub Total				923,653,780
	Total of Civil Works				923,653,780

1. Earthworks

Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Excavation in Canal	Cft	21,800,924	13.00	283,412,007
2	Excavation in Access Road	Cft	89,080	13.00	1,158,040
3	Excavation in Power House (30m lead)	Cft	365,000	32.00	11,680,000
4	Excavation in Power House (150m lead)	Cft	395,000	38.00	15,010,000
5	Excavation in Head Race Channel (30m lead)	Cft	1,159,200	14.00	16,228,800
6	Excavation in Head Race Channel (150m lead)	Cft	1,738,800	14.00	24,343,200
7	Excavation in Tail Race Channel (30m lead)	Cft	1,234,800	14.00	17,287,200
8	Excavation in Tail Race Channel (150m lead)	Cft	1,852,200	14.00	25,930,800
9	Dressing of subgrade on bed	Sft	155,400	13.00	2,020,200
10	Dressing of subgrade on slope	Sft	56,610	13.00	735,930
	Sub Total- 1				397,806,177

2. Canal Lining

Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Brick Lining Head Race in Bed	Cft	13,852	36.50	505,598
2	Brick Lining Head Race in Slope	Cft	2,886	360.00	1,038,917
3	Brick Lining Tail Race in Bed	Cft	11,514	350.00	4,029,900
4	Brick Lining Tail Race in Slope	Cft	2,238	390.00	872,820
5	Brick Masonry	Cft	3,888	340.00	1,321,920
	Sub Total- 2				7,769,155

3. Dewatering

Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Dewatering	LS	1	30,595,163.50	30,595,164
	Sub Total- 3				30,595,164

4. Road Works

Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Sub Base Course	Cft	44,540	75.00	3,340,500
	Base Course	Cft	44,540	68.00	3,028,720
	Asphaltic Wearing Course	Cft	22,270	390.00	8,685,300
	Sub Total- 4				15,054,520

5. Power House					
Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Powerhouse (Building accessories, flooring, etc)	LS	1	163,000,000	163,000,000
Sub Total- 5					163,000,000
6. Concrete					
Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Lean Concrete	Cft	3,800	480.00	1,824,000
2	Structural Concrete - Power House	Cft	260,575	540.00	140,710,500
3	Concrete - Other	Cft	29,193	580.00	16,931,940
4	Concrete - Other	Cft	1,290	540.00	696,600
5	Plaster layer on bed	Sft	75,946	37.50	2,847,975
6	Plaster layer on slope	Sft	15,343	43.00	659,749
Sub Total- 6					163,670,764
7. Reinforcement					
Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Steel Reinforcement - Powerhouse	Ton	569	118,000	67,142,000
	Steel Reinforcement - Other	Ton	12	118,000	1,416,000
Sub Total- 7					68,558,000
8. Miscellaneous					
Sr. #	Description of Work	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Bridge 5R Distributary	LS	1	30,000,000.00	30,000,000
2	Gates Miscellaneous Works	LS	1	22,000,000.00	22,000,000
3	O&M Staff Colony	LS	1	25,200,000.00	25,200,000
Sub Total- 4					77,200,000



RAVI HYDROPOWER PROJECT

BILL OF QUANTITIES FOR MECHANICAL, HYDRAULIC STEEL STRUCTURE AND ELECTRICAL WORKS

Sr.No	Description	Unit	Qty	Rate Per Unit (Foreign Currency) US Dollar	Rate Per Unit (Local Currency) Pak. Rs.	Total Cost (Foreign Currency) US Dollar	Total Cost (Local Currency) (Pak. Rs.)	Remarks
1	MECHANICAL EQUIPMENT							
	Engineering Design, Manufacture, Deliver to Site, Store, Install, Test, Commission and maintain for One year each item of the following equipment							
1.1	Pit type kaplan Double regulated horizontal shaft turbines, 1665 KW, 103.4 rpm complete with flow meters, pressure gauges, draft tubes, steel liners, foundation steel frames, anchorages etc.	Set	3	1,226,000.00	208,420,000.00	3,678,000	625,260,000	
1.2	cooling water system including pumps, piping, valves strainers etc.	Set	3	21,100.00	3,587,000.00	63,300	10,761,000	
1.3	Drainage and Dewatering pump, complete with electric motor of about 3 HP, suction and delivery pipes	No.	3	19,100.00	3,247,000.00	57,300	9,741,000	
1.4	Digital Governors complete with PID characteristics, based on PLC instrumentation and indications, power and control cables, hydraulic power packs, Auto frequency and speed control, Automatic local control, Manual and auto mode, Speed adjustable (0-10%), Black start operation, Hydraulic oil (charged plus spare)	Set	3	75,000.00	12,750,000.00	225,000	38,250,000	
1.5	Powerhouse (30 Tonne) pendant operated bridge crane complete with runway conductors, power cable, chain pulley blocks, slings, rails, embedded anchors, sole plates etc.	No	1		12,000,000.00		12,000,000	
1.6	Parallel shaft speed increaser(gears) with speed ratio of 85.7/750	No	3	56,700.00	9,639,000.00	170,100	27,216,000	
1.7	Water Level Measuring Devices	Nos	3	5,500.00	16,500.00	16,500	2,640,000	
1.8	Control and instrumentation	Lot	3	31,249.00	5,312,330.00	93,747	15,936,990	

RAVI HYDROPOWER PROJECT

BILL OF QUANTITIES FOR MECHANICAL, HYDRAULIC STEEL STRUCTURE AND ELECTRICAL WORKS

Sr.No	Description	Unit	Qty	Rate Per Unit (Foreign Currency) US Dollar	Rate Per Unit (Local Currency) Pak. Rs.	Total Cost (Foreign Currency) US Dollar	Total Cost (Local Currency) (Pak. Rs.)	Remarks
3	ELECTRICAL EQUIPMENT							
3.1	GENERATORS							
3.1.2	Generators rated 1.97 MVA,P.f.0.85, along with generator control panel,static excitation and AVR panel,Field switch cubicle	No	3	398,000.00	67,660,000.00	1,194,000	202,980,000	
3.1.3	Generator Circuit Breaker Cubicle	No	3	24,300.00	4,131,000	72,900	12,393,000	
3.1.4	Generator Earthing Cubicle	No	3		4,190,000		12,570,000	
3.1.5	Measuring/signalling devices	Lot	1		2,000,000		2,000,000	
3.2	TRANSFORMERS							
3.2.1	2.95 MVA, 3.3/11 kV, 3 Ph, 50 Hz oil filled step up transformer	No	3		6,100,000		18,300,000	
3.2.2	Auxiliary transformer 100 kVA,11kV/0.4 kV for station services	No	2		3,900,000		7,800,000	
3.2.3	Distribution transformer of size 100 kVA,11kv/400 volts	No	2		1,900,000		3,800,000	
3.2.4	Distribution transformer of size 200 kVA,11kv/400 volts	No	1		1,900,000		1,900,000	
3.2.5	Distribution transformer of size 2.95 MVA,11kV/575V for steel furnace	No	2		1,800,000		3,600,000	
3.3	SWITCHGEARS							
3.3.1	11kV Switchgear Panels complete	No	8	28,000.00	4,760,000	224,000	38,080,000	
3.3.2	Low Voltage Distribution panels with MCCBs	No	6		2,000,000		12,000,000	
3.4.1	Battery and Battery Charger complete	Sets	2		496,000		992,000	
3.4.2	D.C/A.C converters/Inverters,including UPS	Lot	1		8,187,000		8,187,000	
3.4.3	220 V D.C distribution Panel	No.	1		1,000,000		1,000,000	
3.4.4	48 V D.C distribution Panel	No.	1		1,000,000		1,000,000	
3.4.5	CONTRDL,Protection and Instrumentation System for Generators and their auxiliaries,Transformers,MV and LV system,including operator station	Lot	1		11,257,000		11,257,000	
3.4.6	EARTHING SYSTEM complete including connections to individual equipments/systems				1,980,000			
3.4.7	FIRE Detection and fire alarm SYSTEM	Lot	1		230,000		230,000	
3.4.8	Cable trays and MV Power Cables with termination and all other accessories	Lot	1		1,400,000		1,400,000	
3.4.9	Cable trays and Low voltage cables with termination and all other accessories	Lot	1		11,500,000		11,500,000	
3.4.10	Cable trays and Control Cables with termination and all other accessories	Lot	1		2,500,000		2,500,000	
3.4.11	Internal and External lighting power house and fence area.	Lot	1		2,000,000		2,000,000	
3.4.12	TELECOMMUNICATION SYSTEM,consisting of PABX,telephone cabling,telephone sets etc.	Lot	1		300,000		300,000	
Total Electrical (B)							355,789,000	
Total - E&M (A+B)							1,188,976,990	

Production Estimate
Ravi Hydro Power Project

Plant Capacity (MGWh)	4.6
Plant factor	68.20%
Production (Annual) KWH	27,200,000
Production (Over life) KWH	816,000,000
Conversion Rate	170

Proposed Tariff				
Description	Years		Years	
	1-10	11-30	1-10	11-30
	Rs. /KWh	Rs. /KWh	Us Cents /KWh	Us Cents /KWh
Fixed Cost				
Water usage charges	0.33	0.33	0.19	0.19
Insurance	1.06	0.42	0.62	0.25
Debt Service	10.32	-	6.07	-
Return on equity	3.11	3.11	1.83	1.83
Total Fixed Cost	14.82	3.86	8.72	2.27
Variable Cost				
Operation & Maintenance	1.12	1.80	0.66	1.06
Total	15.94	5.66	9.38	3.33

RAVI HYDROPOWER PROJECT

BILL OF QUANTITIES FOR MECHANICAL, HYDRAULIC STEEL STRUCTURE AND ELECTRICAL WORKS

Sr.No	Description	Unit	Qty	Rate Per Unit (Foreign Currency) US Dollar	Rate Per Unit (Local Currency) Pak. Rs.	Total Cost (Foreign Currency) US Dollar	Total Cost (Local Currency) (Pak. Rs.)	Remarks
1.9	Fire extinguisher (dry powder type) of capacity 8 kg	No.	6		56,000.00		336,000	
1.1	Painting of all Hydraulic and Mechanical structures	Lumpsum	1	23,100.00	3,927,000.00	23,100	3,927,000	
1.11	Spare parts for turbines, digital governors, mechanical auxiliaries, generators, synchronizer, control panels etc. for five (5) years operation (provide a separate detail and breakdown prices of spares)	Lot	1	126,000.00	21,420,000.00	126,000	21,420,000	
1.12	Items necessary for the operation of the Turbine-generating units and maintenance tools (give details)	Set	1	20,000.00	3,400,000	20,000	3,400,000	
2	HYDRAULIC STEEL STRUCTURE							
2.1	At power intake structure 8.96m wide and 9.7 m high stoplog (4 sections) including embeded parts, rails etc	LS	1		15,000,000		15,000,000	
2.2	Removable trashrack along with rail for power intake 9.0m width and 12.0m height complete with 1st and 2nd stage embeded parts	No	3		6,000,000		18,000,000	
2.3	Trashrack Cleaner (Inclined, Hoist boom, max. rotation 330°, Rake "payload" 2 tonnes, Grab net capacity 4 tonnes along with trolley, Payload minimum 3 tonnes	No	1		2,400,000		2,400,000	
2.4	Mobile Crane 2 tonne for handling Stoplog , at inlet and outlet and Trashrack (optional)	No	1		7,500,000		7,500,000	
2.5	Draft Tube outlet stoplogs (width 8.96 m x Height 6.4m complete with embeded parts	LS	1		15,000,000		15,000,000	
2.6	Two monorail hoists 3 ton capacity for handling of intake stoplogs, trashrack, outlet stoplog	No	2		2,200,000		4,400,000	
Total Mechanical (A)							833,187,990	

Levelized Traiff

Tariff Components	Years									
	1	2	3	4	5	6	7	8	9	10
Fixed Charges										
Operation & maintenance	-	-	-	-	-	-	-	-	-	-
Water usage charges	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000
Insurance	26,092,556	34,010,296	32,795,643	31,580,990	30,366,336	29,151,683	27,937,029	26,722,376	25,507,722	24,293,069
Debt Service	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488	280,575,488
return on equity	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014	84,605,014
Total Fixed Charges	400,249,057	408,166,798	406,952,145	405,737,491	404,522,838	403,308,185	402,093,531	400,878,878	399,664,224	398,449,571
Variable charges										
Operation & maintenance	25,965,698	25,965,698	25,965,698	29,776,547	29,776,547	33,587,396	33,587,396	33,587,396	33,587,396	33,587,396
Total	426,214,755	434,132,496	432,917,843	435,514,038	434,299,385	436,895,580	435,680,927	434,466,273	433,251,620	432,036,966
	11	12	13	14	15	16	17	18	19	20
Fixed Charges										
Operation & maintenance	-	-	-	-	-	-	-	-	-	-
Water usage charges	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000
Insurance	22,194,608	21,026,471	19,858,333	18,690,196	17,522,059	16,353,922	15,185,784	14,017,647	12,849,510	11,681,373
Debt Service	-	-	-	-	-	-	-	-	-	-
return on equity	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563
Total Fixed Charges	129,202,170	128,034,033	126,865,896	125,697,759	124,529,621	123,361,484	122,193,347	121,025,210	119,857,072	118,688,935
Variable charges										
Operation & maintenance	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791
Total	178,032,962	176,864,824	175,696,687	174,528,550	173,360,413	172,192,275	171,024,138	169,856,001	168,687,864	167,519,726
	21	22	23	24	25	26	27	28	29	30
Fixed Charges										
Operation & maintenance	-	-	-	-	-	-	-	-	-	-
Water usage charges	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000	8,976,000
Insurance	10,513,235	9,345,098	8,176,961	7,008,824	5,840,686	4,672,549	3,504,412	2,336,275	1,168,137	0
Debt Service	-	-	-	-	-	-	-	-	-	-
return on equity	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563	98,031,563
Total Fixed Charges	117,520,798	116,352,661	115,184,523	114,016,386	112,848,249	111,680,112	110,511,974	109,343,837	108,175,700	107,007,563
Variable charges										
Operation & maintenance	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791	48,830,791
Total	166,351,589	165,183,452	164,015,315	162,847,177	161,679,040	160,510,903	159,342,766	158,174,628	157,006,491	155,838,354
Total PV	7,674,123,038									
Production	816,000,000									
Levelized Tariff Cents/KWH	5.42									

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**RAVI HYDRO POWER PROJECT
REFERENCE TARIFF TABLE**

YEAR	PROJECT COST	VARIABLE O&M		Water Discharge	Insurance Cost	TOTAL COST	CAPACITY KWh	CPP CHARGES	EPP CHARGES	TOTAL REVENUES	NET REVENUES
		Local	Foreign								
1	(1,014,671,784)			-		(1,014,671,784)	-	-	-	-	(1,014,671,784)
2	(1,522,007,676)			-		(1,522,007,676)	-	-	-	-	(1,522,007,676)
3	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
4	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
5	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
6	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
7	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
8	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
9	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
10	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
11	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
12	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,782,887
13	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
14	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
15	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
16	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
17	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
18	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
19	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
20	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
21	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
22	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
23	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
24	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
25	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
26	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
27	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
28	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
29	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
30	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
31	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
32	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,327,819
TOTAL	(2,536,679,460)	(618,136,401)	(618,136,401)	(135,999,000)	(397,773,089)	(4,306,724,352)	816,000,000	-	-	7,414,430,145	3,107,705,793

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CASH FLOW STATEMENT

AR	PROJECT COST	VARIABLE O&M		Water Discharge	Insurance Cost	TOTAL COST	CAPACITY KWh	CPP CHARGES	EPP CHARGES	TOTAL REVENUES	NET REVENUES
		Local	Foreign								
1	(1,014,671,784)	-	-			(1,014,671,784)	-	-	-	-	(1,014,671,784)
2	(1,522,007,676)	-	-			(1,522,007,676)	-	-	-	-	(1,522,007,676)
3	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
4	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
5	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
6	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
7	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
8	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
9	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
10	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
11	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
12	-	(12,982,849)	(12,982,849)	(4,533,300)	(13,259,103)	(43,758,101)	27,200,000	14.49	1.45	433,540,988	389,78
13	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
14	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
15	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
16	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
17	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
18	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
19	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
20	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
21	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
22	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
23	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
24	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
25	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
26	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
27	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
28	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
29	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
30	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
31	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
32	-	(24,415,396)	(24,415,396)	(4,533,300)	(13,259,103)	(66,623,194)	27,200,000	3.53	2.13	153,951,013	87,32
UL	(2,536,679,460)	(618,136,401)	(618,136,401)	(135,999,000)	(397,773,089)	(4,306,724,352)	816,000,000	-	-	7,414,430,145	3,107,70

DEBT SERVICE

Total cost of project	2,536,679,460	Bank Loan first year	761,003,837.93
Debt Financed original	1,902,509,595	Interest first year	45,660,230.28
Debt Finance with capitalised interest	2,065,060,014.59	Total Loan as at First year end	806,664,068.20
Cost of debt	6.0000%	Second loan installment	1,141,505,756.89
Per year return	280,575,488	Interest second year	116,890,189.51
Return over life	2,805,754,878	Total Loan outstanding	2,065,060,014.59
Interest	903,245,283		

Loan Schedule					
Year	Opening Balance	Installment	Interest	Principal	Closing Balance
1	2,065,060,015	280,575,488	123,903,601	156,671,887	1,908,388,128
2	1,908,388,128	280,575,488	114,503,288	166,072,200	1,742,315,928
3	1,742,315,928	280,575,488	104,538,956	176,036,532	1,566,279,395
4	1,566,279,395	280,575,488	93,976,764	186,598,724	1,379,680,671
5	1,379,680,671	280,575,488	82,780,840	197,794,648	1,181,886,024
6	1,181,886,024	280,575,488	70,913,161	209,662,326	972,223,698
7	972,223,698	280,575,488	58,333,422	222,242,066	749,981,632
8	749,981,632	280,575,488	44,998,898	235,576,590	514,405,042
9	514,405,042	280,575,488	30,864,303	249,711,185	264,693,856
10	264,693,856	280,575,488	15,881,631	264,693,856	(0)
		2,805,754,878	740,694,863	2,065,060,015	

1. PROPOSED TARIFF AND ASSUMPTIONS

- a. A two part tariff structure based on energy and capacity payments is proposed. Capacity payments shall be payable by the Power Purchaser based on availability of the plant whereas energy payments shall be billed and be payable based on the net electrical output of the Plant under and in accordance with the terms of the PPA.
- b. The proposed tariff is summarized as follows:

Proposed Tariff				
Description	Years		Years	
	1-10	11-30	1-10	11-30
	Rs. /KWh	Rs. /KWh	US Cents /KWh	US Cents /KWh
Fixed Cost / Capacity Component				
Water usage charges	0.33	0.33	0.19	0.19
Insurance	1.06	0.42	0.62	0.25
Debt Service	10.32	-	6.07	-
Return on equity	3.11	3.11	1.83	1.83
Total Fixed Cost	14.82	3.86	8.72	2.27
Variable Cost / Energy Component				
Operation & Maintenance	1.12	1.80	0.66	1.06
Total	15.94	5.66	9.38	3.33

- c. The following indexations will be applicable for the proposed tariff:

Component	Applicable Indexation
Variable O&M (Foreign)	PKR/USD Rate and US CPI
Variable O&M (Local)	Pakistan CPI
Fixed O&M (Foreign)	PKR/USD Rate and US CPI
Fixed O&M (Local)	Pakistan CPI
Insurance	PKR/USD Rate on 1 st Day of each Agreement Year
Return on Equity	PKR/USD Rates
Principal Repayments	PKR/USD Rates



d. Reference Rate

USD to PKR as per prevailing rate and current date considered for tariff determination is PKR 170 to 1 USD.

2. KEY FEATURES UNDERLYING THE CALCULATION OF PROPOSED TARIFF

a. Project Cost Assumptions

Following is the estimated capital cost of the project:

Description	USD Million
EPC Cost	12.43
Land Cost	0.38
Development Costs	0.71
Insurance during Construction	0.14
Lender's fee and Charges	0.42
Interest during construction (IDC)	0.85
Total Project Cost	27.35

i. EPC COST

The cost includes the cost of procurement, engineering, construction, supervision, site preparation, temporary facilities and access to site, boundary wall, powerhouse, Hydromechanical works, headrace and tailrace channels, electromechanical works, transport, installation, testing and commissioning, security costs and accommodation of site staff etc., The EPC cost does not include custom duties or withholding taxes which will be pass-through based on the actual amount.

USD 12.43 Million has been budgeted as the EPC cost, which is expected to be firmed up following the EPC Bidding process.

ii. LAND COST

The total estimated land required for the project is 26 Acres out of which 16 Acres is privately owned and 10 Acres is owned by the Punjab Irrigation Department. The company has estimated the land cost at USD 0.38 Million and may be updated at EPC stage. The cost of the land plus stamp duty and other associated costs will be adjusted at actual at COD.



iii. DEVELOPMENT COSTS

a. Cost of Studies and Consultants

Project Development cost include the cost of feasibility study incorporating the topographic surveying and levelling, geotechnical & geophysical investigations, initial environmental examination, hydrology and sedimentation studies, etc., as well as the fees for legal counsel, technical consultant, financial advisor, owner's engineer, training and regulatory fees etc., These costs have been incorporated and will be updated at EPC stage and may be adjusted as per actual at COD.

b. Company and Sponsor Costs

Company and sponsor costs include administrative costs expected to be incurred by the owner prior COD. This will include the cost of salaries, office rentals, travel, utilities and other establishment costs. The company has budgeted USD 0.71 Million for these costs and will be adjusted as per actual at COD.

iv. INSURANCE DURING CONSTRUCTION

Insurance premiums to be incurred prior to COD have been estimated at 1.00 % of EPC cost and amount to USD 0.14 Million.

v. LENDER'S FEE AND CHARGES

This covers arrangement, commitment, agency, trustee, monitoring and other fees payable to the lending banks as well as fees payable to legal, technical and insurance advisors employed by the leading banks for the purpose of the financing. These fees have been currently budgeted at 3 % of the debt amount (excluding any sales and withholding taxes) and amount to USD 0.42 Million.

vi. INTEREST DURING CONSTRUCTION

IDC has been calculated on the basis over a 24 Month Construction period, a 75:25 debt to equity ratio and based on financing from foreign lenders.

Based on the above assumptions, the Interest during Construction for the project is estimated at USD 0.85 Million.

Interest during construction shall be subject to adjustments based on firm offer from lending banks and the actual disbursement schedule.

The company will avail the State Bank of Pakistan's ("SOP") Refinancing Scheme for Renewable Projects. In this case, IDC will be based on the actual cost and adjusted accordingly.

c. Capital Structure Assumptions

The project is to be funded based on a debt to equity ratio of 75:25. Based on the financial structure the Sponsors shall subscribe on equity of USD 4.32 Million in the project while USD 10.09 Million shall be raised from the lenders. A summary of the proposed capital structure is given in the table below:

Capital Structure	USD Million
Equity	3.73
Debt	11.19
Total Project Cost	14.92
Debt: Equity	75:25

d. Financing Cost Assumptions

Financing costs are based on a local debt with the duration of 10 years after COD whereas a construction duration of two years is over and above of 10 years of debt service. Debt repayment is assumed on monthly basis. The interest cost is based on the financing from local banks and subsequent adjustments shall be made due to variation in interest rates or PKR/USD exchange rate on quarterly basis.

e. Return on Equity (ROE)

An IRR of 13% has been assumed for the purpose of calculation of the ROE component. This is lower than NEPRA's recent tariff determinations on similar projects.

f. Operations & Maintenance (O&M) Costs

It includes salaries of staff, boarding, lodging and plant maintenance cost. It expected to be incurred in the following pattern.



Operation and Maintenance Cost		
Year	Amount (Rs.) / Year	Amount (Rs.) Total
1-3	25,965,698	77,897,093
4-5	29,776,547	59,553,093
6-10	33,587,396	167,936,978
11-30	48,830,791	976,615,825
Total	138,160,431	1,282,002,990

g. Assumptions

- i. The timing of drawdown of debt and equity may vary from those specified in this petition and accordingly the project cost shall be adjusted at the time of COD as per actual IDC. Similarly, ROE will also be updated at the time of COD.
- ii. Adjustments in project costs due to variation in PKR / USD will be made at the time of COD.
- iii. Interest rates shall be adjusted as per prevailing rates considered during EPC and shall be adjusted at the time of COD.
- iv. No Withholding taxes or any custom duties considered in the tariff preparation and will be adjusted at the time of COD as per actual.
- v. Attraction of withholding taxes and or advance taxes on payments to O&M and EPC Contractor is a pass through.

h. Pass Through

- i. No withholding tax on dividend has been included in the tariff and we have considered that any payment of withholding tax on dividend as pass through at the time of actual payment of dividend.

- ii. Any sort of payments like EOBI or workers' welfare funds, pension contributions or Zakat etc.,
- iii. No tax on income of company (including proceeds against sale of electricity to CPPA-G/NTDC/DISCO) has been assumed. Corporate tax, turnover tax, general sales tax / provincial sales tax all other taxes, excise duty levies, fees etc., shall be treated as pass through item.
- iv. Withholding tax on debt servicing component of tariff has not been considered.
- v. No hedging cost is assumed for exchange rate fluctuations during construction and all cost overruns resulting from variations in the exchange rate during construction shall be allowed as pass through.
- vi. Any cost incurred by the project company, which is required to be incurred by Power Purchaser pursuant to provisions of PPA shall also be treated as pass through.
- vii. If the company is required to make payment of withholding tax on debt servicing the same shall be treated as pass through item. The Power Purchaser shall reimburse the company the actual amount paid on this account.
- viii. Costs incurred or suffered by the Project Company for any exchange in general assumptions shall be a pass through item.

i. Other Terms and Conditions

- i. No corporate Income Tax assumed throughout the life of the project. If any tax is payable the same shall be passed-through to the Power Purchaser.
- ii. No sales-tax, value-added tax, federal excise duty or any other tax has been assumed for the sale of Power to the Power Purchaser. Any tax levied on the sale of power to the Power Purchaser as per law shall be billed and be payable by the Power Purchaser accordingly.
- iii. No federal or provincial sales taxes considered on services and goods as part of the project or operating costs. The same shall either be adjusted in the Project Cost or considered a pass-through item at actual.
- iv. Any costs arising out of modifications / amendments by the Power Purchaser or any other governmental authority shall be considered pass-through to the Power Purchaser.
- v. In the light of above submissions, TPJBPL requests the learned Authority to kindly approve the proposed tariff alongwith the pertinent indexations to remain effective for a period of 30 years from COD on a fast-track basis.

