



Chanar
Limited

CEL/20
23 May 2015

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

SUBJECT: — APPLICATION FOR A GENERATION LICENSE

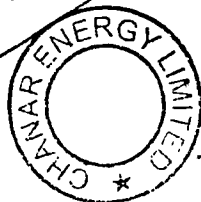
I, **Javed Ahmad Kayani**, Chief Executive, being the duly Authorized representative of **Chanar Energy Limited** (CEL) by virtue of Resolution of Board of Directors dated 15 May 2015, hereby apply to the National Electric Power Regulatory Authority for the grant of a a Generation License to CEL pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

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 Licensing (Application and Modification Procedure) Regulations, 1999, 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 No. 734687 dated 22 May 2015 drawn on MCB Bank Limited, Main Boulevard Gulberg-II, Lahore in the sum of Rupees Two Hundred Seventy Five Thousand and One Hundred Fifty Two only (PKR 275,152), being the non-refundable license application fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999, is also attached herewith.

Yours Faithfully


Javed Ahmad Kayani
Chief Executive





Chanar Energy
Limited

**EXTRACTS OF THE RESOLUTIONS OF BOARD OF DIRECTORS OF
CHANAR ENERGY LIMITED
PASSED IN THEIR MEETING HELD ON 15 MAY 2015
AT 7-A- NEW MUSLIM TOWN, LAHORE**

The Board of Directors of CHANAR ENERGY LIMITED a public company duly formed and registered in the Islamic Republic of Pakistan having incorporation No.0088977 (the "**Company**") and having its registered office at 7-A- New Muslim Town, Lahore, in their meeting held on 15 May 2015, passed the following resolutions:

UNANIMOUSLY RESOLVED that the Company should approach NEPRA for Generation License under the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

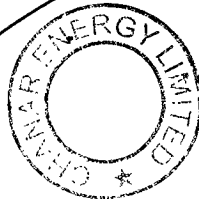
Further Resolved, that Mr. Javed Ahmad Kayani, Chief Executive, Mr. Chaudary Ahmed Raza, Manager Finance & Accounts, and Mr. Sheikh Azeem Muhammad Shafi, Company Secretary, of the Company be and are hereby jointly and singly authorized to do any or all of the following acts, deeds and things, on behalf of the Company, in connection with this application to be filed with NEPRA under the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 and the National Electric Power Regulatory Authority Licensing (Application and Modification Procedure) Regulations, 1999:

- Represent the Company before NEPRA, and in doing so perform all lawful acts, deeds and things, including but not limited to filing, signing, presenting, modifying, amending, withdrawing applications and other documents, responding to any queries and meeting any objections, receiving notices and documents; and
- Do all acts, deeds and things, which are ancillary and incidental to the afore-said purposes.

Further Resolved, that extracts of this resolution be provided to the NEPRA with the seal/stamp duly affixed thereon.


Sheikh Azeem Muhammad Shafi
Company Secretary

15 May 2015




Javed Ahmad Kayani
Chief Executive / Chairman

A003817



SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN

COMPANY REGISTRATION OFFICE, LAHORE

CERTIFICATE OF INCORPORATION

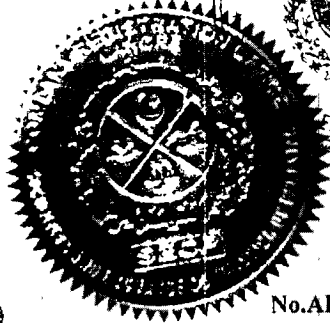
[Under section 32 of the Companies Ordinance, 1984 (XLVII of 1984)]

Corporate Universal Identification No. 0088977

I hereby certify that **CHANAR ENERGY 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 Lahore this Twenty Sixth day of June, Two Thousand and Fourteen.

Fee Rs. 332,000/-



(LIAQAT ALI DOLLA)
Additional Registrar of Companies

No. ARL/ 29026 DATED: 26/6/2014

CERTIFIED TO BE TRUE COPY

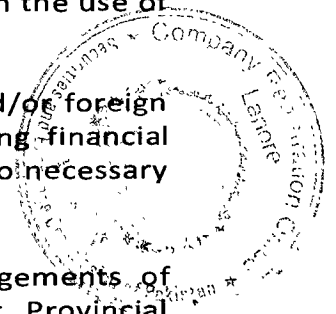
[Signature] 26/6/2015

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

**MEMORANDUM OF ASSOCIATION
OF
CHANAR ENERGY LIMITED**

- I. The Name of the Company is "CHANAR ENERGY LIMITED".
- II. The Registered Office of the Company will be situated in the Province of Punjab.
- III. The objects of the Company are all or any of the following.
 1. To develop, design, construct, own, manage, operate and maintain electric power generation plant(s) using, Bagasse, Other Biomass, Coal, Gas, Diesel and Heavy Furnace Oil as fuel, at such location(s) as the applicable laws/policies permit, and in connection therewith to engage in the business of generation, transmission, sale, supply and distribution of electricity and steam to the public sector, including but not limited to, Pakistan Electric Power Company (Private) Limited (PEPCO), National Transmission and Dispatch Company Limited (NTDC), Distribution Companies (DISCOs), Government bodies and Private sector including sugar mills within Pakistan subject to necessary approvals under the applicable laws/policies from National Electric Power Regulatory Authority (NEPRA) and other relevant authorities, if required.
 2. To own or acquire on lease, all types of land, building and requisite facilities and to do all such acts, deeds or things as would be required for effective discharge.
 3. To acquire or purchase machinery, plant, equipment, spare parts, raw materials, supplies and related goods and services necessary and/or incidental to the development, ownership, construction, management, operation and maintenance of plant(s).
 4. To establish or acquire on lease, and maintain housing, transportation, communication and utility lines and other requisite logistic facilities for the construction, operation and maintenance of plant(s).
 5. To secure, subject to applicable laws, foreign equity and technical collaboration for the development, ownership, construction, operation and management of plant(s).

6. To construct, lay-down, establish, fix, and carry out all necessary power station (s), cables, wires, lines, accumulators, and works and to generate accumulate, distribute and supply electricity to cities, towns, streets, markets, theaters, industrial zones, sites, areas and parks, buildings and places public and private, subject to permission from NEPRA/other regulatory authorities.
7. To carry on and undertake all civil, electrical and mechanical works related to business of the Company, and to generate, accumulate, distribute electricity for the purpose of light, heat, motive power and for all other purposes for which electrical energy can be employed, and to deal in all apparatuses, equipment and things required for or cable to be used in connection with the generation, distribution, supply, accumulation and employment of electricity.
8. To manufacture, process, buy, sell exchange, alter, improve, otherwise deal in all kinds of electrical plants, machinery, equipment, appliances, energy saving devices, and products, gadgets, components and parts including specialized equipment for the purposes of the business of the Company, and to manufacture, import, export, sell, buy, and deal in all accessories, articles, apparatus, equipment and goods, which may seem calculated to promote or to be capable of being used in connection with the use of electric power generation and supply thereof.
9. To obtain loans, credits and financial facilities in local and/or foreign currency from banking companies and other non-banking financial institutions operating in Pakistan or abroad, and subject to necessary approvals under the applicable laws/policies.
10. To enter into, make and perform contracts and arrangements of every kind and description with the Federal Government, Provincial Government, Semi-Government Agencies, Regulators, City Government, or Authority (supreme, municipal, local or foreign) or person that may be conducive for Company's Object (s) and to obtain from any Government (Federal or Provincial), Government Authority, City Government, regulators, corporation, company, firm or person any rights, privileges, contracts, concessions, exemptions, permissions approvals and grants which the Company may think desirable, and to obtain and carry out, exercise and comply with any arrangements, rights, privileges, contracts, charters, licenses, decrees and concession and dispose-off the same or turn into account the same.
11. To mortgage, hypothecate, create charges and other encumbrances on the properties and assets of the Company in such manner and on such terms and conditions as the Company may determine.
12. To enter into any arrangement or agreement with purchasers of power from the plant(s).

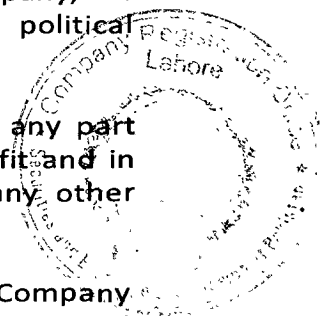


13. To enter into contracts and agreements for the construction of the plant(s), for purchase of fuel for the plant(s), for operation and maintenance of the same and any other agreements as may be necessary in the conduct and furtherance of business of the Company and to take all actions before competent forums for the enforcement of such agreements and contracts.
14. To pay any insurance premium that the Company deems necessary or appropriate in connection with the ownership, construction, operation and maintenance of plant(s), machinery, equipment and its other assets from any registered Insurance Company with Securities and Exchange Commission of Pakistan.
15. To operate, maintain and manage power generation facilities, power stations, power houses and grid stations together with all machinery, equipment and works ancillary thereto and plan, survey, design, supply equipment and to do all such acts, deeds and things, without limitation whatsoever, as may be necessary or desirable in furtherance of the objects for which the Company has been incorporated.
16. To purchase, take on lease or in exchange, hire, apply for or otherwise acquire and hold for any interest, any rights, privileges, lands, building, easements, trademarks, patents, patent rights, copyrights, licenses, machinery, plants, stock-in-trade and any movable and immovable property of any kind necessary or convenient for the purposes of or in connection with the Company's business or any branch or department thereof and to use, exercise, develop, grant licenses in respect of or otherwise turn to account any property, rights and information so acquired, subject to any permission required under the law.
17. To build, construct, alter, maintain, remove or replace to work any property acquired, purchased or owned by the Company including buildings, offices, mills, shops, warehouses & storage facilities whether covered or un covered, machineries, roads, railways, bridges, reservoirs, watercourses, electric works, industrial and commercial concerns and other works and conveniences in furtherance of its objects and to perform professional engineering work or enter into agreements with the companies performing professional engineering work.
18. To enter into partnership or any arrangement for sharing profits, union of interests, co-operation, joint venture, reciprocal concessions or otherwise with any company, association, firm or person carrying as the Company shall deem fit and appropriate in furtherance of its objects.
19. To appoint agents, sub-agents, attorneys, consultants, and contractors or to act as agent, sub-agent, attorney, consultant, and

contractor in connection with the objects of the Company but not to act as managing agents.

20. To make (subject to the applicable laws) advance to any company and/or undertaking and/or person and/or give any guarantee or provide any security (including but not limited to charge, lien or mortgage of any of the company's assets) in order to secure the repayment of any finance or advance obtained or to be obtained by such company and/or undertaking and/or person from any bank or financial institution, but not to act as banking or investment company.
21. To open, close and operate bank accounts of the Company with any bank or banks, financial institutions or Shroffs and to pay into and to withdraw moneys from such account or accounts.
22. To draw, make, accept, endorse, discount, execute and issue promissory notes, bills of exchange, bills of lading, railway receipts, warrants, debentures and other negotiable and transferable instruments concerning this Company.
23. To accept or give security, including but not limited to promissory notes, indemnity bonds, guarantees, assignments, receipts, bailments, pledges, hypothecations, liens, mortgages and charges, against the credit extended or moneys borrowed in connection with its objects.
24. To settle disputes by negotiation, reconciliation, arbitration, litigation or other means and to enter into compromise with creditors, members and any other persons in respect of any difference or dispute with them.
25. To establish laboratories, research and development centers to perform such research and development as the Company may deem advisable or feasible, and to expend money on experimenting upon and testing and improving or securing any process, or processes, patent or protecting any invention or inventions which the Company may acquire or propose to acquire or deal with in furtherance of its objects.
26. To develop and/or transfer technology and to acquire or pass on technical know-how incidental or conducive to the attainment of its objects.
27. To render technical consultancy services to other organizations.
28. To train personnel and workers, both in Pakistan and abroad to obtain technical proficiency in various specialties connected with its objects.

29. To invest and deal with moneys of the Company not immediately required in such manner as may from time to time be determined.
30. To guarantee the performance of the contracts and obligations of the Company in relation to the payment of any loan, debenture, stock bonds, obligations or securities issued by or in favour of the Company and to guarantee the payment or return on such investments or of dividends on any share of the Company.
31. To employ and remunerate any person, firm or company for services rendered or to be rendered in placing or assisting to place or guaranteeing the placing of shares, debentures, debenture-stock or other securities of the Company, or in or about the formation or promotion of the Company or the conduct of its business.
32. To provide for the welfare of the employees or ex-employees (including Directors) of the Company, and the wives, widows, and families, or the dependents, by building or contributing to the building of houses, dwelling chawls, or by grants of money, pensions, allowances, bonus or other payments, or by creating and from time to time subscribing or contributing to provident and other funds, associations, institutions and by providing subscribing or contributing towards places of instruction and recreation, hospitals and dispensaries, medical and other attendance and other assistance as the Company shall think fit, and to subscribe or contribute or otherwise to assist or to guarantee money to charitable, benevolent, religious, scientific, national or other institutions or objects, which shall have any moral or other claim to support by the Company, for general public utility or otherwise except making political contribution.
33. To sell or dispose of the undertaking of the Company or any part thereof for such consideration as the Company may think fit and in particular for shares, debentures or other securities of any other company.
34. To pay out of the funds of Company all expenses which the Company may lawfully pay with respect to the formation, promotion and registration of the Company or the issue of its capital, including brokerage and commissions for obtaining applications for or taking, placing or underwriting or procuring the underwriting of shares, debentures or other securities of the Company.
35. To distribute any of the property of the Company amongst the members in specie or kind, in the event of winding-up of the Company.
36. To do all such other things as may be deemed incidental or conducive to the attainment of the above objects or any of them.

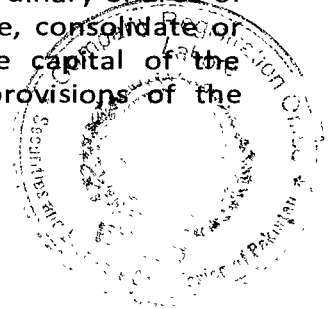


37. Notwithstanding anything stated in any object clause, the Company shall obtain such other approval or license from the competent authority, as may be required under any law for the time being in force, to undertake a particular business.

38. It is declared that notwithstanding anything contained in the foregoing object clauses of this Memorandum of Association nothing shall construe any power upon the company. to undertake or indulge in the business of a banking company an` investment company, insurance and leasing company, managing agency business or any other unlawful business or operations in Pakistan directly or indirectly.

IV. The liability of the member is limited.

V. The Authorised capital of the Company is Rs. 100,000,000/- (Rupees One Hundred Million) divided into 10,000,000 (Ten Million) Ordinary Shares of Rs. 10/- each with powers to increase, reduce, sub-divide, consolidate or reorganize the capital and to divide the shares in the capital of the Company into several classes in accordance with the provisions of the Companies Ordinance, 1984.



We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a Company, in pursuance of this Memorandum of Association, and we respectively agree to take the number of shares in the Capital of the Company as set opposite to our respective names.

Name and Surname (Present & Former) in Full (in Block Letter)	Company Registration No./ CNIC No.	Father's / Husband's Name in Full	Nationality	Occupation	Residential Address (in Full)	Number Of shares taken by Each subscriber	Signature
Chanar Sugar Mills Limited through its Representative	0022801		Pakistani		Chak No. 407 G.B. Tehsil Tandlianwala, District Faisalabad	5,000	
Javed Ahmad Kayani	35202-5528047-5	Feroze-ud-Din Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore		
Javed Ahmad Kayani	35202-5528047-5	Feroze-ud-Din Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	50,000	
Atiya Kayani	35202-5831833-8	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	25,000	
Murtaza Feroze Kayani	35202-3267967-3	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	10,000	
Hamza Feroze Kayani	35202-5153118-1	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	10,000	
					TOTAL NUMBER OF SHARES TAKEN	100,000	

Date this 12 day of June 2014

Witness to above signatures: National Institutional Facilitation Technologies (Pvt) Ltd

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

THE COMPANIES ORDINANCE, 1984

—:0:—

(COMPANY LIMITED BY SHARES)

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Articles of Association
of
CHANAR ENERGY LIMITED

PRELIMINARY

1. Table 'A' Not to Apply :

The Regulations contained in Table 'A' in the First Schedule to the Companies Ordinance, 1984 (hereinafter called "the Ordinance") shall not apply to the Company except as may be reproduced herein.

2. Company to be Governed by These Articles :

The Regulations for the management of the Company and for the observance of the members thereof and their representatives shall (subject to any exercise of the statutory powers of the Company in reference to the repeal or alteration of or addition to its regulations by Special Resolution, as prescribed by the Ordinance) be such as are contained in these Articles.

3. Interpretation :

The sub-headings hereto shall not affect the construction hereof. In these Articles unless there is something in the subject or context inconsistent therewith :-

"Articles" means these Articles of Association as originally framed or as altered from time to time in accordance with law.

"Board" means Board of Directors of the Company.

"Capital" means the Capital for the time being raised or authorised to be raised for the purpose of the Company.

"Chairman" means the Chairman of the Board appointed from time to time in pursuance of the Articles.

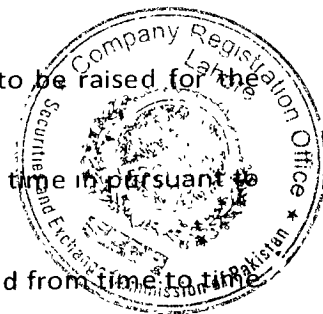
"Chief Executive" means the Chief Executive of the Company appointed from time to time pursuant to the Articles.

"Commission" means the Security and Exchange Commission of Pakistan.

"Company" means "CHANAR ENERGY LIMITED".

"Directors" means the Director for the time being of the Company including an Alternate Director or the Directors assembled at a Board, as the case may be.

"Dividend" includes bonus.



"Financial Institution" means a financial institution set up and controlled by the Federal Government or a Provincial Government, whether directly or through a company or corporation set up or controlled by such Government, and includes such other institutions or companies as the Federal Government may, by notification in the official Gazette, specify for the purpose.

"In Writing" or "Written" include printing, lithography, typewriting and all other modes of representing or reproducing words in a visible form.

"Member" means a member of the Company as defined in Section 2(1) (21) of the Companies Ordinance.

"Memorandum" means the Memorandum of Association of the Company as originally framed or as altered from time to time in accordance with the provisions of the Ordinance.

"Modaraba", "Modaraba Company" and "Modaraba Certificates" have the meanings respectively assigned to them in the Modaraba Companies and Modaraba (Floatation and Control) Ordinance, 1980.

"Month" and "Year" means English calendar month and English calendar year respectively.

"Office" means the registered office for the time being of the Company.

"Ordinance" means the Companies Ordinance, 1984.

"Paid up" includes credited as paid up.

"Proxy" means an instrument in writing whereby a member authorises another to vote for him at a meeting or meetings and includes attorney duly constituted under a power of attorney.

"PTC" and "TFC" mean Participation Term Certificate and Term Finance Certificate respectively.

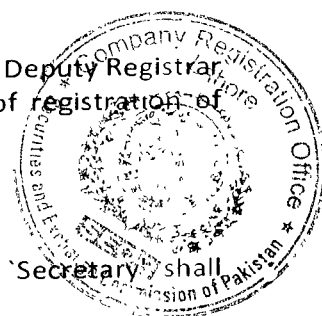
"Register" means the Register of Members to be kept pursuant to Section 147 of the Ordinance.

"Registrar" means a Registrar, an Additional Registrar, a Joint Registrar, a Deputy Registrar, or an Assistant Registrar, performing under this Ordinance the duty of registration of Companies.

"Seal" means the Common Seal of the Company.

"Secretary" means a Secretary of the Company and the expression "Secretary" shall include the person appointed to perform the duties of Secretary.

"Securities" include Shares, Modaraba Certificates, PTCs, TFCs, Debenture Certificate, Musharika Certificates, and Bonds.



"Section" means Section of the Ordinance.

"Share" means any share for the time being in the Capital of the Company.

"Special Resolution" shall have meanings assigned to it in Section 2(1)(36) of the Ordinance.

"Statutes" means the Companies Ordinance, 1984 and every statutory modification or re-enactment thereof for the time being in force and every other Act for the time being in force concerning Companies and affecting the Company.

"Words" denoting the singular number only shall include the Plural number also, and vice versa. Words denoting the masculine gender include the feminine gender.

PUBLIC COMPANY

4. Public Company :

The Company is a Public Company within the meanings of Section 2(1)(30) of the Companies Ordinance, 1984.

CAPITAL

5. Share Capital :

The Authorized Capital of the Company is Rs. 100,000,000/- (Rupees One Hundred Million) divided into 10,000,000 (Ten Million) Ordinary Shares of Rs. 10/- each. The Company has powers to increase, consolidate sub-divide, reduce or otherwise reorganise its share capital from time to time and to divide the shares in the capital for the time being into several classes in accordance with the provisions of the Companies Ordinance, 1984.

6. Allotment of Shares :

The Directors, as regards to any allotment of shares, shall duly comply with the Provision of Section 68 to 73 as may be applicable to the Company.

7. Minimum Subscription :

The minimum subscription upon which the Directors may proceed to allotment shall be Rs. 1,000,000 (Rupees One Million only)

8. The Funds of the Company may not be employed in purchases of or lending of Shares of the Company :

Except as provided by the Ordinance none of the funds of the Company shall be employed in the purchase of shares of the Company and the Company shall not, except as authorised by Section 95 of the Ordinance, give any financial assistance for the purpose of or in connection with any purchase of Shares in the Company.



INCREASE, REDUCTION AND ALTERNATION OF CAPITAL

9. Increase of Capital :

The Company, may from time to time, by special resolution in General Meeting increase the capital by the issuing new Shares of such amount as may be deemed expedient.

10. Shares at the disposal of the Directors :

Subject to the provisions of the Ordinance and these Articles the shares shall be under the control of the Directors who may allot or otherwise dispose of the same or any of them to such persons and on such terms and conditions as Directors think fit either at premium or at par or (subject to compliance with Section 84 of the Ordinance) at a discount as the Company in General Meeting or the Board think fit and proper. Provided that no partly paid shares shall be issued as restricted under Section 91 of the Ordinance.

11. Issue of Shares for Consideration Other Than Cash :

Subject to the provisions of the Ordinance and these Articles, the Directors may allot and issue shares in the capital of the Company as payment or part payment for any property sold or transferred, goods, or machinery supplied, or for services rendered to the Company in the conduct of the business or affairs, and any shares, which may be so allotted, may be issued as fully paid up shares, and, if so issued, shall be deemed to be fully paid up shares.

12. Further Issue of Capital by Directors :

Subject to the Resolution in General Meeting sanctioning the increase of Share Capital, the Directors shall offer all new shares to the members in proportion to the existing shares held by each member and such offer shall be made by notice specifying the number of shares to which the member is entitled and limiting a time within which the offer, if not accepted, will be deemed to be declined and after expiration of such time or on receipt of an intimation from the member to whom such notice is given that he declines to accept the shares offered, the Directors shall allot and issue such shares in such manner as they may deem fit.

13. New Shares to be Ordinary Capital unless otherwise provided :

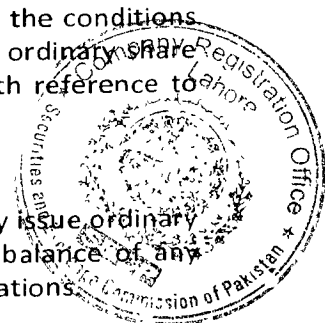
Except so far as otherwise provided by or pursuant to these Articles or by the conditions of issue, any new share capital shall be considered as part of the original ordinary share capital of the Company, and shall be subject to the same provisions with reference to transfer, transmission, and otherwise as the original share capital.

14. Conversion of Loan to Ordinary Shares

Subject to the provisions of Section 87 of the Ordinance, the Company may issue ordinary shares or grant option to convert into ordinary shares the outstanding balance of any loans, advances or credit or other non-interest bearing securities and obligations.

15. Fractional Shares :

If and whenever as a result of an issue of new shares or any consolidation or subdivision of shares, any member becomes entitled to hold shares in fractions, these fractional shares shall not be offered and all fractions less than a share shall be consolidated and disposed of by the company subject to the provisions of section 84 of the Ordinance



16. Shares may be registered in the name of Govt. or Corporate Body :

Shares may be registered in the name of any Limited Company or Corporate Body, the Central or any provincial Government of Pakistan or their nominees.

17. Address of Shareholders :

Every shareholder shall name to the Company a place, in Pakistan, to be registered as his address and such address shall for all purposes be deemed to be his place of residence.

18. Fully Paid Shares :

No shares shall be offered to the public for subscription except upon the term that the amount payable on application shall be the full amount of the nominal amount of the Shares.

19. Acceptance of Shares :

An application signed by or on behalf of an applicant for shares in the Company followed by an allotment of any shares therein, shall be an acceptance of shares within the meaning of these Articles, and every person who thus or otherwise accepts any shares and whose name is on the Register, shall for the purposes of these Articles, be a shareholder.

20. Company may alter its Capital in certain ways :

The Company may, by an Ordinary Resolution in General Meeting :-

- a) to consolidate and divide its share capital into shares of larger amount than its existing shares, or
- b) to cancel any shares not taken or agreed to be taken by any person, or
- c) to sub-divide its share capital or any part thereof into shares of smaller amount than is fixed by its Memorandum of Association, subject nevertheless to the provisions of Section 92(1) of the Ordinance.

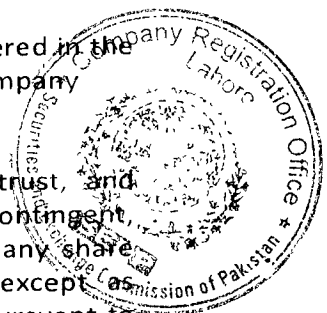
and by Special Resolution to reduce its capital or any capital redemption reserve fund in any manner authorised and subject to any conditions prescribed by the Ordinance.

21. Membership :

Every person when allotted shares in the Company and on his name being entered in the Register of the members shall be called a member of or a shareholder in the Company

22. No Trust Recognised :

No person shall be recognised by the Company as holding any share upon any trust, and the Company shall not be bound by or required to recognise any equitable, contingent, future or partial interest in any share or any right whatsoever in respect of any share other than an absolute right to the entirety thereof in the registered holder, except as by these Articles otherwise expressly provided or as by statute required or pursuant to any order of Court.



UNDERWRITING AND COMMISSION

23. Commission on subscription of Shares :

The Company may pay to any person a commission in consideration of his subscribing or agreeing to subscribe, whether absolutely or conditionally, or procuring or agreeing to procure subscriptions, whether absolute or conditional, for any shares in the Company ; Provided that subject to the provisions of Section 82(1)(b) of the Ordinance such commission shall not exceed 2 1/2 % of the amount paid upon such shares or an amount equivalent to such percentage ; and the requirements of the Ordinance and any other law for the time being in force shall be observed. Any such commission may with the approval of the Controller of the Capital Issues be satisfied in fully paid shares of the Company, in which case Section 73 of the Ordinance shall be duly complied with.

24. Brokerage :

The Company may also on issue of Shares pay such brokerage as may be lawful.

CERTIFICATES

25. Registered Member entitled to Share Certificate :

Every member shall be entitled, without payment, to receive within ninety days after allotment or within forty five days after the application for the registration of transfer (unless the conditions of issue provide for a longer interval) one certificate for all his shares or several certificates each of one or more of his shares upon payment of such charges, if any, as the Directors, may determine. Every certificate shall be under the Seal, specifying the number and (where necessary) denoting numbers of the Shares in respect of which it is issued and the amount paid up thereon. Provided that in the case of joint-holders the Company shall not be bound to issue more than one certificate to all the joint holders, and delivery of such certificate to any one of them shall be sufficient delivery to all. Every certificate shall be signed by one Director and countersigned by the Chief Executive or secretary.

26. New Certificate may be issued :

If any share certificate shall be defaced, worn out, destroyed or lost, it may be renewed, upon payment of such charges, if any, as the Directors, may determine. The new certificates may be issued subject to such evidence being produced and such indemnity (if any) being given as the Directors shall require, and (in case of defacement or wearing out) on delivery of the old certificate.

27. To which of Joint Holders Certificate to be Delivered :

The certificate of shares registered in the name of two or more persons shall, unless otherwise directed by them, be delivered to the person first named in the Register.

28. The first named of joint-holders of Shares :

If any shares stand in the name of two or more persons, the person first named in the Register shall, as regards receipt of dividends or bonus or service of notices and all or any other matters connected with the Company except voting at the meeting and the transfer of shares, be deemed the sole holder thereof.



29. Death of one or more joint-holders of shares :

In the case of the death of any one or more of the persons in the Register as the joint-holders of any shares, the survivor or survivors shall be the only person or persons recognized by the Company as having any title to or interest in such shares.

TRANSFER AND TRANSMISSION**30. Shares to be Transferable :**

Subject to the restrictions of these Articles, shares shall be transferable, but every transfer must be in writing in the usual common form, or in such other form as the Directors shall from time to time approve, and must be left at the office, accompanied by the certificate of the shares to be transferred and such other evidence (if any) as the Directors may require to prove the title of the intending transferor.

31. Persons under Disability :

No share shall in any circumstances be transferred to any infant, insolvent, bankrupt or person of an unsound mind.

32. Transfers to be executed by both Parties :

The instrument of transfer of a share shall be executed both by the transferor and the transferee, and the transferor shall be deemed to remain the holder of the share until the name of the transferee is entered in the Register of members in respect thereof.

33. Form of Transfer :

Shares in the Company shall be transferred, without fee, in the following form, or in any usual or common form which the Directors shall approve:

I, _____ of _____
In consideration of the sum of Rs. _____ paid to me by _____
of _____
(hereinafter called the "Transferee") do hereby transfer to the Transferee
_____ share(s) numbered _____ to
_____ inclusive, in "**CHANAR ENERGY LIMITED**" to hold into the
transferee, his executors, Administrators and assigns, subject to the several conditions on
which I held the same at the time of the execution hereof, and I, the Transferee, do
hereby agree to take the said share (or shares) subject to the conditions aforesaid.

As witness our hand this _____ day of _____

Transferor

Signature _____

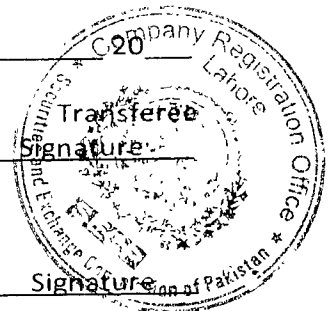
WITNESSES

1. Signature _____

Full Address: _____

2. Signature _____

Full Address: _____



34. Company to provide and to keep Register :

The Company shall provide a book to be called the "Register of Transfers", which shall be kept under the control of the Directors, and in which shall be entered the particulars of every transfer or transmission of every share.

35. Directors may not refuse to Register :

The Directors shall not refuse to transfer any fully paid shares or debentures unless the transfer deed is, for any reason, defective or invalid in which case they shall within thirty days from the date on which the instrument of transfer was lodged with the Company notify the defect or invalidity to the transferee who shall, after the removal of such defect or invalidity, be entitled to relodge the transfer deed with the Company. The Directors may decline to recognize any instrument of transfer unless accompanied by such evidence as the Directors may reasonably require to show the right of the transferor to make the transfer. If the Directors refuse to register a transfer of any shares, they shall, within thirty days after the date on which the transfer was lodged with the Company, send to the transferee notice of the refusal, indicating reasons for such refusal.

36. Register of Transfers may be closed :

Subject to the notice required by Section 151 of the Ordinance the Register of Transfers may be closed during the fourteen days immediately preceding every Annual General Meeting of the Company and at such other times (if any) and for such period as the Directors may from time to time determine, provided always that it shall not be closed for more than thirty days at a time or for more than forty five days in any year.

37. Not liable for Notice :

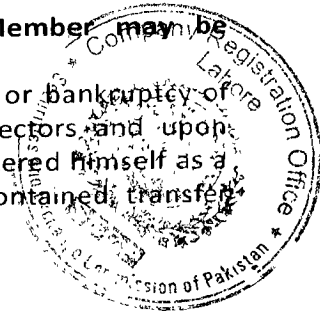
The Company shall incur no liability or responsibility whatsoever in consequence of registering or giving effect to a transfer made or purported to be made by an apparent legal owner of shares (as shown or appearing in the Register) to the prejudice of persons having or claiming any equitable right, title or interest in the same shares.

38. On the death of Member Survivor, Nominee or Executor only recognised :

In the case of death of a member, the survivors or survivor, or nominee(s) appointed under Section 80 of the Ordinance as the case may be, where the deceased was a joint holder, and the executors, administrators or nominee(s) as aforesaid of the deceased, where he was a sole or only surviving holder, shall be the only person recognised by the Company as having any title to his shares.

39. Persons becoming entitled on death or bankruptcy of Member may be registered:

Any person becoming entitled to a share in consequence of the death or bankruptcy of any member may upon obtaining the previous sanction of the Directors and upon producing such evidence of title as the Directors shall require, be registered himself as a holder of the share, or subject to the provisions as to transfers herein contained, transfer the same to some other person.



40. Person entitled may receive dividends without being registered as Member, but may not vote :

A person entitled to a share by transmission shall be entitled to receive, and may give a discharge for any dividends or other money payable in respect of the share, but he shall not be entitled in respect of it to receive notices of, or to attend or vote at meetings of the Company, or, save as aforesaid, to exercise any of the rights or privileges of a member, unless and until he shall become a member.

41. Board may require evidence of transmission :

Every transmission of shares shall be verified in such manner as the Directors may require, and the Company may refuse to register any such transmission until the same be verified or unless an indemnity be given to the Company with regard to such registration which the Board at their discretion shall consider sufficient. Provided nevertheless, that there shall not be any obligation on the Company or the Board to accept any indemnity.

42. Fee on Transfer or Transmission :

A fee not exceeding Rupees two per share may be charged in respect of the transfer or transmission to the same party of any number of shares of any class or denomination subject to such maximum on any one transfer or transmission as may from time to time be fixed by the Directors. Such maximum may be single fee payable on any one transfer and transmission of any number of shares of one class or denomination or may be on graduated scale varying with the number of shares of any one class comprised in one transfer or transmission or may be fixed in any other manner as the Directors in their discretion determine.

MODIFICATION OF RIGHTS

43. Rights of Shareholders may be Altered :

All or any of the rights, privileges or conditions for the time being attached or belonging to the shares or any class of shares for the time being forming part of the capital of the Company may from time to time be modified, varied, extended or surrendered in the manner laid down in Section 28 of the Ordinance.

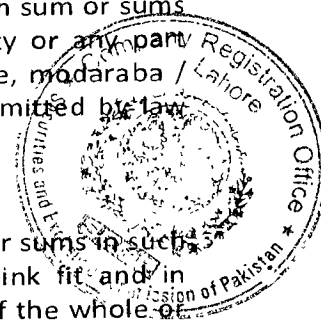
BORROWING POWERS

44. Directors may borrow :

The Directors may from time to time at their discretion obtain finance or otherwise raise or borrow money / term capital, participatory redeemable capital from Banks, Financial Institution or from any other institution and secure the payment of any such sum or sums of money borrowed and to mortgage or charge its undertaking, property or any part thereof and to issue participation term certificate, term finance certificate, modaraba / musharika, debenture, debenture-stock or any other type of security permitted by law and may themselves lend to the Company, on security or otherwise.

45. Directors may secure loans :

The Directors may raise or secure the payment or re-payment of any sum or sums in such manner and upon such terms and conditions in all respects as they think fit and in particular by the creation of any mortgage or charge on the undertaking of the whole or



any part of the property, present or future, or by the issue of bonds, perpetual or redeemable, debentures or debenture-stock of the Company charged upon all or any part of property of the Company, both present and future.

46. Conditions of Bond/Securities :

Any TFC's, bonds, debentures or other securities issued or to be issued by the Company shall be under the control of the Board which may issue them upon such terms and conditions and in such manner and for such consideration as shall be considered to be for the benefit of the Company.

47. Issue at discount or with privilege etc :

Any securities may be issued at discount, premium, or otherwise, and with privileges as to conversion, redemption, surrender, drawings, allotment of shares, attending and voting at General Meetings of the Company, appointment of Directors and such other privileges.

48. Register of Mortgages :

The Directors shall cause a proper Register to be kept in accordance with Section 125 of the Ordinance, of all mortgages and charges specifically affecting property of the Company and shall comply with requirements of Section 121 and 122 of the Ordinance, in regard to registration of mortgages and charges therein specified and requirements of Section 130 of the Ordinance, as to keeping a copy of every instrument creating mortgages or charges at the office, and requirements of Section 132 as to giving limitation of payment of satisfaction of charges or mortgages created by the Company.

GENERAL MEETINGS

49. Statutory Meeting :

The Statutory Meeting of the Company shall be held within the period required by section 157 of the Ordinance.

50. Annual General Meetings :

A General Meeting shall be held in accordance with the provisions of Section 158 of the Ordinance every calendar year within a period of four months following the close of the financial year of the Company and not more than fifteen months shall be allowed to elapse between any two such General Meetings. The Statutory Meeting will be held in accordance with the provisions of Section 157 of the Companies Ordinance.

51. Extraordinary General Meetings :

All General Meetings other than the Annual General Meeting shall be called Extraordinary General Meetings. The Directors may call an Extraordinary General Meeting whenever they think fit, and Extraordinary General Meetings shall also be convened on such requisition, or in default may be convened by such requisitionists as provided by Section 159 of the Ordinance.

52. Notice of Meeting to be given :

Not less than twenty-one days' notice at least of every General Meeting, Annual or Extraordinary, and by whomsoever called, specifying the date, place and hour of the meeting and with a statement of the business to be transacted at the meeting (and in case it is proposed to pass a Special Resolution the intention to propose such Resolution

as a Special Resolution) shall be given to the person entitled under and in the manner provided by the Ordinance and these Articles.

53. Notice for Special Resolution :

Where it is proposed to pass a Special Resolution not less than twenty-one days' notice specifying the intention to propose the resolution as a Special Resolution and specifying the date, place and hour of meeting and the nature of the business shall be given.

54. Shorter Notice by Consent :

If all the members entitled to attend and vote at any General Meeting so agree, a resolution may be proposed and passed as a Special Resolution at a Meeting of which less than 21 days notice has been given.

55. Omission to give Notice :

The accidental omission to give any such notice to or the non-receipt of any such notice by any of the Members shall not invalidate the proceedings at any meeting.

PROCEEDINGS AT GENERAL MEETING

56. Special Business :

All business shall be deemed special that is transacted at an Extraordinary General Meeting, and all that is transacted at an Annual General Meeting shall also be deemed special, with the exception of sanctioning a dividend, the consideration of the accounts and Balance Sheet and the reports of the Directors and Auditors, and any other documents accompanying or annexed to the Balance Sheets, the election or appointment of Directors and the appointment and fixing of the remuneration of the Auditors.

57. No Business to be Transacted unless Quorum Present. How Quorum to be ascertained:

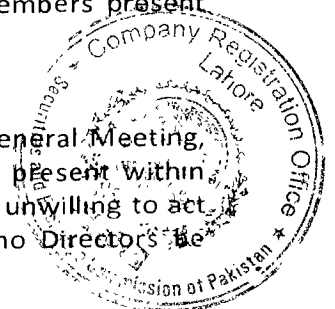
No business shall be transacted at any General Meeting unless a quorum is present when the meeting proceeds to business. For all purposes the Quorum shall be two members or representatives of corporation which are members, present in person who represent not less than twenty five percent of total voting power of the Company, either of their own account or as proxies.

58. If Quorum not present Meeting adjourned or dissolved :

If within half an hour from the time appointed for the holding of a General Meeting a quorum is not present, the meeting, if convened on the requisition of members, shall be dissolved. In any other case it shall stand adjourned to the same day in the next week at the same time and place, and if at such adjourned meeting a quorum is not present within half an hour from the time appointed for holding the meeting, the members present being not less than two shall be a quorum.

59. Chairman of Board to preside at all Meetings :

The Chairman of the Board of Directors (if any) shall preside at every General Meeting, but if there be no such Chairman, or if at any meeting he shall not be present within fifteen minutes after the time appointed for holding the same, or shall be unwilling to act, as Chairman, the members present shall choose some Director, or if no Directors be



present or if all the Directors present decline to take the chair, they shall choose some member present to be Chairman of the Meeting.

60. Notice of adjournment to be given :

The Chairman may, with the consent of any meeting at which a quorum is present, and shall, if so directed by the meeting, adjourn any meeting from time to time and from place to place as the meeting shall determine. Whenever a meeting is adjourned for ten days or more, notice of the adjourned meeting shall be given in the same manner as in the case of an original meeting. Save as aforesaid, no member shall be entitled to any notice of an adjournment or of the business to be transacted at an adjourned meeting. No business shall be transacted at any adjourned meeting other than the business which might have been transacted at the meeting from which the adjournment took place.

61. How Resolution decided :

At all General Meetings a resolution put to the vote of the meeting shall, unless a poll is demanded, be decided on a show of hands. A declaration by the Chairman of the meeting that on a show of hands, a resolution has or has not been carried, or has or has not been carried either unanimously, or by a particular majority, or lost, shall be conclusive subject to Section 160-A of the Ordinance, and an entry to that effect in the minute book of the Company shall until the contrary is proved be evidence thereof, without proof of the number or proportion of the votes recorded in favour of or against such resolution.

However, before or on declaration of the result on any resolution on a show of hands, a poll may be ordered to be taken by the Chairman of the meeting of his own motion, or on a demand made in that behalf by the persons or person specified below:

- a) by atleast two members having the right to vote on the resolution and present in person or by proxy;
- b) by any member or members present in person or by proxy and having not less than one-tenth of the total voting power in respect of that resolution; or

The demand for a poll may be withdrawn at any time by the person or persons who made the demand.

62. Poll to be taken as Chairman shall direct :

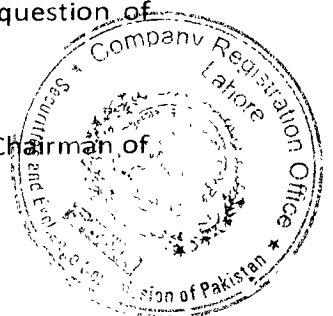
If a poll be demanded in manner aforesaid, it shall be taken at such time, being not more than fourteen days from the day on which it was demanded, and place and in such manner, as the Chairman shall direct and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.

63. Poll in certain cases to be taken forthwith :

A poll demanded on the election of a Chairman of a meeting, or on any question of adjournment shall be taken forthwith.

64. Chairman to have casting vote :

In the case of an equality of votes, either on a show of hands or on a poll, the Chairman of the meeting shall be entitled to a further or casting vote.



65. Business to be continued if poll demanded :

The demand of a poll shall not prevent the continuance of a meeting for the transaction of any business, other than the question on which a poll has been demanded.

VOTES OF MEMBERS

66. Member to have one vote or one vote for every share :

Subject and without prejudice to any special privileges or restrictions as to voting for the time being attached to any special class of shares for the time being forming part of the capital of the Company, every member shall have one vote on a show of hands and in case of a poll shall have one vote for every share of which he is the holder.

67. Votes of Member of Unsound Mind :

If a member is of an unsound mind, he may vote by his committee, manager or other legal curator of his estate. Any person entitled under these Articles to be registered in respect of or to transfer any ordinary shares may vote either personally or by proxy or attorney in respect thereof as if he were the registered holder/member.

68. Votes of Joint Holders of Shares :

If two or more persons are jointly entitled to a share, then in voting upon any question the vote of the senior who tenders a vote, whether in person or by proxy, shall be accepted to the exclusion of the votes of the other registered holders of the share, and for this purpose seniority shall be determined by the order in which the names stand in the Register of Members.

69. Only Members duly registered entitled to vote :

A member duly registered shall be entitled to be present or to vote on any question either personally or by proxy, or as proxy for another member, or to be reckoned in a quorum, at any General Meeting.

70. How Votes may be given and who can act as Proxy :

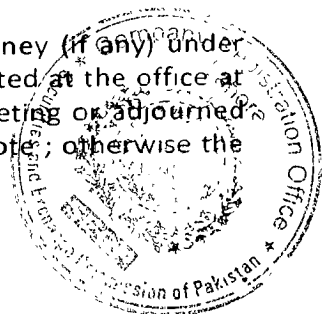
Votes may be given either personally or by proxy. Provided that no body corporate shall vote by proxy as long as a resolution of its Directors in accordance with the provisions of Section 162 is in force.

71. Instrument appointing proxy to be in writing :

The instrument appointing a proxy shall be in writing under the hand of the appointer or of his attorney duly authorised in writing or if such appointer is a corporation under its common seal, if any, and if none, then under the hand of some officer duly authorised in that behalf. An instrument appointing a proxy to vote at a meeting shall be deemed to include the power to demand or concur in demanding a poll on behalf of the appointer.

72. Instrument appointing a proxy to be left at Company's Office :

The instrument appointing a proxy, together with the power of attorney (if any) under which it is signed or a notarially certified copy thereof, shall be deposited at the office at least forty eight hours before the time appointed for holding the meeting or adjourned meeting at which the person named in such instrument proposes to vote; otherwise the person so named shall not be entitled to vote in respect thereof.



73. Form of Proxy :

Subject to the provisions of Section 161(4) of the Ordinance any instrument appointing a proxy shall be in the following form with such variations (if any) as circumstances may require or the Directors may approve :-

I, _____ of _____
a member of "**CHANAR ENERGY LIMITED**" hereby appoint of another member of the Company, and failing him, of another member of the Company, to vote for me and on my behalf at the (Annual General Meeting, Extraordinary or adjourned, as the case may be) General Meeting of the Company to be hold on the day of and at every adjournment thereof.

As witness my hand this _____ day of _____ 2014

Signed by the said _____ in

the presence of _____

(The signature should agree in all respect with the name or names in which the shares are registered. If shares are held jointly the signature should contain both names).

Executors, administrators, trustees, guardians and other singing in a representative capacity should state their full titles.

DIRECTORS**74. Appointment and Number a Directors :**

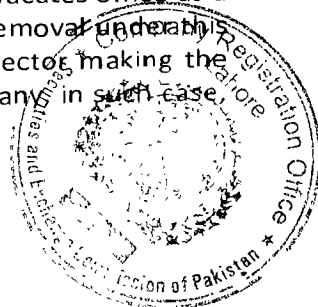
Until otherwise determined by a General Meeting, the number of Directors shall be not less than three nor more than fifteen, in case the Company applies for listing on Stock Exchanges, then the number of Directors shall not be less than Seven.

75. Director's Qualification :

The qualification of a Director shall be the holding of shares of Company to the nominal value of Rs. 5,000/- at least in his own name.

76. Alternate or substitute Directors :

A Director who is absent or about to be absent from Pakistan for at least three months may, with the approval of the Directors, appoint any person approved by the Directors to be an alternate Director during his absence, and such appointment shall have effect, and such appointee whilst he holds office as an alternate Director shall be entitled to notice of meetings of the Directors and to attend and vote thereat, accordingly ; but he shall not require any qualification, and he shall ipso facto vacate office if and when Director appointing him returns to Pakistan and acts in his office as a Director or vacates office as a Director, or removes the appointee from office. Any appointment and removal under this Clause shall be effected by notice in writing under the hand of the Director making the same. Such alternate Director may be one of the Directors of the Company in such case he shall be entitled to act on both capacities.



77. Directors' remuneration :

The remuneration of the Director for performing extra services, including holding of the office of the Chairman shall from time to time be determined by the Directors. But the remuneration of a Director for attending meetings of the Board shall not exceed Rs. 5,000/- (Rupees Five Thousand only) for each meeting attended by him. No remuneration for attending meetings shall be paid to the regularly paid Chief Executive and full-time working Directors of the Company.

78. Office of Director vacated in certain cases :

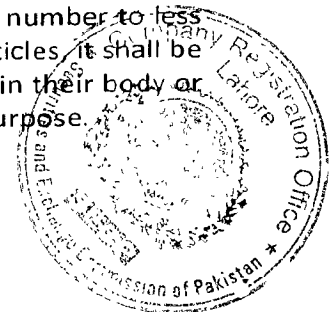
The office of a Director shall be vacated:-

- a) If he is found to be of unsound mind by a court of competent jurisdiction.
- b) If he is adjudged an insolvent or a receiving order is made against him or he makes any arrangement or composition with his creditors.
- c) If he or any firm of which he is a partner or any Private Company of which he is a Director, without the sanction of the Company in General Meeting, accepts or holds any office of profit under the Company other than that of a Managing Director / Chief Executive or a legal or technical advisor or a banker.
- d) If he absents himself from three consecutive meetings of the Directors or from all meetings of the Directors for a continuous period of three months, whichever is the longer without leave of absence from the Board.
- e) If he or any firm of which he is a partner or any Private Company of which he is a Director accepts a loan or guarantee from the Company in Contravention of Section 195 of the Ordinance.
- f) If without the sanction of a resolution of the Directors passed at their meeting, he or any firm, of which he is a member or Director enters into any contract with the Company for making sale purchase or supply of goods or for rendering services.
- g) If he has been convicted for an offence involving moral turpitude.
- h) If he has betrayed lack of fiduciary behaviour and a declaration to this effect was made under Section 217 of the Ordinance at any time in the past five years.
- i) If by notice in writing given to the Company he resigns his office.

Subject to the provisions of Section 188 of the Ordinance a Director may hold any other office or place of profit under the Company in conjunction with his office of Director, and on such terms as to remuneration and otherwise as the Directors shall arrange.

79. Continuing Directors may act to fill vacancies or summon Meetings :

The continuing Directors may act at any time notwithstanding any vacancy in their body ; provided always that in case the Directors shall at any time be reduced in number to less than the minimum number prescribed by or in accordance with these Articles, it shall be lawful for them to act as Directors for the purpose of filling up vacancies in their body or of summoning a General Meeting of the Company, but not for any other purpose.



80. Security or Institutional Director :

The Directors shall have powers to co-opt, or agree, to co-opt, additional Directors, nominated by any financial institution or banks or any consortium or local or foreign collaborators (hereinafter called institution) where such institution shall require appointment of their nominee as a Director under terms of granting loan, subscribing to Company's PTCs, TFCs, Debentures or stocks, or making bridging advance, or under stipulations that loan granted shall be converted into shares at the option of either party to contract or otherwise for any other consideration and such Director shall act as Director so long as the amount loan etc. is equal to qualification prescribed under these Articles for Appointment of a Director. Such Director may be called Security Director or Institutional Director Pre-fixed by the name of Institution nominating or by the name of the security holder to which he is representing, and such Directors shall not be required to hold any qualification shares and shall have the same rights and privileges and be subject to same responsibilities as other Directors of the Company. The institution or security holders, as the case may be nominating a Director may require cancellation or removal of such Director or on resignation or death of such Director, and shall have the right to nominate another person in his stead unless such appointment is otherwise stipulated under the terms of an agreement or contract, in which case the appointment and vacancy shall be regulated by those stipulations.

81. Directors to comply with the Statutes :

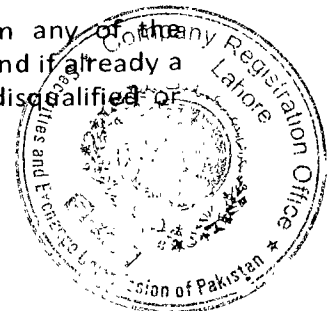
The Directors shall duly comply with the provisions of the statutes, and particularly the provisions as to registration and keeping copies of mortgage and charges, keeping a register of Directors, Officers and others holdings of shares and debentures, as required by Section 220 of the Ordinance keeping the register of members and entering all necessary particulars therein, and sending copies thereof or a notification of any changes therein to the Registrar of Companies and sending to such Registrar and annual return, notices as to increase of capital, returns of allotments and contracts and other documents relating thereto, copies of resolutions and agreements, and other particulars connected with the above.

82. Conditions on which Directors may Hold Office of Profit :

Subject to the provisions of Section 196(2) of the Ordinance, a Director may contract with and be interested in any contract or proposed contract with the Company, and shall not be liable to account for any profit made by him by reason of any such contract, provided that the nature of the interest of the Director in any such contract must be declared at a meeting of the Directors as required by Section 214(2) of the Ordinance. Subject to the provisions of Section 214(2) of the Ordinance no Director shall vote as a Director in respect of any contract or arrangement in which he shall be interested.

83. Disqualification of Directors :

No person shall become a Director of the Company if he suffers from any of the disabilities or disqualifications mentioned in Section 187 of the Ordinance and if already a Director, shall cease to hold such office from the date he so becomes disqualified or disabled.



ELECTION AND RETIREMENT OF DIRECTORS

84. Only natural persons to be Directors :

Only a natural person shall be a Director and no Director shall be the variable representative of a body corporate.

85. Term of Office of Directors :

At the first Annual General Meeting of the Company, all the Directors shall stand retired from office, and thereafter re-elected in their place in accordance with section 178 of the Ordinance. A Director elected under Section 178 of the Ordinance shall hold office for a period of three years unless he earlier resigns, becomes disqualified for being a Director or otherwise ceases to hold office. A retiring Director shall be eligible for re-election, and shall act as a Director until his successor is elected.

86. Directors to fix number of Directors :

The Directors shall subject to the provisions of Articles 72 fix the number of elected Directors not later than 35 days before the convening of the General Meeting at which Directors are to be elected, and the number so fixed shall not be changed except with the prior approval of a General Meeting of the Company.

87. Election of Directors :

The Directors shall, unless the number of persons who offer themselves to be elected is not more than the number of Directors fixed under Article 72, be elected by the members of the Company in the following manner namely :-

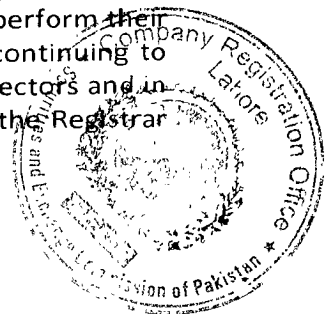
- a) A member shall have such number of votes as is equal to the product of the number of voting shares or securities held by him and the number of Directors to be elected ;
- b) A member may give all his votes to a single candidate or divide them between more than one of the candidates in such manner as he may choose ; and
- c) The candidate who gets the highest number of votes shall be declared elected as Director and then the candidate who gets the next highest number of votes shall be so declared and so on until the total number of Directors to be elected has been so elected.

88. Members eligible for office of Director if Prescribed notice and consent lodged at Office :

No person including retiring Directors shall be eligible for the office of Director at any General Meeting, unless, file with the company, a notice of his intention subject to the provisions of section 178 of the Ordinance.

89. If vacancies not filled up retiring Directors deemed re-elected :

If at any meeting at which an election of Directors ought to take place, the places of the retiring Directors are not filled up, the Directors so retiring shall continue to perform their functions till their successors are elected ; provided that the Directors so continuing to perform their functions shall take immediate steps to hold the election of Directors and in case of any impediment the circumstances of the case shall be reported to the Registrar within fifteen days of the expiry of term laid down in Article 82.



90. Consent to act as Director to be filed :

No person shall be appointed or nominated a Director or Managing Director / Chief Executive of the Company or represent as holding such office, nor shall any person describe or name any other person as a Director or proposed Director or Managing Director / Chief Executive of the Company unless such person or such other person has given his consent in writing to such appointment or nomination and that consent has been filed by the Company with the Registrar before such appointment or nomination or being described or named as a Director or proposed Director or Managing Director / Chief Executive of the Company, as the case may be.

91. Casual Vacancy in Board to be Filled by Directors :

Any casual vacancy occurring in the Board of Directors may be filled up by the Directors, but any person so chosen shall retain his office for remainder of the term of the Directors in whose place he is appointed, but he shall be eligible for re-election.

92. Removal of Directors :

The Company may remove a Director but only in accordance with the provisions of the Ordinance.

PROCEEDINGS OF DIRECTORS**93. Meeting of Directors, Quorum, Casting Vote of Chairman :**

The Directors may meet together for the despatch of the business adjourn and otherwise regulate their meetings as they think fit provided that they shall meet at least once in each quarter of a year. The quorum for a meeting of the Directors shall not be less than one-third of their number or two whichever is greater. Questions arising at any meeting shall be decided by a majority of votes. In case of any equality of votes the Chairman shall have second or casting vote.

94. Director may call meeting of Board :

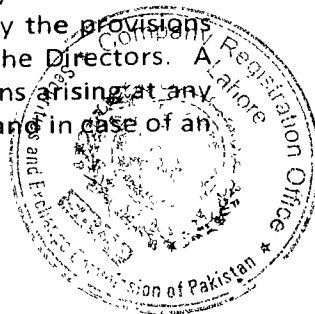
A Director may, and on the request of a Director the Secretary shall, at any time summon a meeting of the Directors.

95. Chairman of Directors :

The Directors may from time to time elect a Chairman, who shall preside at meetings of the Directors, and determine the period for which he is to hold office, but if no such Chairman be elected, or if at any meeting the Chairman be not present within fifteen minutes after the time appointed for holding the same, the Directors present shall choose one of their number to be Chairman of such meeting.

96. Committee of Directors :

The Board may from time to time delegate all or any of their powers to a committee or committees consisting of two or more Directors as they think fit. Any committee so formed shall conform to any regulations that may be imposed upon it by the provisions herein contained for regulating meeting and proceedings applicable to the Directors. A Committee may meet and adjourn as its members think proper. Questions arising at any meeting shall be decided by a majority of votes of the members present, and in case of an equality of votes, the Chairman shall have second or casting vote.



97. All acts done by Directors to be valid :

All acts bona-fide done by any meeting of Directors, or of a Committee of Directors, or by any person acting as a Director, shall notwithstanding it be afterwards discovered that there was some defect in the appointment of any such Director or person acting as aforesaid, or that they or any of them were / was disqualified, be as valid as if every such person had been duly appointed and was qualified to be a Director.

98. Minutes to be made and when signed by Chairman to be conclusive evidence:

The Directors shall cause proper minutes to be made of all General Meetings of the Company, and of the proceedings of all meetings of Directors and Committees, and of the attendances at all the aforesaid meetings and all business transacted at such meetings ; and any such minutes of any meeting, inclusive of all appointments of Officers, if purporting to be signed by the Chairman of such meeting, or by the Chairman of the next succeeding meeting, shall be evidence without any further proof of the facts therein stated.

99. Resolution signed by Directors to be valid :

A Resolution in writing other than Resolution in respect of any of the matters specified in Section 196(2) of the Ordinance signed by all the Directors who are for the time being in Pakistan (not being less than the quorum required for a Board Meeting) shall be as effective for all purposes as a Resolution passed at a meeting of the Directors duly convened, held and constituted and may consist of several documents in like form each signed by one or more Directors.

POWERS OF DIRECTORS

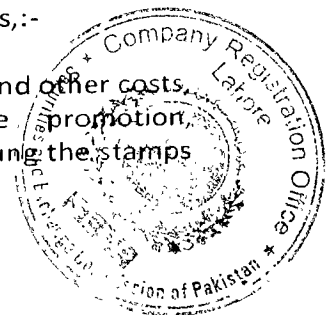
100. Business of Company to be managed by Directors :

Subject to the provisions of the Ordinance, the business of the Company shall be managed by the Directors, who may pay all such expenses incurred in setting up and registering the Company as they think fit. The Directors may exercise all such powers of the Company, and do on behalf of the Company all such acts as may be exercised and done by the Company, and as are not by the Statutes or by these Articles required to be exercised or done by the Company in General Meeting, subject nevertheless to any regulations of these Articles, to the provisions of the Statutes, and to such regulations being not inconsistent with the aforesaid regulations or provisions as may be prescribed by the Company in General Meeting but no regulation 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.

101. Express powers of the Board :

Subject to the provisions of Section 196 of the Ordinance and without prejudice to the general powers, conferred by Article 99 and so as not in any way to limit or restrict these powers, and without prejudice to the other powers conferred by these presents, it is hereby expressly declared that the Directors shall have the following powers,:-

- a) to pay and charge to the Capital Account of the Company the legal and other costs, charges and expenses of any preliminary and incidental to the promotion, formation, establishment and registration of the Company, including the stamps

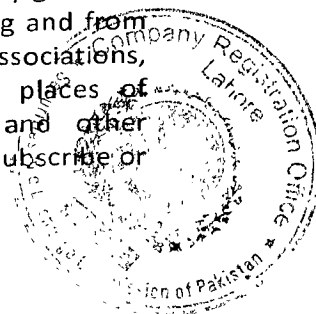


and fees paid in respect thereof, and also pay commission lawfully payable thereout under the provisions of Section 82 of the Ordinance ;

- b) to purchase or otherwise acquire for the Company any property (immovable or movable real or personal), machinery rights and privileges which the Company is authorised to acquire, at or for such price or consideration, and generally on such terms and conditions as they may think fit ; and on any such purchase or other acquisition to accept such title as the Directors may believe or may be advised to be reasonably satisfactory ;
- c) to insure against fire or other loss or accident all or any of the properties of the Company as the Directors may from time to time think fit. But it is hereby declared that the Directors unless specifically enjoined by any resolution of the shareholders which may from time to time be passed so to do shall not be under any obligation to insure any property of the Company ;
- d) at their discretion, to pay for any property, rights or privileges acquired by or services rendered to the Company, either wholly or partially in cash or in shares, bonds, debentures or other securities of the Company, or by a mortgage on any of the Company's property, and any such bonds, debentures or other securities may be either specially charged upon all or any part of the Company or not so charged ;
- e) from time to time to extend the business and undertaking of the Company by adding to, altering or enlarging all or any of the buildings, property, premises, plant and machinery for the time being the property or in the possession of the Company or by purchasing or otherwise acquiring any other buildings, property, plant and machinery or by erecting new or additional buildings, and to expend such sums of money for the purposes aforesaid, or any of them as may be thought necessary or expedient ;
- f) to undertake on behalf of the Company the payment of all rents, and the performance of all covenants, conditions and agreements contained in or reserved by any lease that may be granted or assigned to or otherwise acquired by the Company and to purchase the reversion or reversions, and otherwise acquire the freehold or the fee simple of all or any of the lands of the Company for the time being held under lease or for an estate less than a freehold estate ;
- g) subject to the provisions of sub-Section(3) of Section 196 of the Ordinance, to improve, manage, develop, exchange, lease, sell, re-sell and repurchase, dispose of, deal with or otherwise turn to account any property (movable or immovable) or any rights or privileges belonging to or at the disposal of the Company or in which the Company is interested ;
- h) to secure the fulfillment of any contracts or arrangements entered into by the Company by mortgage or charge of all or any of the property of the Company for the time being or in such other manner as they think fit ;
- i) to open bank accounts in commercial banks and financial institutions approved by the Government ;

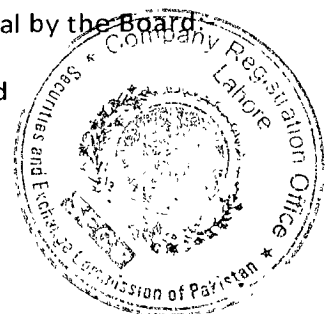


- j) to determine from time to time who shall be entitled to sign on the Company's behalf bills, notes, receipts, acceptances, endorsements, cheques, dividend warrants, release, contracts and documents and to give necessary authority for such purposes ;
- k) to take advances and loans without any security or on such security as the Directors deem proper and to invest and deal with any of the moneys of the Company not immediately required for the purposes thereof, upon such investments, not being shares of this Company, and in such manner as they may think fit ; and from time to time to vary realise such investments ;
- l) to make and give receipts, releases and other discharges for moneys payable to or for goods or property belonging to the Company, and for the claims, and demands of the Company ;
- m) to give to any officer or other person employed by the Company a commission on the profits of any particular business or transaction, or a share in general or particular profits of the Company and, such commission or shares or profits shall unless otherwise provided be treated as part of the working expenses of the Company ;
- n) to appoint any presents or persons (whether incorporated or not) to accept and hold in trust for the Company any property belonging to the Company, or in which the Company is interested or for any other purposes and to execute and do all such acts, deeds and things as may be requisite in relation to any such trust and to provide for the remuneration of such trustee or trustees ;
- o) to execute in the name and on behalf of the Company in favour of any Director or other person who may incur or be about to incur any personal liability for the benefit of the Company, such mortgage of the Company's property (present and future) as they may think fit, and any such mortgage may contain a power of sale and such other powers, covenants and provisions as shall be agreed upon ;
- p) to institute, conduct, defend, compound or abandon any actions, suits, legal proceedings by or against the Company, or its officers or otherwise concerning the affairs of the Company, and also to compound ; and allow time for payment or satisfaction of any debt due to and any claims or demands by or against the Company, and to refer the same to arbitration and to observe and perform any awards made thereon and to act on behalf of the Company in all matters relating to bankrupts and insolvents ;
- q) to provide for the welfare of the employees or ex-employees (including Directors) of the Company, and the wives, widows, and families, or the dependents, by building or contributing to the building of houses, dwelling chawls, or by grants of money, pensions, allowances, bonus or other payments, or by creating and from time to time subscribing or contributing to provident and other funds, associations, institutions and by providing subscribing or contributing towards places of instruction and recreation, hospitals and dispensaries, medical and other attendance and other assistance as the Company shall think fit, and to subscribe or



contribute or otherwise to assist or to guarantee money to charitable, benevolent, religious, scientific, national or other institutions or objects, which shall have any moral or other claim to support by the Company, for general public utility or otherwise except making political contribution;

- r) to create a Provident Fund for the employees of the Company and to contribute to the same such sum or sums as the Directors may determine;
- s) may from time to time, recommend to the members such dividends as in their judgment the position of the Company justifies.
- t) before recommending any dividend to set aside out of the profits of the Company, such sums as they think fit ;
- u) from time to time and at any time to entrust to and confer upon any one or other officers for the time being of the Company, and to authorise or empower them to exercise and perform and by power of attorney to appoint any person to be the Attorneys of the Company and to invest them with such of the powers, authorities, duties and discretion exercisable by or conferred or imposed upon the Directors under the Memorandum and Articles of the Company (other than those powers which are compulsorily required to be exercised under the Ordinance at meeting of Directors), as the Directors may think fit and for such time and to be exercised for such objects and purposes and subject to such restrictions and conditions, as the Directors may think proper or expedient and either collateral with or to the exclusion of and in substitution for all or any of the Directors in that behalf with authority to such other officers or attorneys to sub-delegate all or any of the powers, authorities, duties and discretions for the time being vested in or conferred upon them and from time to time revoke all such appointments of attorneys and withdraw, alter or vary all or any of such powers, authorities, duties and discretions ;
- v) to appoint, and at their pleasure to remove, discharge or suspend and to re-employ or replace, for the management of the business of the Company such managers, experts, engineers, attorney, accountants, agents, sub agents, bankers, brokers, muddums, solicitors, officers, clerks, servants and other employees for permanent, temporary or special services as the Directors may from time to time think fit and to determine their powers and duties and to fix their emoluments, salaries or wages and to require security in such instances and to such amount as they think fit and to insure and arrange for guarantees for fidelity of any employees of the Company and to pay such premium on any policy of guarantee as may from time to time become payable.
- w) from time to time to provide for the management and transaction of the affairs of the Company outside Pakistan or in any specified locality in Pakistan or elsewhere in such manner as they think fit ;
- x) having regard to such amount as may be determined to be material by the Board:
 - (i) to write-off bad debts, advances and receivables;
 - (ii) to write-off inventories & other assets of the Company, and



- (iii) to determine the terms of and the circumstances in which a law suit may be compromised and a claim or right in favour of a company may be released, extinguished or relinquished.
- y) generally subject to the provisions of the Ordinance and these Articles to delegate any of the powers, authorities and discretions vested in the Directors to any person, firm, company or fluctuating body of persons as aforesaid ; and
- z) for or in relation to any of the matters aforesaid or otherwise for the purposes and objects of the Company to enter into all such negotiations and contracts and rescind and vary all such negotiations and contracts and execute, perform and do and sanction and authorise all such deeds, matters and things in the name and on behalf of the Company as they may consider expedient.

CHIEF EXECUTIVE

102. Appointment of First Chief Executive :

The Directors of the Company shall as from the date from which it commences business or as from the date not later than fifteenth day after the date of its incorporation, whichever is earlier, appoint any person to be the Chief Executive of the Company. The Chief Executive to be appointed shall, unless he earlier resigns or otherwise ceases to hold office, hold office till the first Annual General Meeting of the Company or if a shorter period is fixed by the Directors at the time of his appointment, for such period. His remuneration from time to time be fixed by the Directors. A retiring Chief Executive will be eligible for reappointment.

103. Appointment of Subsequent Chief Executive :

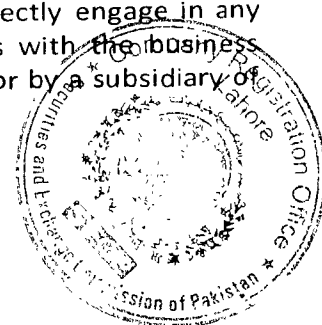
The Directors of the Company shall within fourteen days from the date of elections of Directors or the office of the Chief Executive falling vacant, as the case may be, appoint any person including an elected Director to be the Chief Executive, but such appointment shall not be for a period exceeding three years from the date of appointment. On expiry of the term of office the Chief Executive shall be eligible for re-appointment. The Chief Executive retiring under the provisions of law shall continue to perform his functions until his successor is appointed unless non appointment of his successor is due to any fault on his part or his office is expressly terminated.

104. Removal of Chief Executive :

The Directors of the Company by resolution passed by not less than three fourth of the total number of Directors for the time being, or the Company may by a special resolution remove a Chief Executive before the expiry of his term of office.

105. Chief Executive not to engage in business competing with Company's business :

- a) The Chief Executive of the Company shall not directly or indirectly engage in any business which is of the same nature and directly competes with the business carried on by the Company of which he is the Chief Executive or by a subsidiary of such company.



Explanation

A business shall be deemed to be carried on indirectly by the Chief Executive if the same is carried on by his spouse or any of his parents, children, brothers or sisters.

- b) Every person who is appointed as Chief Executive of the Company shall forth with on such appointment disclose to the Company in writing the nature of such business and his interest therein.

106. Delegation to Chief Executive :

The Directors may entrust to and confer upon the Chief Executive any of the powers exercisable by the Directors upon such terms and conditions and with such restrictions as they may think fit, and whether collaterally with or to the exclusion of the Directors own powers, and may from time to time revoke, withdraw, alter or vary all or any of such powers. In particular, and without prejudice to the generality of the foregoing, the Chief Executive may be conferred authority over and responsibility for the management of the day to day affairs of the Company and the conduct of its business, and the custody and maintenance of its properties, assets, records and accounts, No person who is ineligible to become a Director of a Company under Section 187 of the Ordinance shall be appointed or continue as the Chief Executive of the Company.

THE SEAL**107. Seal to be affixed by authority of Resolution of Board and in the presence of two Directors and Secretary :**

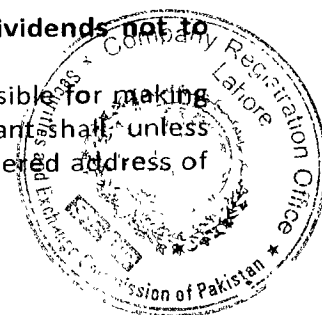
Subject as provided in Article 23 with respect to Certificates, the seal shall not be affixed to any instrument except by the authority of a resolution of the Board of Directors, and every instrument to which the seal shall be affixed shall either be signed by one Director and countersigned by the Secretary or by a second Director and or by some other person appointed by the Directors for the purpose, but so that the Directors may by resolution determine, either generally or in any particular case. The Company may exercise the powers of Section 213 of the Ordinance and such powers are accordingly hereby vested in the Directors.

DIVIDENDS**108. Declaration of Dividends :**

The Company in General Meeting may declare dividends but no dividend shall exceed the amount recommended by the Directors. The Directors may, if they think fit, from time to time declare and pay the members such interim dividends as appear to them to be justified by the position of the Company. No higher dividend shall be paid than is recommended by the Directors, and the declaration of the Directors as to the amount of the net profits shall be conclusive.

109. Dividend Warrants to be sent to Members by Post. Unpaid Dividends not to bear any interest :

When a dividend has been declared, the Chief Executive shall be responsible for making the payment within thirty days of the declaration. Every dividend warrant shall, unless otherwise directed in writing, be sent by registered post to the last registered address of



the member entitled thereto, and the receipt of the person whose name at the date of the declaration of the dividend appears on the Register of Members as the owner of any share, or, in the case of joint-holders, of any one of such joint-holders, shall be a good discharge to the Company for all payments made in respect of such share. No unpaid dividend shall bear interest as against the Company.

ACCOUNTS

110. Books of Accounts to be kept by the Company :

The company shall keep at its registered office proper books of account with respect to :-

- a) all the assets and liabilities of the Company ;
- b) all sums of money received and expended by the Company, and the matters in respect of which such receipts and expenditure take place ;
- c) all sales and purchases of goods by the Company; and
- d) in the case of a company engaged in production, processing, manufacturing activities, such particulars relating to utilisation of material or labour or the other inputs or items of cost as may be prescribed, by the Commission by a general or special order to include such particulars in the books of accounts:

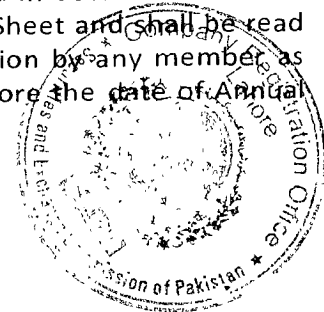
The books of account may be kept at such other place as the Directors shall think fit, and when the directors so decide, the company shall, within seven days of the decision, file with the registrar a notice in writing giving the full address of the other place. The books shall always be open to the inspection of the Directors during business hours.

111. Accounts and Books may be inspected by Members :

The Directors shall from time to time determine whether, in any particular case or class of cases, or generally and at what times and places and under what conditions or regulations, the accounts and books of the Company, or any of them shall be open to the inspection of members (not being a Director) and no member shall have any right of inspecting any account or book or document of the Company, except as conferred by statute or authorised by the Directors or by a resolution of the Company in General Meeting.

112. Profit and Loss Account to be made up and laid before Company Balance Sheet to be made out yearly :

Once at least in every year the Directors shall lay before the Company in General Meeting a Profit and Loss Account for the Period since the preceding account, made up to a date not more than four months before such meeting. A Balance Sheet shall also be made out in every year as at the date to which the Profit and Loss Account is made up, and shall be laid before the Company in General Meeting. The said account and balance sheet shall be accompanied by such reports and documents and shall contain such particulars as are prescribed by the Ordinance and the Directors shall in their report state the amount which they recommend to be paid by way of dividend, the amount (if any) which they propose to carry to any reserve fund and other matters specified in Section 236 of the Ordinance. The Auditors Report shall be attached to the Balance Sheet and shall be read before the Company in General Meeting and be open to inspection by any member as required by Section 233(4) of the Ordinance. At least 21 days before the date of Annual



General Meeting, a copy of the audited Balance Sheet, Profit and Loss Account together with relevant reports shall be sent to the registered address of every member of the Company.

AUDIT

113. Accounts to be audited :

Once at least in every year the accounts of the Company shall be audited, and the correctness of the Profit and Loss Account and Balance Sheet ascertained by one or more Auditor or Auditors, and the provisions of Sections 252 to 257 of the Ordinance and any modification or re-enactment thereof for the time being in force in regard to audit and Auditors shall be observed.

SECRETARY

114. Secretary :

The Board may appoint a secretary of the Company who shall perform such functions and duties as are required in these Articles, or as may be directed by the Board.

NOTICES

115. Service of Notices by Company :

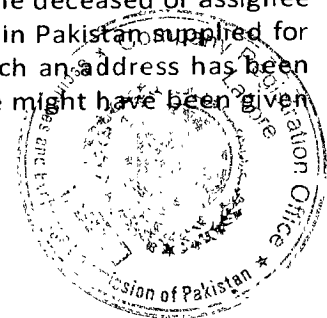
- a) A Notice may be given by the Company to any member either personally or by sending it by post to him at his registered address or (if he has no registered address in Pakistan) at the address, if any, supplied by him to the Company for the giving of notices to him. Notices to members residing outside Pakistan shall be sent to them by air mail.
- 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 and, unless the contrary is proved, to have been effected at the time at which the letter would be delivered in the ordinary course of post.

116. How Joint Holders of Shares may be served :

A notice may be given by the Company to the joint-holders of a share by giving the notice to the joint holder named first in the Register in respect of the Share.

117. Notice in case of death or bankruptcy :

A notice may be given by the Company to the persons entitled to a share in consequence of the death or insolvency of a member by sending it through the post in a prepaid letter addressed to them by name, or by the title of representatives of the deceased or assignee of the insolvent, or by any like description, at the address (if any) in Pakistan supplied for the purpose by the person claiming to be so entitled, or (until such an address has been so supplied) by giving the notice in any manner in which the same might have been given if the death or insolvency had not occurred.



118. Notice of General Meeting :

Notice of every General Meeting shall be given in same manner hereinbefore authorised to (a) every member except those members who (having no registered address within Pakistan) have not supplied to the Company an address within Pakistan for the giving of notice to them, (b) every person entitled to a share in consequence of the death or insolvency of a member who but for his death or insolvency would be entitled to receive notice of the meeting and (c) to the Auditors of the Company for the time being. No other persons shall be entitled to receive notices of General Meetings.

INDEMNITY**119. Indemnity :**

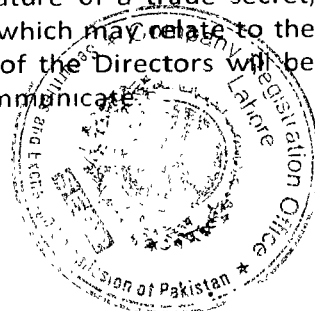
Every Director or other Officer of the Company shall be entitled to be indemnified out of the assets of the Company against all losses or liabilities (including any such liability as is mentioned in Section 194 of the Ordinance) which he may sustain or incur in or about the execution of the duties of his office or otherwise in relation thereto and no Director or other Officer shall be liable for any loss, damage or misfortune which may happen to or be incurred by the Company in the execution of the duties of his office or in relation thereto. But this Article shall only have effect in so far as its provisions are not avoided by the said Section.

SECRECY**120. Secrecy :**

Every Director, Auditor, Trustee, member of a Committee, Officer, Servant, Agent, Accountant or other person employed in the business of the Company shall, if so required by the Directors before entering upon his duties, sign a declaration pledging himself to observe a strict secrecy respecting all transactions of the Company with its customers and the state of accounts with individuals and in matters relating thereto, and shall by such declaration pledge himself not to reveal any of the matters which may come to his knowledge in the discharge of his duties except as far as may be necessary in order to comply with any of provisions of these presents.

121. No Shareholder to enter into Premises without permission :

No member or other person (not being a Director of the Company) shall be entitled to enter the property of the Company or to inspect or examine the Company's premises or properties of the Company without permission of the Directors of the Company for the time being or to require discovery of or any information respecting any detail of the Company's trading or any matter which is or may be in the nature of a trade secret, mystery of trade or secret process or of any matter whatsoever which may relate to the conduct of the business of Company and which in the opinion of the Directors will be inexpedient in the interest of the members of the Company to communicate.



WINDING UP

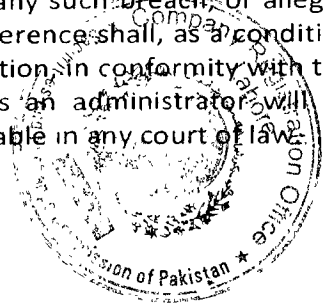
122. Distribution of assets in specie :

If the Company is wound up, whether voluntarily or otherwise, the Liquidators may, with the sanction of a Special Resolution and any other sanction required by the Ordinance divide among the members in specie any part of the assets of the Company and any such division may be otherwise than in accordance with the existing rights of the members, but so that if any division is resolved on otherwise than in accordance with such rights the members shall have same right of dissent and consequential rights as if such resolution were a special resolution passed pursuant to Section 367 of the Ordinance. A Special Resolution sanctioning a transfer or sale to another Company duly passed pursuant to the said Section may in like manner authorise the distribution of any shares or other consideration receivable by the Liquidators amongst the members otherwise than in accordance with their existing rights, and any such determination shall be binding upon all the members, subject to the right of dissent and consequential rights conferred by the said Section.

ARBITRATION

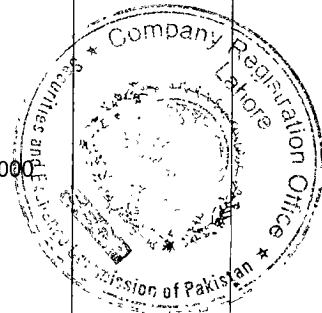
123. Arbitration :

Whenever any difference, doubt or dispute arises between the Company on the one hand, and any of the members, their executors, administrators or assignees on the other hand, touching the true intent or construction, or the incidents or consequences of these Articles, or of the statutes or touching anything then or thereafter done, executed, omitted, suffered in pursuance of these Articles, or the statutes or touching any breach or alleged breach, of these Articles, or any claim on account of any such breach, or alleged breach, or otherwise relating to these Articles, every such difference shall, as a condition precedent to any other action at law be referred to the arbitration in conformity with the Arbitration Act, 1940. With agreement of both the parties an arbitrator will be appointed whose decision will be final and would not be revocable in any court of law.



We, the several persons whose names and addresses are subscribed below, are desirous of being formed into a Company, in pursuance of this Articles of Association, and we respectively agree to take the number of shares in the Capital of the Company as set opposite to our respective names.

Name and Surname (Present & Former) in Full (in Block Letter)	Company Registration No./ CNIC No.	Father's / Husband's Name in Full	Nationality	Occupation	Residential Address (in Full)	Number Of shares taken by Each subscriber	Signature
Chanar Sugar Mills Limited through its Representative	0022801		Pakistani		Chak No. 407 G.B. Tehsil Tandlianwala, District Faisalabad	5,000	
Javed Ahmad Kayani	35202-5528047-5	Feroze-ud-Din Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore		
Javed Ahmad Kayani	35202-5528047-5	Feroze-ud-Din Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	50,000	
Atiya Kayani	35202-5831833-8	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	25,000	
Murtaza Feroze Kayani	35202-3267967-3	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	10,000	
Hamza Feroze Kayani	35202-5153118-1	Javed Ahmad Kayani	Pakistani	Industrialist	62-B, Gulberg-II, Lahore	10,000	
TOTAL NUMBER OF SHARES TAKEN						100,000	



Date this 12 day of June 2014

Witness to above signatures: National Institutional Facilitation Technologies (Pvt) Ltd
5th Floor AWT Plaza I. I. Chundrigar Road Karachi

[Handwritten signature] 13/03/2015



Chanar Energy Limited

First AGM of the Company is scheduled to be held on or before 31 October 2015, hence, the Company has not yet filed Form A. However, the information as per Form A is as follows:

Corporate Universal Identification No.:	0088977
Name of the Company:	Chanar Energy Limited
Date of Incorporation:	26 June 2014
Date of Certificate for Commencement of Business:	17 October 2014
Registered office address:	7 – A New Muslim Town, Lahore, Punjab, Pakistan
Email Address:	info@chanargroup.com
Office Tel. No.:	042 111 970 970
Office Fax No.:	042 3586 2264
Nature of Business:	Power generation using bagasse and other biomass
Authorized Share Capital:	Rupees One Hundred Million only (PKR 100,000,000) being Ten million (10,000,000) ordinary shares of Rupee 10 each, however, it will be increased at financial close to approximately Rupees Eight Hundred Million only (PKR 800,000,000)
Paidup Capital:	Rupees One Million (Rs. 1,000,000) divided into One Hundred Thousand (100,000) ordinary shares of Rupees Ten (Rs. 10) each
Chief Executive	Javed Ahmad Kayani
Chief Accountant	Muhammad Awais Asif
Secretary	Sheikh Azeem Muhammad Shafi
Legal Advisor	Ziaullah Kayani
Auditors	Junaidy Shoaib Asad Chartered Accountants

Signature



Chanar Energy Limited

List of members

Sr. No.	Name	Designation	No. of Shares Held
1.	Javed Ahmad Kayani	Director & Chief Executive	50,000
2.	Atiya Kayani	Director	25,000
3.	Murtaza Feroze Kayani	Director	10,000
4.	Hamza Feroze Kayani	Director	10,000
5.	Chanar Sugar Mills Limited	Share holder	5,000
Total			100,000

Signature

Description of Proposed Generation Facility

BRIEF INTRODUCTION OF THE APPLICANT

Pakistan is currently facing serious power shortages which has grossly impacted the pace of investment in the country. Scarcity of the adequate power supply has affected existing business and industry rendering them unviable in a struggle to survive. The power shortfall as estimated by the Government of Pakistan ("GOP") is over 6,000 MW. This gap in power supply and demand is on the increase. Fossil fuels are not only scarce but even the available reserves are depleting fast. . In order to meet the present day requirements of the fuels and to fulfill the ever so increasing demand of power, alternate/non-conventional fuels are to be inducted into the power pool of the country without wasting any time. With the recent focus of the GOP towards environmental protection, use of non-conventional energy resources i.e. use of Bagasse as a primary fuel for power generation would not only reduce the power shortfall but it would also be environment friendly.

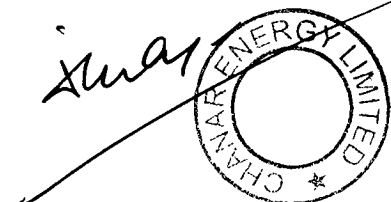
The Government after assuming power in May 2013 announced Power Policy 2013 along with focusing substantially on harnessing renewable resources for energy generation. One such initiative is the announcement of a very attractive Upfront Tariff for Co-generation Plants on May 29, 2014 by the National Regulator of the country namely National Electric Power Regulatory Authority (NEPRA) based on Economic Coordination Committee (ECC) approval of "Policy Framework for Power Co-Generation 2013" dated March 22, 2013. This tariff is based on using Bagasse as primary fuel for generating electricity. The levelized tariff for Co-generation Plants is Rs. 10.40781kWh (US Cents 10.6202/kWh). The encouraging thing is that despite the fact that it is a very attractive tariff for Co-generation Plants, it still happens to be the lowest after hydro power generation. This Tariff is subject to indexation at May 31, 2015 based on various local and international economic indicators.

In view of the above, Sponsors of Chanar Sugar Mills Limited (CSML) have decided to setup a 22 MW Bagasse/Biomass based power project. To this end, the sponsors have set up a special purpose vehicle, under the name of Chanar Energy Limited (CEL) to undertake the project. The equity of CEL shall be held by CSML as well as by the sponsors of CSML directly. The Sponsors belong to a well-established industrial group having more than twenty five years of experience in manufacturing, trading, textile and sugar sector.

A BRIEF OF PROJECT TEAM

A brief introduction of the financial and technical team supporting the sponsors is as follows:

Financial Team is headed by Mr. Asif Jamil Malik, a dynamic professional and a seasoned Chartered Accountant. After graduating from the prestigious Hailey College of Commerce, University of the Punjab, Lahore he then proceeded to the Institute of Chartered Accountants of Pakistan to successfully pursue the internationally recognised highest professional designation. Before he joined the group in 2001, he worked with leading companies of the country in textile and chemical sector. As the Head of Finance he has been instrumental in upholding the highest standards of financial discipline and



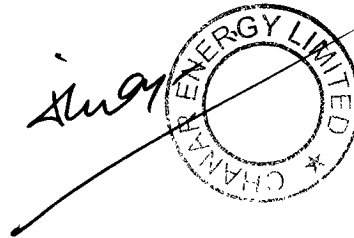
Handwritten signature and circular stamp of Chanar Energy Limited.

Mr. Fayyaz Ahmad Butt is heading the Technical Team. An MSc Chemistry with a vast experience of twenty years in sugar sector. He is associated with Chanar Sugar since 2001 and now elevated as General Manager for the last four years. Under his supervision Chanar has taken numerous steps like installation of Mill Max, Falling Film Evaporators, Frequency Invertors on different drives, SEDL Condensers and automation at mills house, which has enabled us to be the most energy efficient sugar mill of the country. Mr. Butt is assisted by Mr. Ahmad Khan Warraich, as DGM Technical, with an experience of over twenty years. Mr. Warraich is looking after the mechanical side of the plant and is associated with Chanar for the last three years. Mr. Sohail Anjum is working as Manager Electrical department with an experience of twenty four years. He is associated with Chanar for the last four years.

PROJECT PARTNERS

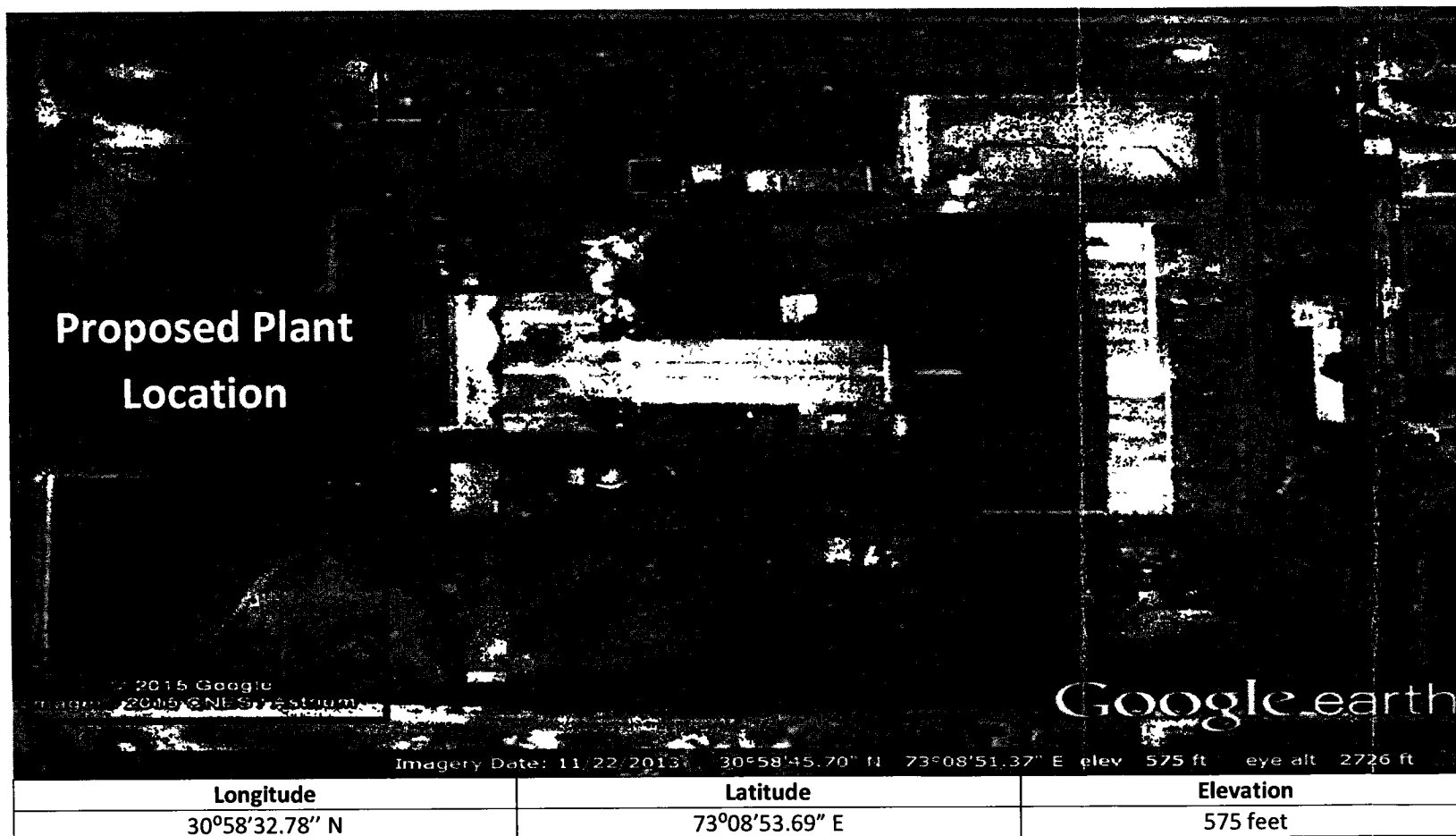
The Project will be conducted on EPC basis and following is a list of project partners:

- | | |
|-------------------------------|---|
| • EPC CONTRACTOR | ZHEJIANG TURBINE IMPORT & EXPORT Co., LTD – CHINA |
| • FINANCIAL CONSULTANT | AEQUITAS (PVT) LIMITED FORMERLY CROSBY CAPITAL PAKISTAN (PVT) LTD |
| • LEAD BANKERS | MCB BANK LIMITED |
| • LEGAL COUNSEL | RIAA LAW ASSOCIATES |
| • OWNER'S ENGINEER | OMS (PRIVATE) LIMITED |
| • INSURANCE ADVISOR | LOCKTON MENA LIMITED |



PLANT LOCATION

The proposed plant of CEL is located in an excellent cane growing area of Tehsil Tandlianwala District Faisalabad, Punjab Province. The proposed plant is about 55 Km from the Faisalabad city. The nearest airport is at Faisalabad and the nearest sea port is Karachi at a distance of about 1,000 kMs. The proposed plant is well connected with Islamabad and Lahore through National highway



Signature

CHANGAR ENERGY LIMITED

PLANT DETAILS

SALIENT FEATURES OF THE GENERATION FACILITY

1. General Information

(i)	Applicant's Name	Chanar Energy Limited
(ii)	Registered Office	7 – A New Muslim Town, Lahore.
(iii)	Plant Location	407 GB Tandlianwala, Dist Faisalabad.
(iv)	Type of Generation Facility	Bagasse based Cogeneration Power Plant
(v)	Commissioning/Commercial Operation Date	18 months from the financial close
(vi)	Expected Life of the Facility from Commercial Operation/Commissioning	30 years
(vii)	Expected Remaining Useful Life of the Facility	30 years


2. Plant Configuration

(i)	Plant Size Installed Capacity (Gross ISO)	22 MW (Gross)
(ii)	Type of Technology	Cogeneration Power Plant with high pressure boilers & Turbo-Generators
(iii)	Number of Units	One (01)
(iv)	Unit Make and Model	110' bar Travelling grate boiler with steam capacity of 110 TPH, from Wuxi HuaYun Power Engineering Co. Limited, China Turbo generator - Extraction cum condensing type based on SIEMENS design from Hangzhou Steam Turbine Co. Limited, China
(v)	Installed Capacity	Power Generation: 20.90 MW (Season operation) 22.00 MW (Off-season operation)
(vi)	Auxiliary Consumption	@ 10%

Note:

All the above figures are indicative in nature. The Net Capacity available for dispatch will be determined through procedure(s) contained in the Energy Purchase Agreement, Grid code or any other applicable document(s).

Signature



3. Fuel / Raw Material Details

(i)	Primary Fuel	Bagasse
(ii)	Alternate Fuel	NIL
(iii)	Fuel Source (Imported/Indigenous)	Indigenous
(iv)	Fuel Supplier	Chanar Sugar Mills Limited
(v)	Supply Arrangement	Through conveyor belts/loading trucks/tractor trolleys etc.,
(vi)	Sugarcane Crushing Capacity	300 tonnes per hour
(vii)	Bagasse Generation Capacity	90 tonnes per hour
(viii)	Bagasse Storage Capacity	Bulk Storage
(ix)	Number of Storage Tanks	In open Yard
(x)	Storage Capacity of each tank	Not Applicable
(xi)	Gross Storage	Bulk Storage

4. Emission Values

Emission values shall remain within the limits prescribed by National Environment Quality Standards. (NEQs) and Company would install electrostatic precipitator (ESP) to ensure the same.

5. Cooling System

(i)	Cooling Water Source/Cycle	Closed circuit / Ground water
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6. Plant Characteristics

(i)	Generation Voltage	11,000 volts
(ii)	Frequency	50 Hz
(iii)	Power Factor	0.8 (lag)
(iv)	Automatic Generation Control (AFG)	By Turbine Governing System
(v)	Ramping Rate	250 – 300 rpm / minute
(vi)	Time Required to Synchronize to Grid and Loading the Complex to Full Load from Cold Start	<div>During cold start (i.e when plant is started later than 72 hours after shutdown)</div> <div>During warm start (i.e when plant is started at less than 36 hrs after shutdown)</div> <div>During Hot start (i.e when plant is started at less than 12 hrs after shutdown)</div>
		<div>125 minutes</div> <div>70 minutes</div> <div>40 minutes</div>

Signature

CHANAR ENERGY LIMITED

CHANAR ENERGY LIMITED

DETAIL OF SPONSORS / SPONSORS' PROFILE

Mr. Javed Ahmed Kayani

Chairman / Chief Executive of the Group and a driving force of the Company, born in 1962 in Kasur. He completed his graduation from Forman Christian College in 1981. He has done courses in finance and securities market from London School of Economics, UK. In 1987, He remained in textile spinning business for about twenty years. He has been a sponsor director in Chanar Sugar Mills Limited and has been looking after its day to day affairs since its incorporation in 1990. He has turned Chanar Sugar into one of the most energy-efficient plants in Pakistan.

He has been elected for the third time as Chairman of Pakistan Sugar Mills Association 'Punjab Zone' for the sessions 2002-2004, 2008-2010 and 2014-16 and also served as Chairman of Pakistan Sugar Mills Association 'Central Office' for the session 2010-2012. He has written numerous articles on sugar industry for leading newspapers like Business Recorder and DAWN. He has been a convener of sugar committees of the Lahore Chamber of Commerce & Industries.

Besides the aforementioned, he is also assisting a number of health and welfare projects for the poor and needy.

Net assets of Mr. Javed Ahmed Kayani are worth approximately Rs 500 million.

Mrs. Atiya Kayani w/o Mr. Javed Ahmad Kayani

Mrs. Atiya Kayani is the Executive Director of Chanar Sugar Mills Limited. She has served as director in many other companies and is contributing constructively on board of directors of various companies. She is a lady of sound business acumen and believes in advance planning and team work.

Net assets of Mrs. Atiya Kayani are worth approximately Rs 90 million.

Mr. Murtaza Feroze Kayani s/o Mr. Javed Ahmad Kayani

Mr. Murtaza Feroze Kayani is a Director in Chanar Sugar Mills Limited. He was appointed on the Board of the Company in 2009. He joined the Company after his graduation from University of Saint Andrews, Scotland, United Kingdom. He actively participates in the affairs of the Company.


Net assets of Mr. Murtaza Feroze Kayani are worth approximately Rs 2 million.

Mr. Hamza Feroze Kayani s/o Mr. Javed Ahmad Kayani

Mr. Hamza Feroze Kayani is currently pursuing his education and shall get involved in the project upon completion of his degree.

Net assets of Mr. Hamza Feroze Kayani are worth approximately Rs 1 million at present.

Atiya



Chanar Sugar Mills Limited ("CSML")

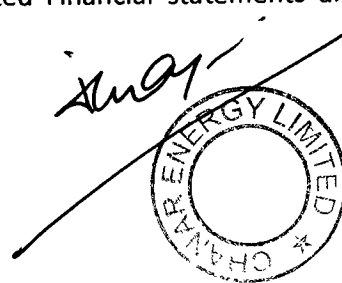
Chanar Sugar Mills Limited was established in 1990 at Tandlianwala, district Faisalabad. The project was financed by a consortium of Investment Corporation of Pakistan (ICP) and Bankers Equity Limited (BEL). All long term liabilities of CSML have since been discharged. The Company commands respect in market and produces premium quality sugar which is acclaimed both in local and international market. At present, it is one of the most energy efficient plants in the country saving bagasse to initiate a co-generation power project.

As per prudential regulations issued by State Bank of Pakistan, shareholders' equity in Chanar Sugar Mills Limited based on the audited financial statements dated 30.09.2014, is as follows:

DESCRIPTION	AMOUNT (Rs.)
• Share capital & Reserves	304,696,437
• Surplus on revaluation of property, plant & equipment (net)	601,042,703
• Directors' sub-ordinated loan	156,000,000
	<hr/>
	1,061,739,140
	=====

Audited Financial Statements

The major sponsorship (95.0%) of Chanar Energy Limited is owned by individuals whose names & respective shareholding is mentioned above. The Audited Financial statements are not applicable/available in this case hence not be provided.





浙江透平进出口贸易有限公司

Zhejiang Turbine Import & Export Co., Ltd.

浙江省杭州市石桥路 357 号 电话/Tel: (0571) 85780443
357 Shiqiao Rd ,Hangzhou, China 传真/Fax: (0571) 85780250

Ref.: 2015/ZTC-CEL/22MW/Profile/001

2015.05.22

Channar Energy Ltd.,

Pakistan.

Kind Attn.: Mr. Javed Kayani

Dear Sir,

Reg.: Introduction about Zhejiang Turbine Import and Export co. Ltd.,

Respected Sir,

We give as enclosed a complete profile of our company for your ready reference and needful.

Thanking you in advance for your kind consideration.

Yours' sincerely,

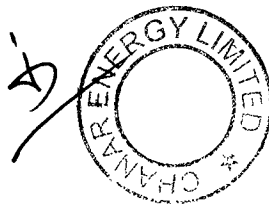
For Zhejiang Turbine Import & Export Company

Mao Ning,

Chief Executive Officer.

Email: ztcsales@163.com

CERTIFIED TRUE COPY



**ZTC****浙江透平进出口贸易有限公司****Zhejiang Turbine Import & Export Co., Ltd.**浙江省杭州市石桥路 357 号 电话/Tel: (0571) 85780443
357 Shiqiao Rd., Hangzhou, China 传真/Fax: (0571) 85780250

Company Profile

Zhejiang Turbine Import & Export CO., Ltd is a wholly-owned subsidiary of Hangzhou Steam Turbine CO., Ltd, the major manufacturer of industrial turbines in China. Turbine has been approved by the Ministry of Commerce and the General Administration of Customs to handle foreign trade business. Our company has set up Board of Directors and Board of Supervisors. The general manager is responsible for its operation. For the moment, there are market development division, power plant engineering division and sales division. We have set up business offices in Shanghai, Qingdao, Tianjin and Shenzhen, and overseas, we have many a business partner. Backed by large financial resources, state of art equipment and high-caliber professionals, we have enjoyed in recent years global sources of suppliers and purchasers, and enjoyed a good reputation among our clients.

Many years of cooperation has resulted in good partnerships with Chinese and foreign famous enterprises including Hangzhou Steam Turbine Co., Ltd, Harbin Turbine Company Limited, Shandong Jinan Power Equipment Factory Co., Ltd, Hangzhou hangfa Electrical Equipment Co., Ltd, Nanyang Explosion Protection Group Co., Ltd, Wuxi Huaguang Boiler Co., Ltd, Hangzhou Boiler Group Co., Ltd, Suzhou Hailu Heavy Industry Co., Ltd, Hangzhou Qiantang River Electric Group Co., Ltd, Zhejiang Supcon Technology Co., Ltd, Hollysys, Sunyard System Engineering Co., Ltd, VOITH TURBO AG, Flendergear box Co., Ltd, etc. Our collaboration partners also include top research institutes in China. Our primary business is the EPC of power plants, and we are capable of contracting EPC, BTG and STG of overseas power projects according to the different requirements of customers.

ZTC has carried out various projects within china and overseas. A list of overseas projects that have been commissioned or under commissioning is attached herewith for your reference.

Zhejiang Turbine Import and Export Co. Ltd.,
Hangzhou, China.

**LIST OF JOBS EXECUTED BY M/s. ZHEJIANG TURBINE IMPORT & EXPORT CO. LTD IN
INDIA FOR EPC, BTG, SUGAR,STG ISLANDS.**

LIST OF EPC PROJECTS

SI.NO	PROJECT / CUSTOMER	RATING	TYPE OF BOILER	SEGMENT	STATUS
1	IND BARATH POWER GENCOM LIMITED	1 X 70 MW 1 X 70 MW 1 X 70 MW	CFBC	IPP	Unit 1- Commissioned Unit 2- Commissioned Unit 3- Commissioned
2	HEMARUS TECHNOLOGIES LIMITED	1 X 20MW	TRAVELLING GRATE	SUGAR	Commissioned
3	IND BARATH POWER KARWAR LIMITED	3 X 150MW	CFBC	IPP	Under manufacturing and Supply
4	BMM ISPAT LIMITED	1 X 70 MW 1 X 70 MW	CFBC	IPP	Commissioned
5	S V POWER PRIVATE LIMITED	1X 63 MW	CFBC	IPP	Commissioned
6	CAUVERY POWER GENERATION CHENNAI PRIVATE LIMITED	1 x 63 MW	CFBC	IPP	Commissioned
7	KIRI INDUSTRIES LIMITED	1 X 80 MW	CFBC	CHEMICAL	Under Construction
8	PT.SINERGY POWER SOURCE Indonesia	2 x 15 MW	CFBC	CORE FIRE	Under Construction

OTHER REFERENCES OF JOB EXECUTED, SCOPE DIFFERENT FROM EPC
LIST OF BTG PROJECTS

SI.NO	PROJECT NAME/ CUSTOMER	RATING	SEGMENT	STATUS
1.	ADHUNIK METALIKS LIMITED	1X 15 MW	Steel & iron	Commissioned
2.	SINGARAYA HILLS GREEN POWER GENCOM LIMITED	1X 8 MW	Biomass	Commissioned
3.	SHARADAMBIKA POWER PLANT PRIVATE LIMITED	1X 10 MW	Biomass	Commissioned



4.	SANGHI INDUSTRIES LTD.	1X 61.58 MW	Cement	Commissioned
5.	PENNA CEMENT INDUSTRIES LIMITED	2 X 38.5 MW	Cement	Commissioned
6.	SKS ISPAT LIMITED	1X 30 MW	Steel & iron	Commissioned
7.	CORPORATE ISPAT PRIVATE LIMITED	1X 25 MW	Steel & iron	Commissioned
8.	UTKAL ALUMINA INTERNATIONAL LIMITED	3 X 30 MW	Aluminum	Under commissioning
9.	BMM ISPAT LIMITED	1X 70 MW	Steel & iron	Commissioned
10.	MADHUCON PROJECTS LIMITED PHASE-I	2 X 150 MW	IPP	Commissioned
11.	CAUVERY POWER GENERATION CHENNAI PRIVATE LIMITED	1 x 63 MW	IPP	Commissioned
12.	MADHUCON PROJECTS LIMITED PHASE-II	2 X 150 MW	IPP	Under commissioning
13.	MADRAS SUGARS LTD	1 x 25 MW	SUGAR	Commissioned
14.	SHOUGANG QIANGANG LIMITED	2 X 50 MW	STEEL	Under Construction
15.	CHONGQING IRON&STEEL CO.,LTD	2 X 50 MW	STEEL	Under Construction

LIST OF SUGAR PROJECTS

SLNO	PROJECT NAME	MW RATING	SECTOR	LOCATION
1	KOTHARI SUGARS & CHEMICALS LIMITED	22	SUGAR	Commissioned
2	NCS SUGARS LIMITED	20	SUGAR	Commissioned
3	DALMIYA SUGARSLIMITED	27	SUGAR	Commissioned
4	SAKTHI SUGARS LIMITED - MODAKURICHI	25	SUGAR	Commissioned
5	SAKTHI SUGARS LIMITED - APPAKUDAL	25	SUGAR	Commissioned
6	SAKTHI SUGARS LIMITED - SIVAGANGA	35	SUGAR	Commissioned
7	RAMGARH CHINI MILLS	25	SUGAR	Commissioned
8	A.B.SUGARS PRIVATE LIMITED	25	SUGAR	Commissioned
9	BHARAT SUGARS LIMITED	25	SUGAR	Commissioned
10	J.H.V.SUGARS PRIVATE LIMITED	20	SUGAR	Commissioned
11	BALRAMPUR CHINI MILLS	10	SUGAR	Commissioned
12	J.H.V.SUGARS LIMITED	25	SUGAR	Commissioned



13	MADHUCON SUGAR AND POWER INDUSTRIES LTD	24	SUGAR	Commissioned
14	RAJASHREE SUGARS & CHEMICALS LIMITED	20.5	SUGAR	Commissioned
15	BANNARI AMMAN SUGARS LIMITED	27	SUGAR	Commissioned
16	E I D PARRY INDIA PRIVATE LIMITED	20	SUGAR	Commissioned
17	VIJAYANAGAR SUGARS LIMITED	32	SUGARS	Commissioned
18	MADRAS SUGARS LIMITED	25	SUGAR	Commissioned
19	HEMARUS TECHNOLOGIES LIMITED	20	SUGAR	Commissioned

LIST OF STG PROJECTS

SINO	PROJECT NAME/ CUSTOMER	RATING	SEGMENT	STATUS
1	KVK BIO ENERGY PRIVATE LIMITED	1 x 15 MW	BIOMASS	Completed
2	FOODS FATS AND FERTILIZERS LIMITED	1 x 7.5 MW	BIOMASS	Completed
3	AGRAWAL OILS AND EXTRACTORS LIMITED	1 x 7.5 MW	BIOMASS	Completed
4	HIRA FERRO ALLOYS LIMITED	1 x 20 MW	STEEL & IRON	Completed
5	SHYAM CENTURY LIMITED	1 x 15 MW	STEEL & IRON	Completed
6	MOHAN BREWERIES AND DISTILLERIES LIMITED	1 x 18 MW	BIOMASS	Completed
7	JAIN CARBIDES AND CHEMICALS LIMITED	1 x 20 MW	STEEL & IRON	Completed
8	ORISSA CEMENTS LIMITED	1 x 14 MW	STEEL & IRON	Completed
9	ECOFREN POWER PRIVATE LIMITED	1 x 7.5 MW	BIOMASS	Completed
10	ISA POWER PRIVATE LIMITED	1 x 7.5 MW	BIOMASS	Completed
11	REAL ISPAT LIMITED	1 x 15 MW	STEEL & IRON	Completed
12	SHYAM DRI LIMITED	1 x 30 MW	STEEL & IRON	Completed
13	ISPAT GODAVARI LIMITED	1 x 30 MW	STEEL & IRON	Completed
14	JAGADAMBA STEEL AND POWER LIMITED	1 x 25 MW	STEEL & IRON	Completed
15	ISPAT GODAVARI LIMITED	1 x 25 MW	STEEL & IRON	Completed
Q	GALLEN METALICS LIMITED	1 x 25 MW	STEEL & IRON	Completed
17	MY HOME CEMENT INDUSTRIES LIMITED	1 x 15 MW	CEMENT	Completed
18	RR ENERGY PRIVATE LIMITED	1 x 15 MW	STEEL & IRON	Completed
19	SALASAR SPONGE AND POWER LIMITED	1 x 15 MW	STEEL & IRON	Completed



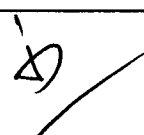
20	SKS ISPAT LIMITED	1 x 30 MW	STEEL & IRON	Completed
21	RAJSHREE CEMENTS LIMITED	1 x 20 MW	CEMENT	Completed
22	ARKAY ENERGY LIMITED	1 x 8 MW	GAS BASED	Completed
23	KALPATARU POWER TRANSMISSION PRIVATE LIMITED	1 x 8 MW	BIOMASS	Completed
24	LAHARI POWER PRIVATE LIMITED	1 x 9.8 MW	BIOMASS	Under Hold
25	SOUTH ASIA POWER PRIVATE LIMITED	1 x 9.8 MW	BIOMASS	Under Hold
26	KOHINOOR STEELS LIMITED	1 x 17 MW	STEEL & IRON	Completed
27	SM POWER PRIVATE LIMITED	1 x 8 MW	BIOMASS	Under Hold
28	ADHUNIK METALIKS LIMITED	1 x 15 MW	STEEL & IRON	Completed
29	BIRLA WHITE CEMENT INDUSTRIES LIMITED	1 x 7.5 MW	CEMENT	Completed
30	KOTHARI SUGARS & CHEMICALS LIMITED	1 x 22 MW	SUGAR	Completed
31	NCS SUGARS PRIVATE LIMITED	1 x 20 MW	SUGAR	Completed
32	PHILIPS CARBON BLACK LIMITED	1 x 30 MW	CARBON	Completed
33	RAMSWARUP UDYOG LIMITED	1 x 20 MW	STEEL & IRON	Completed
34	BANSWARA SYNTEX PRIVATE LIMITED	1 x 15 MW	TEXTILE	Completed
35	SHYAM SEL LTD.-UNIT 1	1 x 8 MW	STEEL & IRON	Completed
36	DALMIYA SUGARS LIMITED	1 x 27 MW	SUGAR	Completed
37	SHALIVAHANA POWER PRIVATE LIMITED	1 x 10 MW	BIOMASS	Completed
38	RAKE POWER PRIVATE LIMITED	1 x 10 MW	BIOMASS	Completed
39	SAKTHI SUGARS LIMITED, UNIT MODAKURCHI	1 x 25 MW	SUGAR	Completed
40	SAKTHI SUGARS LIMITED, UNIT SIVAGANGAI	1 x 35 MW	SUGAR	Completed
41	RAMGARH CHINI MILLS LIMITED	1 x 25 MW	SUGAR	Completed
42	JK CEMENT LIMITED	1 x 22 MW	CEMENT	Completed
43	JK CEMENT LIMITED	1 x 15 MW	CEMENT	Completed
44	A.B.SUGARS LIMITED	1 x 25 MW	SUGAR	Completed
45	BHARAT SUGARS PRIVATE LIMITED	1 x 25 MW	SUGAR	Completed
46	J.H.V.SUGARS LIMITED	1 x 20 MW	SUGAR	Completed
47	BALRAMPUR CHINI MILLS LIMITED	1 x 10 MW	SUGAR	Completed
48	MEGHALAYA POWER LTD.	1 x 8 MW	STEEL & IRON	Completed
49	SHYAM DRI LIMITED	1 x 30 MW	STEEL & IRON	Completed

AD

50	CONTINENTAL CARBON INDIA LTD.	1 x 15 MW	CARBON	Completed
51	MADHUCON SUGAR AND POWER INDUSTRIES LTD	1 x 24 MW	SUGAR	Completed
52	NIRMA LIMITED	1 x 20 MW	CHEMICAL	Completed
53	RAJASHREE SUGARS & CHEMICALS LIMITED	1 x 20.5 MW	SUGAR	Completed
54	J K WHITE CEMENT	1 x 7.5 MW	CEMENT	Completed
55	JAYKAYCEM LTD.	1 x 25 MW	CEMENT	Completed
56	SRI VIRANGANA STEELS LIMITED	1 x 30 MW	STEEL & IRON	Under hold
57	E I D PARRY (INDIA) LIMITED	1 x 20 MW	SUGAR	Completed
58	SAURASHTRA CHEMICALS LIMITED	1 x 12.5 MW	CHEMICAL	Completed
59	SAURASHTRA CHEMICALS LIMITED	1 x 12.5 MW	CHEMICAL	Completed
60	DECCAN CEMENTS LIMITED	1 x 18 MW	CEMENT	Completed
61	PHILIPS CARBON BLACK MUNDRA LIMITED	1 x 17 MW	CARBON	Completed
62	VIJAYANAGAR SUGARS PRIVATE LIMITED	1 x 31.45 MW	SUGAR	Completed
63	PHILIPS CARBON BLACK LIMITED - COCHIN	1 x 17 MW	CARBON	Under Hold
64	ADHUNIK METALIKS LIMITED	1 x 17 MW	STEEL & IRON	Completed
65	BANNARI AMMAN SUGARS LIMITED, NANJANGUD	1 x 20 MW	SUGAR	Completed
66	BANSWARA SYNTEX LTD	1 x 15 MW	TEXTILE	Contract Signing Stage
67	BAZHON WEIAO HUANBAO LIMITED	1 x 15 MW	GARBAGE	Pre-commissioning
68	SHANGHAI QIYAO SCREW MACHINERY COMPANY LIMITED	1 x 4 MW		Under Construction

LIST OF STG AND ACC ISLAND PROJECTS

SI.NO	PROJECT NAME/ CUSTOMER	RATING	SEGMENT	STATUS
1	IND BARATH ENERGIES LIMITED	1 x 25 MW	BIOMASS	Completed
2	BMM ISPAT LIMITED	1 x 25 MW	STEEL & IRON	Completed
3	SHAKTHI SUGARS LIMITED	1 x 25 MW	SUGAR	Completed
4	IND BARATH MAHARAstra LIMITED	1 x 20 MW	BIOMASS	Completed



5	GRASIM INDUSTRIES LTD., KOTPUTLI	1 x 23 MW	CEMENT	Completed
6	GRASIM INDUSTRIES LTD., KOTPUTLI	1 x 23 MW	CEMENT	Completed
7	THYSSENKRUPP. - UNIT :ADITYA CEMENTS	1 x 25 MW	CEMENT	Completed
8	THYSSENKRUPP - UNIT: TADAPATRI	1 x 25 MW	CEMENT	Completed
9	THERMAX INDIA - - UNIT: HIRMI	1 x 25 MW	CEMENT	Completed
10	THERMAX INDIA - UNIT: RAWAN	1 x 25 MW	CEMENT	Completed
11	BANNARI AMMAN SUGARS LIMITED	1 x 27 MW	SUGAR	Completed



Mao Ning,
Chief Executive Officer.

Date: 2015/05/22

Place: Hangzhou



Zhejiang Turbine Import and Export Co. Ltd.,
 Hangzhou, China.

Organization structure for proposed Bassage based Co-gen power plant project

Position	Name of the person	Years of experience	Past employer
Project Director	Mao Ning	29 years	HTC – China
Contract Manager	Zhang Yu Hui	20 years	HTC - China
Engineering Manager	Ye Zhong Lei	10 years	HTC – China
Procurement & supply manager	Zhao Hui	10 years	HTC – China
Construction Manager	Chen No	15 years	HTC – China
Boiler Expert	Liu Yong	20 years	HBG – China
Turbine Expert	He Xing	15 years	HTC -China
QA/QC Manager	Tang Cheng fu	20 years	HTC – China
HSE Manager	Shen Xue fei	40 years	HTC – China
Commissioning Manager	Zhang Mao qun	15 years	HTC – China



Mao Ning,
Chief Executive Officer.

Date: 2015/05/22

Place: Hangzhou



Prospectus

BRIEF INTRODUCTION OF THE APPLICANT

Chanar Energy Limited ("CEL") a public limited company is establishing a 22.0 MW cogeneration power project with latest high pressure technology of 110 bar based on bagasse and other biomasses. The vision behind establishing CEL is to create a strong, well-capitalized power generation company which will design, develop and operate a power project operating at highest international standards in an economic and environmental friendly manner. The project will be situated at 407 GB Pindi Sheikh Musa Road tehsil Tandlianwala district Faisalabad, Punjab, Pakistan adjacent to Chanar Sugar Mills Limited ("CSML").

The cogeneration will be based primarily on bagasse while ensuring that all requisite measures are in place to ensure that the project is environmentally compliant. During one hundred and ten (110) days of crushing season, bagasse being a by-product of CSML process, will be the primary fuel for the project for power generation. During the off-season, residual bagasse of CSML together with procurement of other biomass/bagasse will be utilized for power generation.

SALIENT FEATURES OF THE FACILITY FOR WHICH LICENSE IS SOUGHT

The broad parameters of the project are as under:

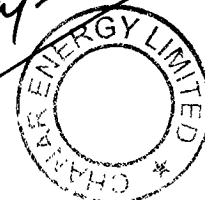
Project Capacity	22.00 MW (Gross)
Project Location	407 GB Pindi Sheikh Musa Road tehsil Tandlianwala district Faisalabad, Punjab, Pakistan
Land Area	10 Acres approximately
Construction Period	24 months
Power Purchaser	CPPA/NTDC and CSML/bulk consumers
Steam Turbines	01 Unit Extraction cum condensing turbing
Boilers	01 Unit 110ton per hour 110 bar pressure & 540 °C temperature travelling grate boilers
Plant factor	45%
Upfront Levelized Tariff	US Cents 10.62 per KWH

PROPOSED INVESTMENT

The total cost for the project is USD 30 Million approx., which is expected to be financed in a debt to equity ratio of 75:25.

SOCIAL AND ENVIRONMENTAL IMPACT OF THE PROPOSED FACILITY

Bagasse is a by-product produced during the sugar manufacturing process and is an environmental friendly biomass fuel and helps reduce emission of Green House Gasses. Governments across the Globe including Pakistan and neighboring India have incentivized biomass based generation to reduce the effects of Global Warming and to promote the use of indigenous energy sources for electricity generation.



Bagasse based power generation provides the following benefits:

- Environment friendly nature of the fuel, helps in reducing Green House Gases and Carbon Footprints
- The Project will use a high pressure boiler to generate electricity for sale to the national grid. The higher steam parameters shall result in more energy dispatch from the same fuel.
- As the bagasse based cogeneration plants will be located invariably in the rural areas, far away from the utility plants, the transmission and distribution losses are minimal.

Infrastructure

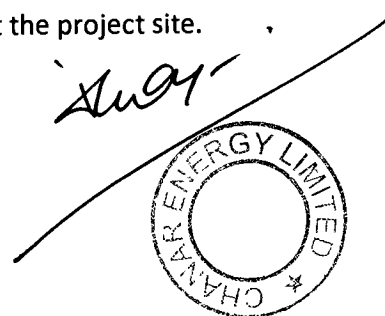
The Plant is located on the Pindi Sheikh Musa Road on Tehsil Tandlianwala, District Faisalabad. Road connectivity to the plant is very good. In addition the nearest Railway station is Tandlianwala. Faisalabad is the nearest airport from CEL's plant

Staff Colony

The land for construction of staff colony is available adjacent to Chanar Sugar Mills Limited's staff colony and construction shall be completed with the completion of the plant. However, enough accommodation is available with CSML which will not hinder the commencement of work.

Amenities

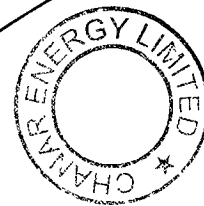
All amenities like water, electricity and telephone are available at the project site.



Note on Feasibility

Chanar Energy Limited is opting for an upfront tariff for its 22MW bagasse based Co-generation Power Project. Feasibility study report is not required to be submitted where Power Producer opts for upfront tariff therefore feasibility study is not annexed.

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Safety Plan

To provide a safe working environment, the company shall follow a well devised safety plan.

Key features of safety plan are given below:

Awareness

Staff working at the facility shall be given information to help them to identify the risks and take necessary measures of safety and protection during their working. To create awareness, personnel at the facility shall be briefed through handouts, in-house seminars, mock safety drills. Particular areas of interest shall be:

- Moral Obligation
- Hazard Recognition
- Importance of Personnel Protective Equipment (PPEs)
- Accident Prevention
- Importance of House Keeping
- Machine Guarding
- Fire Prevention
- Fire Protection
- Fire Fighting

Use of Safety Equipment

Use of Personal protective equipment (PPEs) will be made mandatory. PPEs like safety helmet, safety shoes, uniform, dust mask, ear plugs, ear muff, leather apron, leather sleeves, face shield, gloves for their safety shall be issued to all personnel.

Emergency Alarms

Automatic Emergency Alarms shall be installed along with fire suppression system at all fire hazardous locations of the plant site.

Emergency Numbers

Emergency call numbers shall prominently be displayed in bold at prominent places in the facility.

Emergency Shutdown

The Emergency response Team shall be responsible to ensure immediate shutdown of the operational systems and equipment if required in the Emergency.

First Aid Facilities

The availability of first aid facilities and necessary staff to provide urgent and immediate first aid facilities will be ensured at the facility.

Ambulances

Availability of Ambulance at the facility shall be ensured for causality evacuation to the hospitals.



Mock Fire Drills

To keep fire brigade staff in good practice, mock fire drill will be executed by creating mock emergency situations.

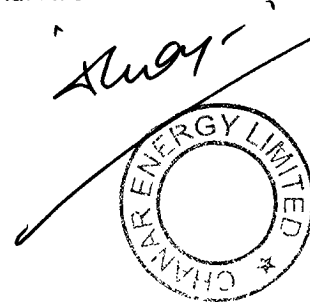
Fire Fighting System

The fire protection system will be provided for early detection, alarm, containment and suppression of fire. A comprehensive fire protection system has been planned to meet the above objective. A multitude system shall be provided to combat various types of fire in different areas of the plant and all such systems for various areas shall form a part of a centralized protection system for the entire plant.

The complete fire protection system shall comprise of following;

- Stand pipe & hose system for building and structure (internal)
- Yard main, hydrants and monitors of plant site (external)
- Fire alarm and signaling
- Portable fire extinguishers • Water spray fixed systems

The system shall be designed generally as per NFPA (National Fire Protection Association) standards.



EMERGENCY PLAN

A comprehensive emergency plan would be implemented to meet unexpected situation to ensure zero injury, damage or loss of any life/property.

Key features of the emergency plan are as follows;

Emergency Escapes/Evacuation Plan

A comprehensive evacuation plan will be prepared and emergency escape procedure and route maps will be displayed at prominent places in the facility. All personnel at the facility shall be made aware of Emergency escape routes and procedures for a quick and safe escape.

Awareness of Different Types of Emergencies

All personnel at the facility shall be educated on how to react to each type of emergency. All staff working at the facility will be given detailed briefing regarding different types of emergencies and their response so that they would be able to identify emergency situations.

Training to React to an Emergency Alert Alarm

All personnel at the facility shall be trained to react to each emergency to take necessary measures of safety and protection at the earliest.

Emergency Equipment

In addition to emergency combatants training, emergency equipment like fire extinguishers and fire hydrants will be provided at the facility to tackle with different types of Emergency.

Use of Safety Gears and Equipment

The staff working at the facility will be given with proper information, guidance and training about the use the safety gears and equipment.

Emergency Alarm

Easy access to emergency alarms shall be provided to raise the alarm in case of any type of Emergency.

Emergency Numbers

Emergency call numbers shall prominently be displayed at prominent places in the facility.

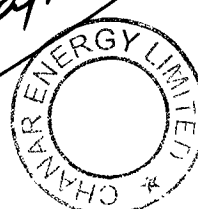
Emergency Response Team

A well equipped and specialized team will be formed which will be responsible to take all necessary measures and decisions to deal with the emergency and provide relief, support and first aid to the effected staff. The emergency response team will also be responsible for the evacuation of personnel and material from the premises.

Emergency Shutdown

The Emergency response Team shall be responsible to ensure immediate shutdown of the operational systems and equipment if required in the Emergency.

Signature


A circular stamp with the text "CHANAR ENERGY LIMITED" around the perimeter and a small star at the bottom.

Assembly Areas and Muster Points.

Designated assembly areas / Muster points shall be identified and all personnel working at the facility will be educated to muster at the designated assembly area / muster points in the event of an evacuation for head count.

Ambulances

Availability of Ambulance at the facility shall be ensured for causality evacuation to the hospitals.

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Training and Development

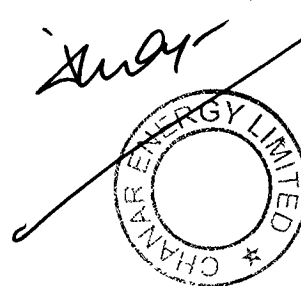
The major objectives of the operational training shall be to acquaint the operators of the following:

- The nature, purpose and limitations of all plant and equipment.
- The detailed operating instructions on each section and equipment of the plant.
- Normal start up and shutdown program for the unit.
- The emergency procedures.

The basis, for the training shall be the Plant's operating and Maintenance Manual Particulars Book, which shall be compiled from the manufacturers' instructions, the contract documents and the drawings. In addition, the information gathered from the visits to the other operating plants and to the manufacturers works shall also be included in the training. Supervision and co-ordination of the training program requires full time attention of a senior executive of the plant, and also the consultant's assistance may be taken. The training program shall include lectures, expositions by experienced plant operators and maintenance personnel, informal discussions and visits to operating plants and manufacturer's works and exposure to the courses conducted by Institutions like Power Plant Training Institute or any other Institution to be given to the operating & maintenance staff.

The maintenance training program shall be based on the requirements of the individual maintenance functions, like mechanical, electrical, instrumentation etc. The Engineers and the Technicians shall be sent to the manufacturers' works to witness the production and be associated with the erection of plant and equipment.

The Power plant shall be equipped with proper measuring/testing instrument for periodic cross checking of parameters shown in the control room and power plant area local gauges. Logging of data and periodic review of the plant operation, review of failures, break downs, etc. should be done to improve the availability of the plant.

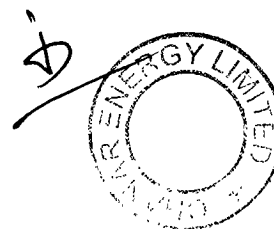


Currently, Chanar Energy Limited (CEL) has been granted permission by CPPA to initiate the Grid connectivity Study for the proposed Power Project.

The Interconnection/Transmission Arrangement for the above mentioned facilities will be at 132 KV voltage under the Framework for Power Co-generation, 2013 (Bagasse/Biomass) approved by the ECC of the cabinet in March 2013.

The final Interconnection and Transmission Arrangement(s), for the dispersal of power, shall be communicated to NEPRA in due course of time.

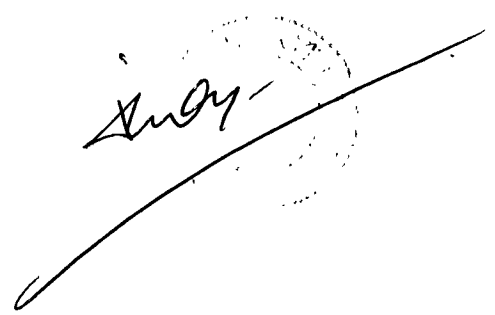
Please find attached communication exchanged between CEL and CPPA in this regard. Please also find attached diagram depicting Network around of the proposed co-generation power project



**CHANAR ENERGY LIMITED
FOR INSTALLATION OF 25 MW COGEN POWER PLANT AT
CHAK # 407 GB, TEHSIL TANDLIANWALA,
DISTRICT FAISLABAD**

**INITIAL ENVIRONMENTAL EXAMINATION
(IEE)**

RECEIVED 1.12.2014

A handwritten signature in black ink is written over a circular stamp. The signature appears to be 'Indy' followed by a flourish. The stamp is partially obscured by the signature.

Prepared by:



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September-2014

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Pakistan currently faces severe power shortages, which result in frequent long drawn out load shedding. Frequency plus duration of the load shedding is also on the increase. Irregularity and unavailability of power has led businesses to fail and Pakistani families to struggle. The power shortage is well documented by the Government of Pakistan (GoP) and is estimated at over 6,000 MW. This gap in power supply and demand is on the increase.

Pakistan is an energy deficit country. Fossil fuels, which are already in short supply, and the available are fast depleting. On the other hand their industrial use is fast on the increase. In order to meet the present day requirements of the fuels and to fulfill the future increased demand, alternate/non conventional fuels are to be inducted without losing any time. With increasingly more disparity between energy supply and demand, and keener attention of the Government to environmental protection, use of non conventional energy resources i.e. use of Bagasse as a primary fuel for power generation could win favor from the governments' policies.

In this background Chanar Energy Limited is planning to install a 25 MW Cogen Power Plant using Bagasse as a fuel which is a byproduct of the sugar production process, at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad, Pakistan. This area falls within the jurisdiction of the EPA, Punjab, Lahore. Accordingly, the report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab, Lahore for its Environmental Approval (EA).

The project proponent is planning, to enhance Co-generation program by adding a 130 TPH boiler with the out let steam parameters of 110 bar and 540 Deg. C and a 25 MW extraction condensing turbo generator. The process of power production will be based on the technology of direct combustion of bagasse in the boiler to produce steam and this steam will be provided to the turbo generators to convert thermal energy in the electrical energy.

Bagasse is the matted cellulose fiber excess from sugarcane that has been processed in a sugar mill. Previously, bagasse was burned as a means of solid waste disposal. However, as the cost of fuel oil, natural gas, and electricity increased after the energy crisis in 1970, special attention was paid to alternative fuels in an efficient way. Consequently, conception of bagasse combustion changed and it has come to be regarded as a biomass fuel rather than refuse.

Another important aspect is the increasing demand of bagasse as raw material for paper, furniture, and other industries. For all these reasons, the saving of this product has become one of the main objectives of the sugar cane industry.

The actual affinity is to use bagasse as fuel, especially for Co-generation of electric power and steam, to increase its contribution to the country's energy supply.

1.2 Purpose of the report

According to the Punjab Environmental Protection Act (amendment 2011) ,Section 12 "Initial environmental examination and environmental impact assessment – (1) No proponent of a project shall commence construction or operation unless he has filed with Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Agencies, as the case may be, or, where the project is likely to cause an adverse environmental effects an environmental impact assessment, and has obtained from the Government Agency approval in respect thereof."

1.3 Category of the project

The power plant is to produce 25 MW electricity from bagasse as a fuel, therefore, according to the 'Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000" the project falls in "**Category B**" requiring IEE to be submitted to EPA, Lahore for getting Environmental Approval (EA).

This IEE report has been prepared, according to the "Guidelines for the preparation and review of Environmental Reports, October 1997/2000"- The power plant will cover a total of 14,000 sq. meters as covered area which is in the premises of the Sugar Mill. The total estimated cost of the power plant is Pak Rs. **3.545 Billion**.

The report takes into account the environment related rules, regulations and laws.

1.4 Raw Materials

The only raw material for this project is Bagasse, which is a by-product of the sugar production process. The Co-generation power plant will use bagasse mainly produced by Chanar Sugar Mills Ltd. Bagasse has a heating value between 3,000 and 4,000 British thermal units per pound (Btu/lb) on a wet, as-fired basis. Most bagasse has moisture content between 45 and 55 percent by weight.

Major equipment required for the plant has also been listed in this report.

1.5 Waste Handling

All Waste water generated will be taken to the effluent treatment plant and will be bring to the levels as required by the NEQS Pakistan. Ash Handling System will be installed. Bagasse ash from the boiler will be disposed off as manure / fertilizer and also made available to other growers in the region. Any solid waste requiring recycling or

reuse will be sold in the market to the contractor and all the adequate record will be maintained.

1.6 Gaseous Emissions

Emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) are lower than conventional fossil fuels due to the characteristically very low levels of sulfur and nitrogen associated with bagasse.

The most significant pollutant emitted by bagasse-fired boilers is particulate matter, caused by the turbulent movement of combustion gases with respect to the burning bagasse and resultant ash. Stack PM will be controlled by the use of electrostatic precipitators for each boiler to meet the permitted dust concentration as required by NEQS.

Noise level of 75 dB (A) and 65 dB (A) will be maintained at the boundary walls of the project as required in the NEQS. Further Noise level of Maximum 85 dB (A) will be maintained at 1.0 m from the equipment.

1.7 Environment Management Plan

The report provides comprehensive Environment Management Plan both for managing environment during construction and regular operation.

Comprehensive onsite monitoring on the project was carried out to ascertain the levels of the baseline environmental status before commencing any work on the project.

1.8 Public consultations

Public consultations were also held with the stake holders to know their views about the project. On the overall basis the participants of the public consultation were strongly in the favor of the project to be accomplished as soon as possible.

1.9 Conclusion

In conclusion it was found that the project is fully justified for the installation at the earliest in view of the so frequent and long drawn out load shedding.

2.0 INTRODUCTION

2.0 INTRODUCTION

Pakistan currently faces severe power shortages, which result in frequent long drawn out load shedding. Frequency as well duration of the load shedding is also on the increase. Unreliability and unavailability of power has led businesses to fail and Pakistani families to struggle. The power shortage is well documented by the Government of Pakistan (GoP) and is estimated at over 6,000MW. This gap in power supply and demand is on the increase.

The demand and supply of electricity was balanced in 1997 with the commissioning of private sector Independent Power Producers (IPPs) established under the Private Power Policy of 1994. As peak demand growth approached 6.6% per year during 2001 to 2007, the supply shortage occurred much earlier than 2009.

In order to bridge the gap between power demand and supply, Pakistan Government liberalized its investment policies, which resulted in not only investments in power production sector from local resources, but also foreign investments are pouring in large amounts.

Out of the total installed power generation capacity of Pakistan of 23,412 MW in 2010-11; 16,070 MW was thermal (69 percent), 6,555 MW was hydroelectric (28 percent) and 787 MW was nuclear (3 percent). The growth in energy supply continues to lag behind the growth in energy demand.

Indigenous supply of fossil fuels is not only becoming short in supply, but also their fast price hike in the international markets is swelling import bills of the fossil fuels. Lacking adequate environmental controls, use of fossil fuels has already caused a lot of damage to the environment of the country.

Pakistan is an energy deficit country. Fossil fuels, which are already in short supply, and the available are fast depleting. On the other hand their industrial use is fast on the increase. In order to meet the present day requirements of the fuels and to fulfill the future increased demand, alternate/non conventional fuels are to be inducted without losing any time.

With increasingly more disparity between energy supply and demand, and keener attention of the Government to environmental protection, use of non conventional energy resources i.e. use of Bagasse as a primary fuel for power generation could win favor from the governments' policies.

Fragile economy of Pakistan cannot afford to continue importing fossil fuels spending so much hard earned foreign exchange. Under these circumstances, there is an immediate need to find a practical solution whereby, the dire need for electricity of the country could be met with minimum pressure on the national exchequer.

One among other solutions to the present state is to use locally available cheaper sources of energy production. In this background Chanar Energy Limited is planning to install a 25 MW Cogen Power Plant using Bagasse as a fuel which is a byproduct of the sugar production process, at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad, Pakistan.

Under the present operating condition, the entire steam and power requirement of the sugar mill are being met by the boilers and turbo generators already installed in the sugar mill. The mill has (2) low-pressure (24 bar) boilers with the capacity of 2 X 60 TPH and 2 backpressure turbo generators with the capacity of 1X 6MW and 1 X 5 MW for meeting the internal steam and power requirement.

The cane being crushed by the sugar mill has high fiber content and cane bagasse percentage on the average is 32%. The sugar mill crushes for a period of 120 days/year.

The project proponent is planning, to enhance Co-generation program by adding a 130 TPH boiler with the out let steam parameters of 110 bar and 540 Deg. C and a 25 MW extraction condensing turbo generator. The process of power production will be based on the technology of direct combustion of bagasse in the boiler to produce steam and this steam will be provided to the turbo generators to convert thermal energy in the electrical energy.

During the season, the sugar mill operating at 6,500 TCD crushing will need 6000 kW of power for its operation. The new 130 TPH boiler and 25 MW extraction condensing turbo generator will consume an auxiliary power of 2,300 kW. The existing 6 MW turbine will run at 5 MW and will consume 600 kW for its auxiliaries. Sugar mill will also require 1 MW from power project. With the gross power generation of 30,000 kW and in-house power consumption at - 8300 kW, the electrical power export during the season works out to 21,700kW. With 90% capacity utilization, the electrical energy export during the season of 120 days works out to 56.246million units (kWh).

For 120 days of crushing operation at 90% capacity utilization, the saved bagasse at the end of the season will be 33,610 MT. Additional 15,000 MT of bagasse will be purchased from third party. Hence total available bagasse for off-season operations will be 48,610 MT. Operating in the condensing mode in the off-season, the 130 TPH boiler and 25 MW turbo generator will generate a gross power of 25 MW. The 130 TPH boiler actual steam generation will be 100.04 TPH under this mode of operation. From the gross 25 MW power production, 2300 kW will be required to meet sugar mill maintenance and auxiliary consumption within the power plant. The remaining balance of 22,700 kW will be exportable.

The bagasse consumption during off-season operation will be 38.54TPH. The available bagasse of 48,610 MT will enable to operate the 25 MW plant operations for 58 days. The exportable electrical energy for the 58 days of off-season operation will be 28.631 Million Units.

Chanar Energy Limited has designed the Cogen plant with the aim of exporting power to grid both during crushing season and off season. This is how the supply of reliable and economic power to the national grid to meet ominous power demand of the country will be ensured and on the other hand the process steam demand of the Chanar Sugar Mill will also continue to be met.

This IEE report covers the activities related to this high pressure cogeneration power plant.

2.1 Purpose of the report, identification of the project, and proponent:

2.1.1 Purpose of the report:

According to the **Punjab Environmental Protection (amendment-2011) Act (PEPA) 1997**, Section 12 ANNEXURE-I "Initial environmental examination and environmental impact assessment – (1) No proponent of a project shall commence construction or operation unless he has filed with Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Agencies, as the case may be, or, where the project is likely to cause an adverse environmental effects an environmental impact assessment, and has obtained from the Government Agency approval in respect thereof."

It is this legal mandatory requirement that this IEE report regarding installation of 25 MW Cogen power plant using Bagasse as Fuel has to be submitted to the Punjab Environmental Protection Agency (EPA), Government of the Punjab, Lahore before initiating any work for installing of the power plant under reference of this project.

According to the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000 - ANNEXURE-II, the project of installation of radiator manufacturing plant falls in category "B". All out environmental monitoring of the plant will be carried out on bi-annually basis by a third party and be reported to the EPA Punjab. The IEE Report has been prepared following the format as provided under serial 2.3 of the "Guidelines for the preparation and review of Environmental Reports, October 1997/2000" - ANNEXURE-III. It provides necessary information about the project under reference for its consideration by the Punjab EPA, Government of the Punjab, Lahore, for decision making before the requested Environmental Approval (EA) is awarded for the project to start development in compliance with the Punjab Environmental Protection (amendment 2011) Act, Section 12.

2.1.2 Identification of the project & the proponent:

2.1.2.1 The project:

In view of acute shortage of electricity in Pakistan, all segments of life be it industry, commerce, social, domestic or else are facing lot of hardships. Chanar Energy Limited is planning to install a 25 MW Cogen power plant using Bagasse as Fuel at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad.

Chanar Energy Limited would like to go for Cogen power plant with the aim of exporting power to electricity grid both during crushing season and off season. This is how the supply of reliable and economic power to the national Grid to meet ominous power demand of the country will be ensured and on the other hand the process steam demand of the sugar mill will continue to be met.

2.2.2 Identification of the proponent

Chanar Energy Limited
7-A, Muslim Town, Lahore
Tel: 0092-42-111-970-970
E-mail: info@chanarsugar.com

2.2.3 Contact Person:

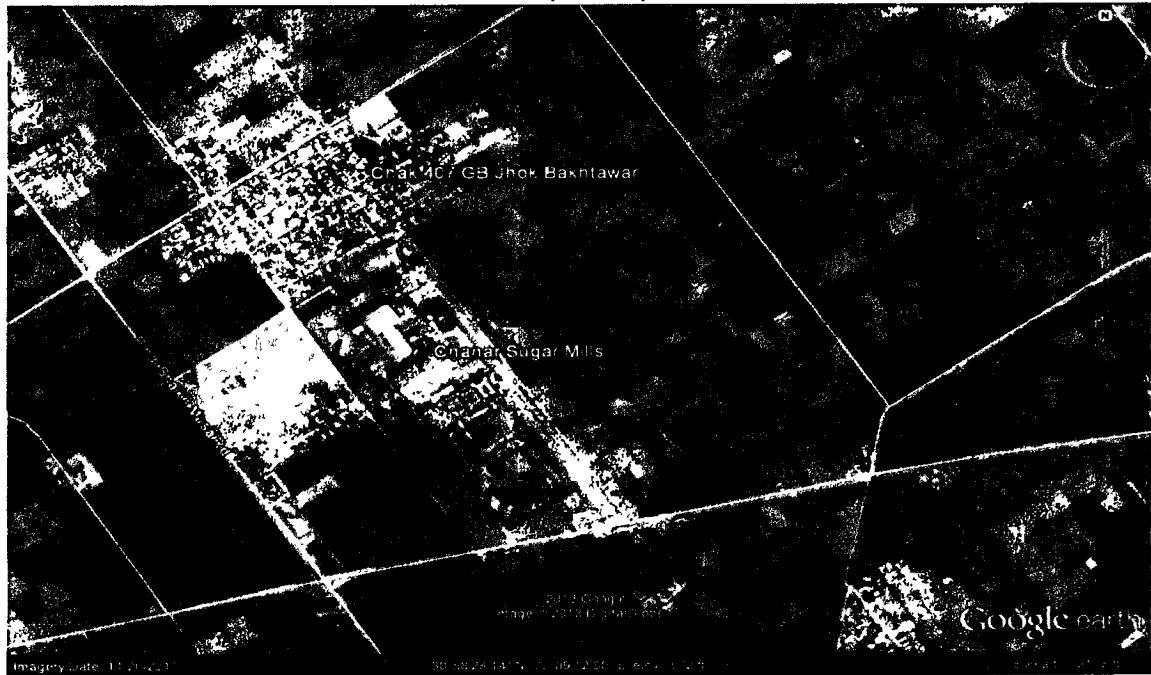
Mr. Fayyaz Ahmad
Full address: Chak # 407 GB,
Tehsil Tandlianwala, District Faisalabad.
Phone: 04134102-3
E-mail: fayyazbutt70@gmail.com

2.2.4 Consultants who prepared the report:

ECTECH–Environment Consultants,
Suite No. 4, 2nd Floor, Link Arcade,
Model Town Link Road, Lahore-Pakistan
Phone: +92 42 35887517, 35925693, 35841688
Fax: +92 42 35855508
E-mail: ectech_ectech@yahoo.com.

2.1.3 Location of the project:

This power plant will be installed at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad. The site for installation of the power plant is shown hereunder:



2.1.4 Nature and size of the plant:

Chanar Energy Limited is planning to install a 25 MW Cogen Power Plant using bagasse as fuel. The covered area of power plant will be 14,000 sq. meters. The total estimated cost of the power plant is **Pak Rs. 3.545 Billion**.

2.2 Persons performing the study:

Names, qualification, experience and position of the persons involved in this IEE study are given as below:

Table showing the persons performing this study:

Name of the EIA/IEE team	Qualification and brief experience	Position in the EIA Team and role*
<p>Dr. Muhammad Hanif (Chief Executive) ECTECH-Environment Consultants and APEX Environment Laboratory</p>	<p>A-Qualifications: 1- M.Sc. (Chem. Tech.) Punjab Uni; Lahore; 1962. 2-Ph.D. (Chemistry) Charles University, Czech Republic; 1968. 3- Post Doctorate-Alex. Humboldt. Foundation, Senior Post Doctorate Fellow, Germany; 1974-75. B-Experience/past Positions: 1-Director General (R), PCSIR Labs. Complex, Lahore. 2-Director General (Ex.) Ministry of Environment, Local Government and Rural Development, Govt; of Pakistan. 3- (ex.) Consultant Environment, Category-A, Asian Development Bank. 4- (ex.) Consultant Environment, UN—ESCAP 5- Worked on World Bank Funded Project. 6- Author of the National Environment Quality Standards (NEQS) 7- Author of: i -104 Scientific Research papers ii - Over 60 technical end project reports on environment. 8- Carried out EIA for 28 projects and reviewed over 15 EIA reports. 9--Among many others, EIA carried out on behalf of the Asian Development Bank regarding Katmandu Valley (Nepal) Industrial Sites. 10-EIA-Saindak Gold/copper Project, Pakistan. 11-EIA Pakistan Steel, Karachi; 12-ESIA Report (According to OPIC Environmental Handbook Format) for D.G. Cement Company Limited, Kallar Kahar, District Chakwal, Pakistan. - ESIA Report (According to OPIC Environmental Handbook Format) for Lucky Cement Limited, Pezu, District Lakki Marwat, North West Frontier Province, Pakistan. - ESIA Report (According to OPIC Environmental Handbook Format) for D.G. Cement Limited, Kallar Kahar/ Khairpur Project, District Chakwal Pakistan. - ESIA Report (According to OPIC Environmental Handbook Format) for Chakwal Cement Company Limited, District Chakwal Pakistan. - ESIA Report (According to OPIC Environmental Handbook Format) for Packages Limited, Lahore.</p>	<p>- Project Team Leader. -Principal author of the EIA report. - Coordination, supervision, guidance and co author of the EIA report. -Over all monitoring of the project work, supervision, guidance and participation in all activities to ensure quality of work.</p>

Mr. Muhammad Saif-Ur-Rehman	<p>-B.Sc. (Chemical Engineering), Punjab Uni, Lahore, Pakistan.</p> <p>-M.Sc. (Applied Environmental Sciences), Punjab Uni. Lahore, Pakistan.</p> <p>- Special B.Sc. Final Year thesis was completed on Environmental Management Practices and Waste Water Treatment Technologies.</p> <p>-General Manager, APEX Environment Lab.</p> <p>-Chief Engineer Monitoring, ECTECH</p> <p>-Experience in Environment: For the last over 10 years working in the field of environment on the following subjects:</p> <p>- Prepared 10 EIA reports, in the field of cement, textile, oil & gas, power generation, fertilizer, power alcohol and chemical industry.</p> <p>-Designing, fabrication, installation and operation of Waste Water Treatment Plants; So far three plants have been installed.</p> <p>- Carrying out environmental Audit: Around 18 industrial units have been completed so far.</p> <p>- Lab. Testing of effluents and water: For the last 5 years lab. testing services have been provided.</p> <p>- Full time participation in the assignments under serial 12 – under Dr. M. Hanif's contributions.</p>	<p>-Senior Team Member</p> <p>-Project on site monitoring & related activities.</p> <p>- Co-author of the EIA report.</p> <p>- Collection of demographic data.</p> <p>- Preparation of environmental management plan.</p>
Mr. Muhammad Anees	<p>B.A; L.L.B; Expert on Environment Law</p> <p>- Full time participation in the assignments under serial 12 – under Dr. M. Hanif's contributions (legal aspects).</p>	<p>Guidance on various aspects of Environmental Law as applicable to EIA.</p> <p>Environmentalism.</p> <p>Preparation of Environmental management plan,</p>
Mr. Muhammad Mujahid	<p>M.Sc. (Env. Sciences), University of the Punjab, Lahore</p> <p>M.Phil (Env. Sciences), University of the Punjab, Lahore</p> <p>- Senior Lab. Analyst, APEX Environment Laboratory & Senior Monitoring Engineer</p> <p>-Senior Environmentalist</p> <p>ECTECH-Environment Consultants</p> <p>-Environmental monitoring of over 25 projects for EIA reports plus help in writing these reports. Also participated in</p> <p>- EIA Report (According to OPIC Environmental Handbook Format) for 10 projects.</p> <p>- IEE reports of 15 projects.</p>	<p>On site monitoring and lab. testing of samples and data processing.</p> <p>- Report writing.</p> <p>-Preparation of environmental management plan</p> <p>- Environmental monitoring</p> <p>- Lab. Testing of pollutants</p>
Mr. Hasnain Sabir	<p>M. Phil Environmental Sciences (GCU Lahore)</p>	<p>On site monitoring and lab. testing of samples and data processing.</p> <p>- Report writing.</p> <p>-Preparation of environmental management plan</p>

Mr. Adnan Latif	M.Phill (Env. Sciences), University of the Punjab, Lahore - Senior Environmentalist , APEX Environment Laboratory - Senior Monitoring Engineer ECTECH-Environment Consultants -Environmental monitoring of over 30 projects for EIA reports plus help in writing these reports. Also participated in - EIA Report (According to OPIC Environmental Handbook Format) for 10 projects. - IEE reports of 20 projects.	-On site monitoring and lab. testing of samples and data processing. - Report writing. -Preparation of environmental management plan - Environmental monitoring - Lab. Testing of pollutants - Data processing /handling
Mr. Zohaib Ahmad	M.Phil Chemistry (GCU Lahore) Lab. Analyst, APEX Environment Laboratory Monitoring Engineer ECTECH-Environment Consultants -Environmental monitoring of over 12 projects for EIA reports plus help in writing these reports.	On site monitoring and lab. testing of samples and data processing. - Report writing. -Preparation of environmental management plan
Mr. Mazhar Hussain Khan	M.Sc. Environmental Sciences (University of The Punjab)	Lab. Analyst, APEX Environment Laboratory Monitoring Engineer ECTECH-Environment Consultants
Mr. Arif Hussain	M.Sc Environmental Sciences (University of The Punjab)	Lab. Analyst, APEX Environment Laboratory Monitoring Engineer ECTECH-Environment Consultants
Haroon Khalid	M.Sc Environmental Sciences (University of The Punjab)	Environmental ECTECH-Environment Consultants

*Only the main roles of the team members are given. However, their role was not restricted to these only; rather it also includes many other studies in their respective fields as required by the matrix of this proposal.

2.3 Extent of the IEE study, scope of the study:

As mentioned above, this IEE study has been conducted in accordance with the requirements of the serial 2.3 of the "Guidelines for the preparation and review of Environmental Reports, November 1997/2000".

The scope of this IEE report briefly covers the followings:

1.0 Executive Summary

2.0 Introduction including:

- Purpose of the report, including identification of the project and the proponents.

- Extent of the IEE study, scope of the study, magnitude of the effort, persons performing the study.

3.0 Discussion of the proposal and current land use and policies including relevant Environmental Laws

4.0 Description of project including:

- Type and category of the project.
- Objectives of the project.
- Alternatives considered, and reasons for their rejection.
- Location and related features
- Proposed schedule for implementation
- Description of the project, including drawing showing layouts, components of the project etc.
- Details of the restoration and rehabilitation plan at the end of the project life.
- Government approvals and leases required by the project

5.0 Description of the Environment: (IN THE AREA AFFECTED BY THE PROJECT)

- Existing (baseline) condition of the biophysical and socio-economic environment, trends and anticipated future environmental conditions should the project not go ahead
- Physical resources topography, climate, surface water, soils, ground water, Geology, Seismology etc.
- Ecological resources, wild life , forest, rare or endangered species,
- Human and economic development, population, communities, numbers, locations, compositions and employment.
- Industries, including known major development project, infrastructure- Water Supply, Sewage, flood control/drainage etc.
- Institutions
- Transportation-Roads, Rail, Harbor, Air ports, Navigable Rivers
- Land Use Planning –including dedicated use areas
- Power Sources and \Transmission
- Agricultural and /Mineral Development

Quality of life values:

- Socioeconomic values
- Public Health
- Recreational Resources and development
- Aesthetic Values

- Archeological historic treasures
- Cultural Values

6.0 Screening of Potential Environmental Impacts and Mitigation Measures Including:

- Environmental problems resulting from project construction
- Environmental problems due to project location.
- Environmental problems related to design.
- Environmental problems resulting from project operations.
- Potential environmental enhancement measures
- Additional consideration

7.0 Environmental Monitoring Programme and Institutional Requirements:

8.0 Public Consultations/Scoping

9.0 Conclusions:

10.0 Recommendation

3.0 DISCUSSION OF THE PROPOSAL AND CURRENT LANDUSE AND POLICIES INCLUDING RELATED ENVIRONMENTAL LAWS

3.0 DISCUSSION OF THE PROPOSAL AND CURRENT LANDUSE AND POLICIES INCLUDING RELATED ENVIRONMENTAL LAWS

3.1 Land Use in the Project Area:

The project site is situated in the agriculture area of Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad, Pakistan. Most of the area is agricultural with different villages in surrounding.

3.2 Regulatory Framework:

Government of Pakistan is facilitating investment, both local and foreign, in industrial sector in Pakistan. Liberalization and industrialization in the country, as a policy of the Government are well reflected from her following initiatives:

3.3 Deregulation of Economy

Deregulation is the prioritized policy of the Government of Pakistan. Under same policy there is a systematic movement towards deregulation of the economy and privatization of the state owned companies.

3.4 Import Policy

Import policy has been largely liberalized to a great extent through the provision of various incentives. And it is being further liberalized at a quicker pace. There is an increased reliance on development of the industrial sector and enhancement of international trade.

3.5 Infrastructure Facilities

In order to facilitate fast industrialization basic infrastructure facilities like roads network, natural gas, water and power supply, means of transportation and communications etc. are being improved /developed speedily.

3.6 Incentives

In order to maintain Pakistan's competitiveness in international markets and support viability of local and foreign investments in the country, the following incentives are available equally to both the foreign and the local investors:

- a- Initial depreciation allowance (IDA)
- b- Amortization and
- c- Normal tax rates.

3.7 Legal Framework:

The capability of regulatory institutions for environmental management largely, ensures the success of environmental assessment for ensuring that development projects are environmentally sound and sustainable. For decision-making and policy formulation in the environmental and conservation issues, the institutional framework, as it exists in Pakistan, is described below.

3.7.1 National Environmental Regulatory/Legal Requirements:

After the 18th Amendment to the Constitution of The Islamic Republic of Pakistan-1973, the regulation & management of environment has largely been delegated to the Provinces. The Federal Ministry of Environment has been abolished and instead the Ministry of Climate change has been created under which federal EPA.

The Pakistan Environmental Protection Agency (Pak EPA) looks after the environment related issues for the federally controlled areas and territories. Lacking laws at the provincial levels; the laws, rules, regulations etc., those already available at the federal level and operational at the provincial levels will continue as such.

3.7.2 National Conservation Strategy (NCS) - Pakistan

The National Conservation Strategy (NCS) – Pakistan, as approved by the Federal Cabinet in March 1992 is the guiding document on the environmental issues in the country (Ref. EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources.

The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural and physical environment. The core areas that are relevant in the context of the envisaged project are pollution prevention and abatement, restoration of supporting forestry and plantations, and preservation of cultural heritage. A mid-term review of the achievements, impacts and prospects of Pakistan's NCS was undertaken between years 1999 - 2000.

The Government of Pakistan promulgated "Pakistan Environmental Protection Act" in 1977. Two organizations, the Pakistan Environmental Protection Council (Pak-EPC) and the Pakistan Environmental Protection Agency (Pak-EPA), are primarily responsible for administering the provisions of the Act. The Pak-EPC oversees the functioning of the Pak-EPA. Among its major members include representatives of the Federal and Provincial Governments especially the Provincial Environmental Protection Agencies, industry, non-governmental organizations, academia, environment experts, Federation of Chamber of Commerce and Industry and the private sector.

The Pak-EPA, through the Provincial EPAs, is required to ensure compliance with the National Environmental Quality Standards (NEQS) and establish monitoring and evaluation systems. As a primary implementing agency in the hierarchy, it is responsible for identifying the need for, as well as initiating legislation whenever necessary. Pak-EPA is also authorized to delegate powers to its provincial counterparts, the provincial EPAs. One of the functions delegated by the Pak-EPA to provincial EPA is the review and approval of Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) reports of the projects undertaken in their respective jurisdictions.

3.7.3 Pakistan Penal Code (1860)

The Pakistan Penal Code usually called PPC is a penal code for all offences charged in Pakistan. It was originally prepared by Lord Macaulay in 1860 on the behalf of the Government of British India as the Indian Penal Code. After the partition of British India in 1947, Pakistan inherited the same code and subsequently after several amendments [e.g. Protection of Women (Criminal Laws Amendment) Act, 2006, Criminal Laws (Amendment) Act, 2004 (I of 2005), Criminal Law (Amendment) Ordinance (LXXXV of 2002), Criminal Laws (Reforms) Ordinance (LXXXVI of 2002), etc.] it is now mixture of Islamic and English Law.

Pakistan Penal Code is a general criminal law, applies all over the country, and contains specific provisions on the subject. Thus it prohibits mischief by killing or maiming animals, or damaging works of irrigation or a river or a road or a bridge or drain or firing explosive substances with intent to cause damage. The Code also prohibits public nuisance by acting negligently to spread the infection of disease or disobeying quarantine rule or causing adulteration of food or drink or drug, or fouling water or making the atmosphere noxious to health etc.

3.7.4 Punjab Environmental Protection (Amendment) Act (PEPA) 2011

Among many other salient features of the Punjab Environmental Protection (Amendment) Act, 2011 it empowers the Pakistan EPA to:

- delegate powers, including those of environmental assessment, to the its lower staff;
- identify categories of projects to which the Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) provisions will apply;
- develop guidelines for conducting IEE and/or EIA and procedures for the submission, review and approval of the same;
- develop environmental emission standards for parameters such as air, water and noise and
- Enforce the provisions of the PEPA -2011 through environmental protection orders and environmental tribunals headed by magistrates with wide-ranging powers, including the right to fine violators of the Act.

The PEPA can frame environmental regulations tailored to the requirements of the province. They are also required to review and approve EIAs/IEEs of all the development projects undertaken in the Punjab province.

3.7.5 Pakistan Environmental Protection Act, 1997

The promulgation of the Environmental Protection Ordinance, 1983 was the first codifying legislation to the issue of environmental protection. Later, the Government passed the Pakistan Environmental Protection Act (PEPA), 1997, which is the basis of IEE/EIA studies carried out for the projects in Pakistan.

PEPA, 1997 is a fairly comprehensive legislation and provides protection, conservation, rehabilitation and improvement of the environment. It contains concrete action plans and programs for the prevention of pollution and promotes sustainable development. The salient features of the law are:

- It covers the air, water, soil, marine and noise pollution including pollution caused by motor vehicles.
- The Act provides National Environmental Quality Standards (NEQS) for wastewater, air emissions and noise.
- Law provides clear cut guidelines for IEE/EIA for various projects as per their magnitude and anticipated impacts.
- Law also empowers Federal Government to issue notices and to enforce them for the protection of the environment.

For the effective implementation of the provisions of PEPA, 1997, Pakistan Environmental Protection Agency, headed by a Director General was constituted. On the same pattern, Provincial Environmental Protection Agencies (EPA's) were created in all the provinces. Environmental Tribunals were also constituted according to PEPA, 1997.

3.7.6 Policy and Procedures for the Filing, Review and Approval of Environmental Assessments

This document sets out the key policies and procedural requirements. It contains a brief policy statement on the purpose of environmental assessment and the goal of sustainable development and requires that environmental assessment be integrated with feasibility studies. It also defines the jurisdiction of the Federal and Provincial EPA's. It lists down the responsibilities of the proponent and states the duties of responsible authorities. It provides schedules of reports that require either an IEE or EIA.

3.7.7 Guidelines for the preparation and review of Environmental Reports (NOVEMBER 1997/2000)

These guidelines are descriptive documents regarding the format and content of IEE/EIA reports to be submitted to EPA for "No-Objection Certificate (NOC)/Environmental Approval (EA)". Following are the major areas, which are covered by these guidelines:

- The IEE report (scope, alternatives, site selection, format of IEE report)
- Assessing impacts (identification, analysis and production, baseline data, significance)
- Mitigation and impact management (and preparing an environmental management plan)
- Reporting (drafting style, main features, shortcomings, other forms of presentation)
- Review and decision making (role, steps, remedial options, checks and balances)
- Monitoring and auditing (systematic follow up, purpose, effective data management)
- Project Management (inter-disciplinary teams, programming and budgeting)

3.7.8 Guidelines for Public Consultations

These guidelines deal with possible approaches to public consultation (PC) and techniques for designing an effective program of consultation that reaches out to all major stakeholders and ensures the incorporation of their legitimate concerns in any impact assessment study. These guidelines cover:

- Consultation, involvement and participation of Stakeholders
- Techniques for public consultation (principles, levels of involvements, tools, building trust)
- Effective public consultation (planning, stages of EIA where consultation is appropriate)
- Consensus building and dispute resolution.
- Facilitation involvement (including the poor, women, building community and NGO capacity.

3.7.9 National Environmental Quality Standards (NEQS)-1993, Amended August 2000

The National Environmental Quality Standards (NEQS) were first promulgated in 1993 and have been amended in August, 2000.

The following standards are specified therein:

- Maximum allowable concentrations of pollutants (32 parameters) in municipal and liquid industrial effluents discharged to inland waters, sewage treatment facilities, and the sea (three separate sets of numbers)

- Maximum allowable concentrations of pollutants (16 parameters) in gaseous emissions from the industrial sources

The Guidelines for "Self-Monitoring and Reporting" (SMART) ANNEXURE-IV for the industry as approved by the Pakistan Environmental Protection Council (PEPC).

A copy of the Government of Pakistan, Gazette Notification dated August 10, 2000 regarding NEQS is attached as ANNEXURE – V.

3.7.10 National Environmental Quality Standards for Ambient Air- November- 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October, 2010 under S.R.O. 102 (1)/2010 established standards which provide the maximum allowable limits, in the ambient air, of Sulphur Dioxide (SO₂), Oxides of Nitrogen as (NO_x) and as (NO), Suspended Particulate Matter-(SPM), Particulate Matter-PM₁₀, Particulate Matter-PM_{2.5}, Lead and Carbon Monoxide (CO) [ANNEXURE-VI]

3.7.11 National Standards for Drinking Water Quality - November, 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October, 2010 under S.R.O. 102(1)/2010 established standards for Drinking Water Quality [ANNEXURE-VI]. The major quality parameters fixed depend upon Bacterial, Physical and Chemical ones.

3.7.12 National Environmental Quality Standards for Noise - November, 2010

The Ministry of Environment, Government of Pakistan vide its Notification, Islamabad, the 18th October, 2010 under S.R.O. 102(1)/2010 established standards for Noise [ANNEXURE-VI]. These standards are based on Category / zone i.e. residential area, Commercial area, Industrial area and Silence zone. The limiting values for day and night have also been fixed for all categories/zones.

3.7.13 Sectoral Guidelines for Environmental Reports

These guidelines identify the key environmental issues that need to be assessed as well as mitigation measures and project alternatives to be considered in the actual EIA. These guidelines include:

Sector overview of the industry and the processes

- Potential impacts on the environment
- Mitigation measures
- Monitoring and reporting
- Management and training
- Checklist of likely environmental impacts and mitigation measures

3.7.14 Guidelines for Sensitive and Critical Areas

These guidelines identify sensitive and critical areas in Pakistan, in relation both to the natural environment and the cultural aspects.

3.7.15 National Resettlement Policy and Ordinance

At this point, the only legislation relating to land acquisition and compensation is the Land Acquisition Act (LAA) of 1894. Following a national consultative process, a national resettlement policy and a related ordinance were drafted. The draft policy and the ordinance are presently being reviewed by the provinces, and have yet to be approved and notified by the government. The salient applicable features of the Draft Resettlement Policy are given below:

- The Pak-EPA will be responsible for both environment-related as well as resettlement-related matters,
- The responsibilities for implementation at a provincial level are to be delegated to the concerned provincial EPAs with overall control of the provincial Planning and Development (P&D) Departments.
- All categories of 'loss' arising from development projects that entail resettlement, need to be addressed: these include not only loss of land, built-up property, other infrastructure, and crops and trees, but also loss of income, job opportunities, and access to natural resources, etc.
- Vulnerable groups whose issues need to be addressed in particular include: women, children, destitute persons, tribal communities, squatters, those with usurper rights, and landless groups.
- There should be a special emphasis on consultation with affected groups when preparing a Resettlement Action Plan (RAP).

The provisions of the Draft Resettlement Policy are consistent with the requirements of the World Bank OD 4.30 on Involuntary resettlement.

3.7.16 Forest Act, 1927

All India Forest Act, 1927 was adopted by the Government of Pakistan, which was subsequently implemented by the respective provinces. Basically, the law was enacted to conserve and protect the forest resources of the country for sustainable development. It lays down Rules and Regulations for exploitation of various categories of forests such as reserved, protected or unclassified. Further, the Act spells out the licensing method for timber cutting, grazing, hunting etc. It also gives the details of magisterial powers of Forest Department officers and penalties for offences committed with regard to forest resources and products.

3.7.17 Industrial Relation Ordinance, 2002

The ordinance has been promulgated to amend, consolidate and rationalize the law relating to formation of trade unions, regulation and improvement of relations between employers and workmen and avoidance and settlement of any differences or disputes arising between them. Pakistan's labour laws trace their origination to legislation inherited from India at the time of partition of the Indo-Pak subcontinent. The laws have evolved through a continuous process of trial to meet the socio-economic conditions, state of industrial development, population and labour force explosion, growth of trade unions, level of literacy, Government's commitment to development and social welfare. To meet the above named objectives, the government of the Islamic Republic of Pakistan has introduced a number of labour policies, since its independence to mirror the shifts in governance from martial law to democratic governance.

While Article 18 of the Constitution affords every citizen with the right to enter upon any lawful profession or occupation, and to conduct any lawful trade or business, the Industrial and Commercial Employment (Standing Orders) Ordinance was enacted in 1968 to address the relationship between employer and employee and the contract of employment. The Ordinance applies to all industrial and commercial establishments throughout the country employing 20 or more workers and provides for security of employment. In the case of workers in other establishments, domestic servants, farm workers or casual labour engaged by contractors, their labour contracts are generally unwritten and can be enforced through the courts on the basis of oral evidence or past practice.

The Constitution of Pakistan contains a range of provisions with regards to labour rights found in Part II: Fundamental Rights and Principles of Policy.

- **Article 11** of the Constitution prohibits all forms of slavery, forced labour and child labour;
- **Article 17** provides for a fundamental right to exercise the freedom of association and the right to form unions;
- **Article 18** proscribes the right of its citizens to enter upon any lawful profession or occupation and to conduct any lawful trade or business;
- **Article 25** lays down the right to equality before the law and prohibition of discrimination on the grounds of sex alone;
- **Article 37(e)** makes provision for securing just and humane conditions of work, ensuring that children and women are not employed in vocations unsuited to their age or sex, and for maternity benefits for women in employment.

3.7.18 Punjab Industrial Relations Bill 2010

In December 2010 Punjab Assembly passed new legislation that will govern the formation of trade unions, relations between industries and their workers, and the process for the settlement of labour disputes.

3.7.19 Industrial Relations Ordinance 2011 Promulgation

The Government has promulgated Industrial Relations Ordinance 2011. The Ordinance has been approved by the President on the Advice of the Prime Minister. The Government has promulgated Industrial Relations Ordinance, 2011 in view of the current legal vacuum created due to deletion of the concurrent Legislative List through the 18th Constitutional Amendment. The Industrial Relations has also been transferred to the Provinces which have promulgated provincial laws to regulate industrial relations. However, there is no law in place to deal with Industrial Relations in the Islamabad Capital Territory or in respect of national level trade federations and for resolutions of trans-provincial industrial issues. The Parliament has yet to promulgate the Ordinance as law.

3.7.20 Other Relevant Laws

Some of the other relevant laws and legislations are listed below:

- Canal and Drainage Act, 1873
- The Explosives Act, 1884
- The Fire Wood and Charcoal (Restriction) Act, 1964
- Motor Vehicles Ordinance, 1965
- The West Pakistan Regulation and Control of Loudspeaker and Sound Amplifier Ordinance, 1965
- Agriculture Pesticides Ordinance, 1971
- The Antiquities Act, 1975

3.7.21 National Electric Power Regulatory Authority (NEPRA) Act 1997

The NEPRA Act was approved by Parliament and signed into law in December 1997. It seeks to create an autonomous, independent regulatory authority, which will be solely responsible for the power sector. It will be responsible for the oversight of the power sector and will exercise control through its power to license power generation, transmission and distribution. It will regulate tariffs for all these activities. It will perform its functions through transparent processes to be enshrined in rules that are being framed in a transparent manner through appropriate rules.

3.7.22 Power Policy 1998

The revised power policy was implemented in 1998. The objective and intentions of the Government of Pakistan (GOP) to new policy is to move towards the creation of a competitive power market in Pakistan. It proposes to do so by restructuring and privatizing the existing thermal power generation, the power transmission and distribution functions and assets of existing public sector utilities (WAPDA/KESC), by the creation of a fully autonomous regulatory authority, the National Electric Power

Regulatory Authority (NEPRA), and through its future IPP policy. The salient features of the Policy are;

- The basis for selection of private power project will be minimum levelized tariff through International Competitive Bidding. Variable tariffs over the life of the project will be permitted under terms specified prior to bidding. The process of selection will involve pre-qualification, issuance of a Request for Reports (RFP), bidding and evaluation of bids against bid criteria clearly laid out in the RFP.
- It is recognized that without a proper feasibility study for a particular site-specific hydel or indigenous coal based project, it will not be possible to invite competitive bids and receive firm offers. Thus, detailed feasibility studies for such projects will be prepared before bids are invited.
- Hydel projects will be implemented on a Build-Own-Operate-Transfer (BOOT) basis; to be transferred to the province in which it is situated at the end of the concession period, and thermal projects on a Build-Own-Operate (BOO) basis.
- Competitive Tariffs will comprise an Energy Purchase price and a Capacity Purchase Price with adequate provisions for escalation.

3.7.23 Provincial Local Government Ordinances, 2001

These ordinances, issued following the devolution process, establish regulations for land use, the conservation of natural vegetation, air, water, and land pollution, the disposal of solid waste and wastewater effluents, as well as matters related to public health and safety.

3.7.22 Factories Act, 1934

There is no independent legislation on occupational safety and health issues in Pakistan. The main law, which governs these issues, is the Chapter 3 of Factories Act, 1934. All the provinces, under this act, have devised Factories Rules. The Hazardous Occupations Rules, 1963 under the authority of Factories Act is another relevant legislation. These rules not only specify some hazardous occupations but also authorize the Chief Inspector of Factories to declare any other process as hazardous. The other related laws are:

- Workmen Compensation Act, 1923
- Provincial Employees Social Security Ordinance, 1965
- West Pakistan Shops and Establishments Ordinance, 1969
- Boilers and Pressure Vessels Ordinance, 2002

Chapter 3 of the Act has general provisions on health and safety at the workplace. Provincial governments are allowed to make rules under this Act and inspectors under this Act also have discretion in defining the rules. Chapter 3 talks about various safety arrangements. This list is being provided just to show how meticulously labor law covers these issues.

- Cleanliness
- Disposal of wastes and effluents
- Ventilation and temperature
- Dust and fume
- Artificial humidification.
- Overcrowding
- Lighting
- Drinking water
- Latrines and urinals
- Spittoons
- Precautions against contagious or infectious disease
- Compulsory vaccination and inoculation
- Power to make rules for the provision of canteens
- Welfare officer
- Precautions in case of fire
- Fencing of machinery
- Work on or near machinery in motion
- Employment of young persons on dangerous machines
- Striking gear and devices for cutting off power
- Self-acting machines
- Casing of new machinery
- Prohibition of employment of women and children near cotton openers
- Cranes and other lifting machinery
- Hoists and lifts
- Revolving machinery
- Pressure plant
- Floors, stairs and means of access
- Pits, sumps, opening in floors, etc.
- Excessive weights
- Protection of eyes
- Power to require specifications of defective parts or tests of stability
- Safety of building, machinery and manufacturing process
- Precautions against dangerous fumes
- Explosive or inflammable dust, gas, etc.
- Notice of certain accidents

3.8 Applicable International Environmental and Occupational Safety and Health Laws and Regulations

- **International and National Non-Governmental Organizations**

International and national Non-Government Organizations (NGOs), such as the International Union for Conservation of Nature and Natural Resources (IUCN) and the World Wide Fund for Nature (WWF), have been active in Pakistan for some time. Both

of these NGOs have worked closely with the governments at the federal as well as provincial levels and have positively contributed to the cause of environment. They have played significant role with regard to the formulation of environmental and conservation policies. And last but not the least, another the most prominent NGO namely "Sustainable Development Policy Institute (SDPI) "has also played very significant role in upholding the cause of environmental protection in Pakistan.

Environmental NGOs have been particularly active in the advocacy for promoting sustainable development approaches. Most of the government's environmental and conservation policies, even at the provincial and federal levels, has been formulated in consultation with these leading NGOs, who have also been involved in drafting new legislation on conservation.

- **International Framework**

For the assessment of the environmental impacts of the proposed project on air, water and noise according to the international legal framework, this report has also incorporated the requirements of the "Pollution Prevention and Abatement Handbook" by the World Bank Group- effective July 1998.

Within this handbook, different guidelines are mentioned for the purpose of assessing industrial facilities with respect to their environmental compliance. In the present case, the guidelines for new thermal power plants are applicable for the preparation of the environmental impact assessment.

3.9 Environment Related Relevant International Agreements in Pakistan's context

Pakistan is a party to the following treaties and agreements in furtherance of its environmental goals and programme.

Treaty	Pakistan Status
Convention on the Protection of Ozone Layer on Dec 18, 1992.	Ratified
The Amendment to Montreal Protocol on Substance that Depleting Ozone layer	Signed
UN Framework Convention on Climate Change on June 13, 1992	Signed
Convention on the Continental Shelf on October 31, 1958	Signed
The Convention on High Seas on October 31, 1958	Signed

Convention on the Fishing and Conservation of the living Resources of the High Seas on October 1958.	Signed
The UN Convention on Law of the Sea on December 10, 1982	Signed
The Convention on Territorial Sea and the Contagious Zone and the Agreement for the establishment of Network of Aquaculture Centers in Asia and the Pacific	Signed
The Convention on Wetlands of the International Importance on July 23, 1976	Signed
The Convention on protection of the World Cultural and Natural Heritage on July 23, 1976	Signed
The Convention on International Trade in Endangers Spice of Wild Fauna and Flora	Signed
The Convention on Conservation of Migratory Specie of Wild Animal on Dec 01, 1987	Signed
The Convention on Biological Diversity in 1994 and became party to the CBD, Convention duly recognizes the intrinsic value of biological diversity, genetic, social, economic, cultural, educationist, recreational and esthetic values of biodiversity and its components	Signed
The International Plant Protection Convention.	Signed
The Plant Protection Agreement for Area & pacific region	Signed
The Agreement for the establishment of a convention for controlling the desert lost in eastern region of its Distribution Area in South East Asia	Signed
The Treaty Banning Nuclear Weapon Test in the Atmosphere, in Outer Space and under Water on March 3, 1988	Signed
The International Convention on Oil Pollution Preparedness Response and Corporation	Signed
The Convention on prohibition of Military or any other Hostile Use of Environmental Modification Techniques and Accession of Feb 27, 1986	Signed
Pakistan became a party to Montreal Protocol by Ratifying the protocol and its London amendment on Dec 18, 1982.the subsequent amendments known as Copenhagen Amendment which, accelerate the phase out for rectified in Jan 1995.	Signed
Convention of International trade Endangerous Species (CITS)	Signed
World heritage Convention Ramsar Convention	Signed
United Nation Convention to Combat Ozone Depletion (CCD). The convention signed and ratified in 1996	Signed
Stockholm Convention for Phasing out Parenting Organic pollutants (POPs) in 2001.	Signed

4.0 DESCRIPTION OF THE ENVIRONMENT

4.0 DESCRIPTION OF THE PROJECT

4.1 Type and category of the project:

Type:

Pakistan is an energy deficit country. Fossil fuels are already in short supply, and their local availability is fast depleting along with price hike taking place during very short intervals of time. Import bills of the fossil fuels are swelling at a very fast rate due to their fast increasing demand in the country. Pakistan's fragile economy cannot afford to continue with the present situation. Consequently, the present state demands to find/explore other sources which could fully or partially replace the fossil fuels presently in use.

Chanar Energy Limited is planning to install a 25 MW Cogen power plant using Bagasse as fuel at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad.

Bagasse is the matted cellulose fiber residue from sugarcane that has been processed in a sugar mill. The saving of this product has become one of the main objectives of the sugarcane industry. The actual tendency is to use bagasse as fuel, especially for cogeneration of electric power and steam, to increase its contribution to the country's energy supply. The process flow diagram of the project is attached as ANNEXURE-VII.

Where the Cogen power plant is to be installed is located within the jurisdiction of the EPA, Government of the Punjab, Lahore.

4.2 Category of the project

The Cogen power plant will produce 25 MW of electricity. The capacity of the plant is very small and all environmental impacts are well controlled. The project, according to the 'Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000' the project falls in "**Category B**" requiring IEE to be submitted to the EPA Punjab for getting Environmental Approval(EA).

4.3 Objectives of the project:

Pakistan is energy deficient. The total installed power generation capacity of Pakistan in 2010-11 was 23,412 MW. Out of this, 16,070 MW was thermal (69 percent), 6,555 MW was hydroelectric (28 percent) and 787 MW was nuclear (3 percent). The growth in energy supply continues to lag behind the growth in energy demand.

The power shortage is estimated at over 6,000MW. This gap in power supply and demand is on the increase. Resultantly, Pakistan currently faces severe power

shortages, which results in frequent and long drawn out load shedding. The frequency of the load shedding is also on the increase.

The “Energy Security Action Plan” developed by the Planning Commission of Pakistan, (2005) planned the increase in electric generation capacity. Planed electricity generation & installed capacity are presented in the following table:

Planed Electricity Generation & Installed Capacity MW

Year	Nuclear	Hydro Power	Coal	Renewable	Gas + Oil	Total
2005	400	6,460	160	180	12,340	19,540
2010	0	1,260	900	700	5,020	7,880
2015	900	7,570	3,000	800	7,850	20,120
2020	1,500	4,700	4,200	1,470	12,860	24,730
2025	2,000	5,600	5,400	2,700	22,790	38,490
2030	4,000	7,070	6,250	3,850	30,660	51,830
TOTAL	8,800	32,660	19,910	9,700	91,520	162,590

According to the Planning Department, Government of Pakistan(**daily Jang, Lahore, Janaury18, 2013**),“it will not be possible to end load shedding during the planned year even if all power projects are completed on schedule”. It looks very difficult to bridge the gap between production and demand of electricity for a long time to come. It means load shedding will remain a constant feature in the country.

Therefore, Chanar Energy Limited has planned to install a 25 MW Cogen power plant using bagasse as fuel with the aim of exporting power to electricity grid both during crushing season and off season. The power plant will be connected to the national grid through a loop in, loop out arrangement at the 132 kV transmission line that is located at a distance of about 5 km from the sugar mill.

This is how the supply of reliable and economic power to the national Grid to meet ominous power demand of the country will be ensured and on the other hand the process steam demand of the Sugar Mill will also be met.

4.4 Advantages of the Site:

Bagasse, which is a by product of the sugar production process will be used as fuel for the power plant which is left over after crushing sugar can at sugar industry. To meet the requirement of steam for power generation at Chanar Energy Limited, it is convenient that the site should be located within the existing premises of the sugar mill. Accordingly, the project has been selected at the present site.

4.5 Alternatives considered (Site Selection), and reasons for their rejection:

Economic viability, investment limitations, market volume, ensured availability of raw materials, availability of dependable energy source, availability of project basic support systems and environmental management are the main considerations upon which plant production capacity has been determined.

All these factors were taken into consideration while selecting a suitable site for the project. While the rest of the sites were rejected on one or the other important requirements for the success of the project, the present place from all points of view was the most suitable. The major points taken into consideration and their summary discussion, for the site selection included:

4.5.1 Environment

Environment consideration of industrial sitting is of utmost importance. The plant is to operate according to the Environment Management Plan. Necessary safeguards are to be provided to minimize all type of pollutants. Therefore, emissions are to remain within the prescribed limits of the National Environmental Quality Standards (NEQS) ANNEXURE-V, National Environmental Quality Standards for Ambient Air (NEQSAA) effective 1st January 2013 ANNEXURE-VI and National Environmental Quality Standards for Noise (NEQSN) effective 1st July, 2012 ANNEXURE-VI.

Therefore, power plant can be installed at any available piece of land, without any danger of adverse impacts on environment and human health. Accordingly, the site selected for the power plant is quite suitable.

a- Waste water disposal facility:

Effluent generated from Cogen power plant will be neutralized and will be let into the existing sugar effluent treatment plant. The treated water will be used for the irrigation purpose inside the plant boundary walls and left over if any, will be discharged into the nearby farms of Chanar Energy Limited.

b- Land Availability:

Sufficient land is available for the power plant installations at Chak # 407 GB, Tehsil Tandlianwala, District Faisalabad.

c- Basic Infrastructure and facilities:

Basic infrastructure like water, roads, transport and communication facilities like telephone, fax, and E-mail are already available at the project site. This factor also goes in favor of selecting the present site.

d- Labor availability:

All categories of the labor required for the project operation are available conveniently and plentifully at affordable cost at the project suite. This factor too supports sitting of the project at the present site. The installation of new plant will give job to almost 30 engineers and 300 labours e during construction phase and 200 plus people during operation phase.

e- Raw material

Availability of raw material in the required quantity throughout the production was the first and foremost priority.

f- Availability of water

Water required for plant operations is plentifully available at the project site.

On the basis of above main considerations the site selected for the Power Plant is quite suited.

g- Size or magnitude of the operation, including capital cost, and associated Activities:

The project aims at the installation of 25 MW Cogen power plant using Bagasse as fuel. This power plant is installed within the premises of Chanar Sugar Mill. The estimated cost of the project is. It will require about 14,000 m² area (Covered area).

h- Project Implementation Stages:

Project Implementation Stages along with their time frame are given hereunder:

- Award of contract for boiler: 15.09.2014
- Award of contract for turbines:
- Award of LOI for switchyard & transformer package:
- Award of LOI for fuel & ash handling system:
- Expected date for award of contracts for balance of plant packages: all the packages re given on EPC basis Expected date of boiler erection & commissioning:
- Expected date of turbine erection & commissioning:
- Expected date of switchyard erection & commissioning:
- Expected date of COD: 14.04.2016

The detail of implementation stages is given under ANNEXURE-VIII.

i- Description of the Project:

The plant layout is attached as ANNEXURE-IX. While relevant details of the project are described in the aforesaid sections B, more technical detail is given here under.

j- Raw Materials:

The major raw material for this project is Bagasse, which is a by-product of the sugar production process. The Co-generation power plant will use bagasse produced by Chanar Sugar Mill Limited.

k- Water Requirement:

About 3744 m³/day during season and 7200m³/day during off season water will be required during operation of the plant. Underground water will be used which is plentifully available at the project site.

l- Energy:

The energy required for the plant operation will be obtained from self generation.

m- Major Equipment:

The following are major items included among the main equipment:

- 110-bar Traveling Grate Boiler
- 25 MW extraction condensing turbo generator
- DCS & Instrumentation
- Fuel & ash handling system
- Cooling tower
- Switchyard and Transformers
- Water Treatment Plant
- Low voltage package
- VFDs and Drives
- Plant Piping & Appurtenances
- Ventilation & Air Conditioning System
- Fire Fighting System
- EOT crane
- Cables and other packages

n- Plant Technology Suppliers:

- Boiler – any reputed vendor from India/China
- Turbine – any reputed vendor from India/China

- Switchyard and transformers – Siemens Pakistan or any reputed and NTDC approved vendor from China
- Fuel & ash handling system – Any reputed vendor from India/China
- EOT crane – Any reputed vendor from India/China
- Water treatment plant – WEMS Pakistan
- Cooling towers – Tru water Malaysia or any reputed vendor from India/China
- Drives/Motors/Instrumentation – any reputed vendor from India/China

o- Hours of Operation:

The plant will remain operation for 24 hours a day during the operational season of the sugar mill.

4.6 Details of restoration and rehabilitation at the end of the project life:

The co-generation power plant is expected to have a project life of 25 years. Once the useful life of the new plant will be over, it will be refurbished completely. A comprehensive mechanical, electrical and civil structural overhaul will be carried out. To bring the plant to-date with the then technology available, all necessary equipment replacements will also be done. In this way, the plant will be revived for another term of its useful life. The redundant parts and equipment will be sold in the market for recycling.

This all will be done conforming to the environmental management and controls so as to avoid any damage to any segment of environment or human health.

4.7 Government approvals and leases required by the project:

No objection certificate (NOC)/Environmental Approval (EA) from the EPA, Punjab, Lahore is the major requirement to start work on the project.

5.0 DESCRIPTION OF THE ENVIRONMENT (AREA AFFECTED BY THE PROJECT)

5.0 DESCRIPTION OF THE ENVIRONMENT (AREA AFFECTED BY THE PROJECT)

5.1 Spatial and temporal boundaries adopted for the various aspects of the study

While carrying out the present study, factors including present environmental settings and likely future trends around the project site were taken into consideration. Availability of basic infrastructure, water, raw materials, and markets for the product, labor, transport and electricity were the major among other factors considered in the project area. Socio-economic conditions were also considered during the course of the study.

5.2 Existing (baseline) condition of the biophysical and socio-economic environment, trends and anticipated future environmental conditions should the project not go ahead.

The project site is situated in Faisalabad District which lies between 30°-35' to 31°-47' north latitude and 72°-01' to 73°-40' east longitude. The project area is mainly agricultural land. River Ravi flows at a distance of about 10 Km from the project site. Underground water is also harnessed through tube wells for industrial as well as agriculture use.

Canals and tube wells provides water for the irrigation in the project. Wheat, cotton, sugarcane, and pulses are the major cash crops. Many people rear especially cows and buffalos for producing milk even on semi commercial scale. It will not be out of place to say that the area is one among the other food baskets of the Punjab province.

The awareness about the importance of education is now developing in the area. Some people of the area are playing an important role in the politics of the country even at higher levels. Fairly reasonable proportion of the people in cities is educated. While in villages, like in other parts of the Punjab province, % of educated people is low. Modern means of communication including television, radio, telephone, fax, e-mail and newspapers are within the reach of majority of the people especially in the cities. The socio-economic values are subject to change in cities specifically under the influence of media especially television.

The project site is situated at a distance of about 10 km from Tandlianwala city. Tehsil Tandlianwala is a small town, has infrastructure and basic facilities of life available for the peoples of the area. High Schools, Hospital, Vocational training institutes, Police Station and Post Offices etc are present in the area.

Faisalabad, the district head quarter of the project area is situated at 27 km from Tandlianwala which is connected with other parts of the country by roads, railway and even airport. These facilities provide good opportunities to the people to mix up with

the public of the other parts of the country. The airport even provides good air link to other countries. The economy of the district is growing quite fast.

There also exists a highly educated and well placed segment of society, this segment is quite affluent and socially and politically well off also. Their way of life is comparable with that of any developed segment of the society in Pakistan. This segment of the society is playing leadership role for the people of the area.

Mostly, villagers follow old traditions in almost every walk of their life. Elderly people command respect and play deciding role in decision making. A large cross section of the older generation is uneducated. But due to awareness about education younger generation of both sexes, is now trying to get education in almost every department including science and technology on preferential basis. There is a rising trend in the society to change their old traditional socioeconomic pattern of life. Print and electronic media are playing great role in bringing tangible change in the old pattern of life.

Environmentally speaking the carrying capacity of the environment is not utilized. The project activity, under the proposed strict operational environmental controls, is not going to leave adverse impacts on all out environment. The operational Environmental Management Plan and Environmental Monitoring Plan further provide protection to the environment around. Legal compliance of environmental monitoring with NEQS standards is to doubly ensure environmental protection of all the segments of the environment.

Due to the acute shortage of electric power in the country there are long drawn out spells of load shedding disturbing all segments of society, industry, commercial and other sectors. Industrial production has sharply gone down due to so frequent and long drawn out power shortages. Consequently, there is a big industrial loss as well as export targets are unaccomplished. Resultantly, foreign exchange earnings are reduced. This project will help to add positively to all these sectors of economy as well as fulfillment of domestic needs. With this background the project will add towards reducing the gap between supply and demand of power. With operation of the project, it will provide job opportunities especially to the people of the area around the project site; Government will get large volumes of earnings in the form of taxes and duties on recurring basis. Poverty alleviation will be yet another benefit.

Obviously, in case the project does not proceed further, there will not be any change in the existing status of the environment or a status quo will be maintained with regard to all environmental, social and economic factors.

5.3 Environmentally sensitive areas of special or unique value

(Physical resources of the project area: Topography and geology; Soils and Climate; water; Ecological resources: Fisheries and aquatic biology, Biodiversity, Forestry, Wildlife, scientific institutions, Socio-economic and Cultural and other heritage)

5.3.1 Physical Resources of the Project Area:

The physical resources of the project area are described below:

5.3.2 Topography and Geology:

Pakistan lying in the northwestern part of the Southern Asian Subcontinent, occupies the western end of the Indo-Genetic Plain, which is beyond bounded in the north by mountain wall of the Great Himalayas and their offshoots.

The project falls in river in plain of Ravi and Chenab River. It is a flat area with alluvial silt and mixture of loose material. The slop is towards south and south-west. Slope is gentle. The project site is at the height of about 492 ft from the sea level. The project area is composed of fertile soils. The area is a home of rice, sugar cane, Cotton and wheat as major cash crops. Of course, other minor crops are also grown. The entire land mass up to long distances is flat and under agriculture use with sizeable area under industry too. Canal water and sub soil are used for irrigation and industry.

The project area contains unfolded sedimentary alluvial deposits which are seismically stable within a radius of 100-km. The nearest fault is the Salt Range Thrust (SRT) fault with no significant tectonic activity. The project area, seismically falls under zone 2A with peak ground acceleration varying from 0.08g to 0.016g. this area falls under minor earthquake zone. It is recommended that the project can be built at ground acceleration of 0.16g.

5.3.3 Soils:

Soils form major part of environment. Their fertility and other special characteristics have great relationship with environment. Climate has great influence on the formation of soils; therefore study of these factors is of great importance. Soil is dynamic layer in which many complex physical, chemical and biological activities are taking place. Therefore soil is a dynamic changing body. Soil scientists restrict the word soil or solum to the surface materials which over the ages have adopted the distinctive layers or horizon. Soils are made up of solids, liquids and gases. The solid part of the soil is made up of both inorganic and organics. While weathering of rocks make inorganic particles, the organic solids consist of living and decayed plants. In order to classify the entire soils in Pakistan, the Soil Survey of Pakistan has divided the entire country into nine ecological zones.

Soils form major relation with environment. They influence environment by their special qualities and more so through fertility. Type of soils besides providing food, clothes or housing population serve with special food and lumber products, medicinal plants etc.

Soil should not be taken as a lifeless residual layer but it is a very dynamic element of environment in which very complicated physical, chemical and biological activities are constantly proceeding. In this way it is a dynamically changing and developing body.

The soils of the project area are fertile and rich in both organic and inorganic mass because the project site lies near the Ravi River. The area is made up of flood plain deposits of Qmx (Stream bed and meander belt deposits) and Qfx (flood plain deposits of lower terraces). Higher yields are being obtained through the use of synthetic fertilizers and pesticides. Their irrational use is adding to pollution of soil, and water bodies.

5.3.4 Climate:

Pakistan extends from 24° N to about 37° N with its western border lies close to 62° E, north eastern border extends to about 74° E and lies on the western margin of one of the major climatic regions of the world. Therefore, her climate is more continental. Reversal of wind system and variable character of monsoon are quite complex. A major part of Pakistan is dominated by dry climate. Temperature and amount of rain fall determine type of natural vegetation in any area.

These physical features have great bearing on climatology of the area like the entire country; the project area has also four seasons distinctly:

- Cold weather season – December to March
- Hot weather season – April to June
- Monsoon season – June to September
- Post Monsoon season – October and November

With the arrival of summer the area becomes heated and low pressure area is created. In the month of July atmospheric pressure rises 996.0 millibars in the area under reference. The major sources of the rain fall in the area include the Monsoon Rainfall (July, August & September), Western Depression Rainfall by western depressions and Thunderstorms Rainfalls (spring & autumn rainfall).

	Maximum	Minimum	(millimeters)
January	19.4	4.8	16.0
February	22.4	7.6	18.0
March	27.4	12.6	23.0
April	34.2	18.3	14.0
May	39.7	24.1	9.0
June	41.0	27.6	29.0
July	37.7	27.9	96.0
August	36.5	27.2	97.0
September	36.6	24.5	20.0
October	33.9	17.7	5.0
November	28.2	10.4	2.0
December	22.1	6.1	8.0
Annual	31.6	17.4	346.0

Climate of the district touches two extremes. The maximum temperature in summer reaches up to 50°C or 122°F. In winter, it may, at times fall below the freezing point. The mean maximum and minimum temperature in summer are 39 and 27°C respectively and in winter, 21 and 6°C respectively. The summer season starts from April and continues till October. May, June and July are the hottest months. The winter season, on the other hand, starts from November and continues till March. December, January and February are the coldest months.

5.3.5 Water:

Major sources of water in the area are the river Ravi (being nearer to the project site than the Chanab) and canal, subsoil water and rain. Fairly large quantities of ground water are available on the project site. being present between the two major rivers, Ravi and Chenab. Good rainy season supports sub soil water recharging and irrigation needs. Thus a blend of water from various sources supports the life support systems of the area including for drinking, irrigation and industry as the major needs.

5.4 Ecological Resources fisheries, aquatic biology, wildlife, forests, rare or endangered species:

5.4.1 Fishery and Aquatic Biology:

There are no worth mentioning sources of fishery in the form of fresh water fishery or fishing ponds or else in the area of influence of the project. The nearest river is Ravi which hardly contains any fish and is quite distant from the project site is out of the influence of the said project. There is no water body worth reference where fish or aquatic life could be found. There is no fish or other worth mentioned aquatic life present in it.

5.4.2 Biodiversity:

Mainly a country's wilderness areas and scenic landscapes with their associated flora and fauna form natural capital of a country. Both collectively and within each level, the range or variety of the resources is referred to as the "Biological Diversity". The contribution of the "Natural capital" is recognized at three distinct levels including genera, species, and community -habitat and ecosystem.

Pakistan comprises of a total of nine major ecological zones and the term has relevance for each of Pakistan's administrative units—district, province, and particularly country. The greater the number of genera, species and habitats and ecosystems present within these units, the greater is the Biodiversity. It is in this background that the biodiversity of the area is discussed below:

5.4.3 Forestry: (Flora)

The area around the project site is under agriculture use. There is no forest of any type. There is no scheme even for future social forestry in the area. Major species of the plants present in the study area include; Jand (*Prosopis spicigera*), Vann (*Salvadora oleoides*), Sheeshamm (*Dalbergia sissoo*), Kikar (*Acacia Arabica*) and Sufaida (*Eucalyptus Sp.*).

5.4.4 Wildlife: (Fauna)

Because of habitat loss in the project area due to industrialization and human settlements there is no wildlife in the area. On very limited scale the following birds and animals are found here and there like in all Punjab:

- | | |
|-------------------|----------------------------------|
| - jackals | <i>Canis aureus</i> |
| - crows | <i>Corvus splendens</i> |
| - Fox | <i>Vulpes vulpes pusillus</i> |
| - Gray Partridges | <i>Francolinus Pondicerianus</i> |
| - lizards | |
| - rats | |
| - snakes | |
| - pigeons | |
| - sparrows | |

5.5 Socio-Economic:

The project area is virtually agriculture. Land is fertile and land holdings are supportive of the fact that large number of people fairly reasonable proportion of the big land holding farmers is well to do.

A large number of people in the area belong to the poor segment of the Society. The work as farmers, most of them do not have their own piece of land; but work as a laborer for the other land lords and well to do farmers. Even politically some people are highly placed in Government quarters. Their role in the politics of Pakistan is significant. A segment of the people belongs to middle class, while there are a fairly large number of the people who live below the poverty line.

Awareness about importance of education is growing and the same is reflected by the large number of students in educational institutes within the city and in other cities of learning. Road, rail and air links are facilitating the people to mix up with the people of other parts of the country due to which a part of the people's life style in every walk of life is fast on the change. Easy access to print and electronic media are also playing great role in modifying life style.

Most of the population belongs to villages. With this background and large cross section of the urban population still stick to social customs of the old past. Old traditional life style is being followed in almost all walks of life. Elders belong to respected group and they play vital role in decision making. Most of the old generation is uneducated. Old customs are loved and practiced especially in villages and among fairly large proportion of the urban population. Arranged marriages are liked and they are quite successful. Joint family system prevails. The people especially in villages are very hospitable.

5.5.1 Cultural and Other Heritage:

As the project site is present in the rural agricultural area so there is no question of any heritage. There are no historical monuments around the project site.

5.5.2 Scientific Institutions:

There are numerous high and primary schools both for the boys and girls are present in the villages located around the project site. Faisalabad is the nearest main city of the project site. There are number of Government and private research and business institutes working in Faisalabad. Agriculture University is the oldest universities in the field of agriculture in Pakistan. About 24 colleges are working in Faisalabad. As the project site near to the Faisalabad, all the educational facilities of the people living near the site are fulfilled by those institutes.

5.5.3 Existing Socio-Economic Baseline Conditions:

➤ Population and Communities

The project site is situated at 10 km from Tandlianwala city. There are many small and big villages around which are given here under:

Available school and health facilities are basic. In some of the villages there are primary or high schools. For intermediate onward education students have to go to Faisalabad.

Medical facilities in most of the villages are lacking and those available are of very preliminary nature. Social Security Dispensary is present within Mill's premises.

Peoples belonging to the different castes and religious sects live in complete harmony with each other. People belonging to the different tribal origins are Khore, Balochi, Kanjan, Sheikh, Vadher, Bochrey, Jholan, Khumbney, ChaCher, Solangi, Larr, Mothey, and Chogley in the area.

Underground water through tube wells and hand pumps and canal water is used for drinking and other house hold purposes. Approximate population of the villages near the project site, their approximate distances from the project site, availability of health and education facilities are given here under.

Name of the Village	Number of Houses (approximate)	App. population (Nos.) (approximate)	Education facility	Medical care availability	Electricity availability	Potable water availability
1- 407 G/B	1000-1200	6,000	Primary School	Chanar Dispensary	Yes	Yes
2- 412 G/B	1000	5,000	Primary School	No	Yes	Yes
3- 406 G/B	300	1500	Primary School	No	Yes	Yes
4- 408	800	4,000	Primary School	—	Yes	Yes

5.5.4 Industries

As already described, the project area is an agricultural zone with little industrial growth. By the passing of time new industries are coming in the area. Government polices are also encouraging people to install new industries.

Faisalabad being present near to the proposed plant site is rich with cluster of industries of varied nature. Majority of the industrial units are of Textile.

5.5.5 Cultural and aesthetic values

Because of limited income, most of the common people live marginalized status of life. Agriculture and work in industries are the main livelihood earning source with limited land holdings. Old traditional and simple life typical of the Punjab villages is the prevailing cultural and aesthetic characteristic of life style of majority of the people. Punjabi language is main communication source.

Decades old culture and customs in every walks life are dominant. Old people prefer to live conservative life style. However, due to awareness and education through TV and print media young generation is in the process of transition in their life style. In spite of awareness about the importance of education and free education policy of the Government of the Punjab up to primary level, still a large cross section of the masses is illiterate.

Being in the suburbs of the city of Faisalabad, there is a dominant effect on the living styles of the people. Print and electronic media are bringing a tangible change in the life style of the people.