

The Registrar
Oil and Gas Regulatory Authority
54B, Fazal-e-Haq Road
Islamabad

18th May 2020

Subject: Application for a licence for construction and operation of a transmission pipeline

Dear Sir

K-Electric Ltd has commenced construction of a further power station in its Bin Qasim Power Complex in Karachi to serve the electricity needs of Karachi and adjoining areas. To fuel the same, in accordance with the decision of the Cabinet Committee of Energy (letter from the Ministry addressed to PLL is attached), RLNG will be purchased from Pakistan LNG Ltd ("PLL"). Currently PLL delivers RLNG to SSGC at a Custody Transfer Station in the area of the Bin Qasim port via a FOTCO pipeline. K-Electric will take delivery of allocated gas at prior to transfer to SSGC.

K-Electric is to lay a 14-inch diameter transmission line from one of two alternative tie-in points to its facility. An overview of the proposed project is attached.

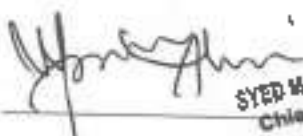
To obtain the licence required for such pipeline, we are pleased to enclose an Application in the form specified in Schedule I under the NGRA (Licensing) Rules, 2002, along with the documents specified in sub-rules 4(3) and (4) thereof and demand draft for Rs. 750,000 as the required fee.

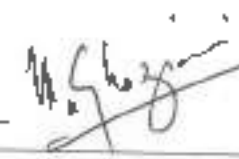
We request OGRA to process our Application for the said Transmission Licence, to be exclusively for self-use (having no annual turnover).

Your early review would be highly appreciated as obtaining the requested licence is an important part to bringing the power station into operation.

We are available to provide additional information or clarification, if required.

Yours faithfully,


SYED MOONIS ABDULLAH ALVI
Chief Executive Officer
K-ELECTRIC LIMITED
Syed. Moonis Abdullah Alvi
CEO


Muhammad Aamir Ghaziani
Chief Financial Officer
K-ELECTRIC LIMITED
Muhammad Aamir Ghaziani
CFO

Enclosures:
Overview
Ministry letter to PLL
Demand draft
Application
Index of required documents
Required documents



Pipeline Application by K-Electric Limited

OVERVIEW

K-Electric Limited (KE) has the sole responsibility of providing electric power services in the metropolitan city of Karachi and its adjoining areas. In pursuit of its vision and continuing commitment to the people of Karachi and its adjoining areas, KE has commenced construction of its highly efficient power generation plant based on state-of-the-art technology, named as BQPS-III (900MW CCPP). The project has been approved by NEPRA and also modification in KE's Generation License has been granted by NEPRA to include BQPS III project in KE's generation fleet. This project is essential to bridge the rising gap in power demand and supply in Karachi City & adjoining areas in Sindh and Baluchistan being served by KE. This project will help optimize the fuel mix, improve generation efficiency, reliability and reduce reliance on old thermal based generation and IPPs which will ultimately benefit the electricity consumers.

The BQPS-III project is comprised of 2x450MW F-Class Combined Cycle machines including enhancement of transmission system for reliable transformation of power to the grids and to the distribution system. Since the plant shall be replacing inefficient units in KE Fleet, it shall not only enable KE to meet the growing electricity demand of the Karachi city, the industrial hub of Pakistan, but shall also contribute significantly for generating electricity with economies of scale.

Cabinet Committee of Energy (CCOE) has approved allocation of 150 MMCFD RLNG to be supplied to KE by Pakistan LNG Limited (PLL). PLL will supply this RLNG to KE using the Gasport terminal facility. The strategic location of the project, in close proximity of Custody Transfer Station (CTS), allows KE to off-take RLNG at the doorstep of Bin Qasim Power Complex by installing a short Spur Pipeline from either the CTS (about 2km) or, even closer, at a point upstream of the CTS by tying-in to the Main Pipeline, being operated by FOTCO.

The proposed pipeline is necessary for connecting the 900 MW RLNG plant with RLNG supply source and is an integral part of RLNG supply scheme to BQPS III plant which is aimed at bridging the power shortfall and providing smooth and reliable supply of power to consumers. The BQPS-III power plant is being constructed in the most expeditious manner by commissioning the first unit in summer of 2021 followed by another unit's commissioning in the same year i.e. prior to December 31, 2021.

In order to efficiently operate the plant, supply of RLNG at high pressures is considered in the design which shall optimize the machine utilization by eliminating the need of installation of compressors, which otherwise is not possible in case of natural gas pipeline. For the sake of simple operation at the RLNG Supplier's end, KE has encompassed RLNG off-take at 85 barg pressure, same as to that of being delivered at CTS. Gas Pressure Reduction System (GPRS) shall be installed by EPC Contractor for BQPS-III including check metering, heaters, pressure

reduction skid etc. within the KE premises for meeting the fuel inlet requirements of Gas Turbines.

As per CCOE decision dated 27th March, 2020, KE has been given the responsibility to establish the pipeline arrangement at its own cost. Accordingly, KE engaged a reputable Engineering firm M/s Zishan Engineers, which has completed the Basic Design of Spur Pipeline, from CTS to KE's Bin Qasim Power Complex. The tendering process for an EPC contractor is underway.

The Spur Pipeline project (for which this application is being made) shall include construction of 14NPS pipeline, capable to handle RLNG supply up to 250 MMSCFD RLNG at 85 bar pressure from a Supply Point located at the RLNG CTS (Point A, in the attached map) to the Bin Qasim Power Complex. KE in collaboration PLL (RLNG Supplier) and FOTCO are also evaluating the option for interconnecting the Spur Pipeline from a tee-off point available in main send out pipeline (from Gasport to the CTS) and is situated at a closer proximity, opposite to the KE's Bin Qasim Power Complex (Point B, in the attached map). This option shall enable KE to further expedite the construction and commissioning of the project by reducing the span of required Right-of-Way for the proposed pipeline and eliminate the system modifications (if any) at the CTS.

The benefits associated with the proposed pipelines are below:

- Govt RLNG supply will be supplied to BQPS III power plant, which will reduce burden caused by "take or pay" nature of LNG contracts by coping up with under-utilization of Gasport terminal and sale of RLNG.
- The proposed pipeline will lead to operation of BQPS III power plant which will add 900 MW in KE system to meet the growing electricity demand of the city and bridge the demand-supply gap. Additionally, the proposed pipeline will resultantly improve the quality of service through reduced power outages, enhanced KE's power network and system reliability etc.
- Improve the flexibility of KE in operation at BQPS Complex by having different fuel mix options.
- Free-up pipeline capacity in the SSGC and SNGPL system for future RLNG demand and offset demand for domestic gas which may be used for other purposes.

The successful commercial operation of the pipeline project shall enable KE to operate its highly efficient plant with RLNG on OGRA's notified rates to produce electrical power economically which shall ultimately benefit the inhabitants of the Karachi area and help enhance the overall GDP of the country. Additionally, this project will facilitate Government in resolving the RLNG utilization issue thus releasing burden of huge expenditure on the RLNG handling.

Map attached with Overview of KE's Pipeline Application



5

No. NG(II)-16(4)/19-RLNG-Misc-Vol-V-Pt
Government of Pakistan
Ministry of Energy (Petroleum Division)
Directorate General Gas
First Floor, Petroleum House, G-5/2

The Managing Director,
Pakistan LNG Limited,
Islamabad.

Islamabad, the 30th April, 2020

Subject:

**APPROVAL OF NATIONAL ELECTRIC POWER REGULATORY
AUTHORITY IN THE MATTER OF APPLICATION OF DATANG
PAKISTAN KARACHI POWER GENERATION (PVT.) LIMITED (DPKPG)
FOR UNCONDITIONAL ACCEPTANCE OF UPFRONT COAL TARIFF
FOR 2X350 MW COAL POWER PLANT AT PORT QASIM, SINDH
(CASE NO. NEPRA/TRF-364-DPKPG-2016)**

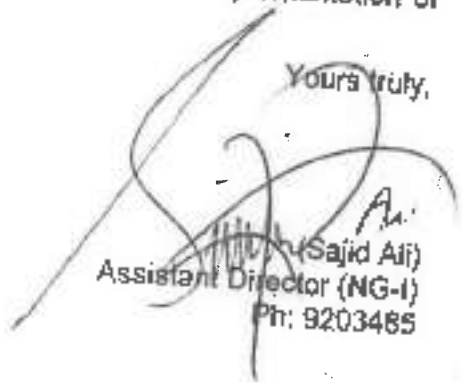
Dear sir,

I am directed to inform that the Cabinet Committee on Energy (CCoE) in its meeting held on 27.03.2020 vide Case No CCE-3/2/2020 dated 27.03.2020 while considering a summary submitted by the Power Division on the above subject and approved the proposals as contained in para-10 (iii) & (iv) of the summary. Para-10 (iv) of the summary is reproduced below as:

"iv. Allocation and firm supply of 150 MMCFD RLNG or as per the requirement shared by KE, through PLTL / PLL, effective from January 2021 to December 2025 at OGRA notified rates."

2. It is requested to take further necessary action in the implementation of above CCoE decision at the earliest.

Yours truly,


(Sajid Ali)
Assistant Director (NG-I)
Ph: 9203485

Copy to:

i) PA to DG (Gas), Petroleum Division, Islamabad.

6

OIL AND GAS REGULATORY AUTHORITY

Application Form

Ref. No. _____

Date: 18th May 2020

Company Profile

1. Name of the Company (Applicant): K-Electric Limited
2. Company's full address along with telephone, fax, e-mail and web details:
KF House
39-B, Sunset Boulevard
Phase-II, DHA, Karachi

Tel: 021-3263 7133, 021-3870 9132
Email: saamir.rizwan@ke.com.pk
Web details: <https://www.ke.com.pk/>
3. Name, title and authorized signature of the Company's Chief Executive:
Mr. Syed Moonis Abdullah Alvi
Chief Executive Officer

Signature: 
4. Names and addresses of current Directors of the Applicant: See Annex A
5. Name and address of any person or corporate body with a holding of more than one percent (1%) or more in the Applicant: See Annex B



Applicant: K-Electric Limited

Licence Specifications

1. Regulated Activity for which a licence is sought:
 - (a) Transmission Licence Yes
 - (b) Distribution Licence
 - (c) Sale Licence
 - (d) Integrated Licence
 - (e) Project Licence

2. Nature of licence applied for (if exclusive, please provide detailed justifications):

Exclusive

Justification for an exclusive licence is that the intended pipeline would be dedicated for gas to the Applicant. It is to be a short spur line from a main transmission line and only viable for delivery of gas to the Applicant.

3. Period for which the licence is sought:

From: 01 / 08 / 2020

To: 31 / 07 / 2050

4. Details of any licence held, applied for, or applied for and refused under the Rules, by the Applicant, or any of the interested parties, or any of their affiliated or related undertakings:

None.



List of documents enclosed with K-Electric Ltd's Pipeline Application

Rule	Description	Remarks
✓ 4(2)	Names and addresses of current Directors of the Applicant.	Annex A
✓ 4(3)(a)	Name and address of any person or corporate body with a holding of 1% or more in the Applicant.	Annex B
✓ 4(3)(b)	Attested copies of the memorandum and articles of association of the Applicant.	Annex C
✓ 4(3)(c)	Attested copy of the Applicant's certificate of commencement of business.	Annex D
✓ 4(3)(d)	Attested copy of the latest yearly submission to the Registrar of Companies.	Annex E
✓ 4(3)(e)	Attested copy of the latest audited annual and unaudited half yearly financial statements of the Applicant.	Annex F 2019 Annual Report separately attached as it is a bound booklet. Half yearly financial statement to end 2019 to be provided when prepared.
✓ 4(3)(f)	Attested copy of the corporate authorizations allowing the submission of the application.	Annex G
4(3)(g)	In the case of an applicant being a subsidiary company, the documents specified in clauses (d) to (f) of this sub-rule, pertaining to its holding company.	Annex H Note – holding company is registered in the Cayman Islands where no annual return or accounts are required to be filed. 2x
4(3)(h)	Details of the consents required under applicable laws, from persons other than the Authority, for carrying on the relevant regulated activities and the status of such consents.	Right-of-Way (RoW) from the Port Qasim Authority (PQA); Chief Inspector of Explosives (CIE), and environmental approval from the EPA/SEPA; the status of each and any other will be provided as the process progresses.
4(3)(i)	Details of the technical and financial expertise and resources available for carrying on the relevant regulated activities.	Annex I
4(3)(j)	Details of the resources and expertise available to handle emergency situations arising out of natural calamities, accidental or criminal acts or omissions, specifying which such resources are available and which are to be procured.	Annex J
4(3)(k)	A list of the names and business addresses of the Applicant's senior management, including without limitation, departmental and/or divisional heads.	Annex K

4(3)(k)	If the Applicant or any of its officers or directors, directly or indirectly, owns, controls, or holds ten percent or more of the voting interest in any other person engaged in the production, transmission, distribution, or sale of natural gas, or in any person engaged in the financing, construction, maintenance or operation of such facilities, a detailed explanation of each such relationship, including the percentage of voting interest owned, held or controlled.	Whilst not strictly applicable, in the interest of full disclosure, it may be mentioned that a non-executive director of the Applicant, Dr. Ahmed Mujtaba Memon (GoP nominee), is also a director of SSGC.
4(3)(l)	A list of all other applications, petitions or filings filed by the applicant which are pending before the Authority at the time of the filing of this application and which directly and significantly affect this application, including an explanation of any material effect the grant or denial of those other applications, petitions or filings will have on this application and of any material effect the grant or denial of this application will have on those other applications, petitions or filings.	None
4(3)(m)	Details of the following market data: (i) an estimate of the volume of natural gas to be transmitted, distributed or sold; (ii) number and consumption details of consumers; (iii) the applicant's total annual peak day natural gas requirement; (iv) total past (if applicable) and expected curtailments of service by the applicant.	(i) Transmission of 150MMCFD with future provision of additional 100MMCFD for Bin Qasim Power Complex; (ii) Self consumption at Bin Qasim Power Complex; (iii) 150MMCFD with future provision of additional 300MMCFD; (iv) Not Applicable
4(3)(n)	Such other information or documentation as the Authority may, from time to time, require, including without limitation, supplementary information or documentation required by the Authority to clarify the information contained in the application.	Details will be provided, as required.
4(4)(a)	Maps issued or certified by the Survey of Pakistan, drawn to an appropriate scale showing details of areas where the transmission facilities are or are proposed to be located and the principal geographical features of the said areas, including without limitation, details of mountains, rivers, streams, roads, buildings or construction habitation.	Annex L, including original large-size Survey of Pakistan map in plastic sleeve.
4(4)(b)	Details of the sources and quality of supply of natural gas including forecasts of the available quantity from such sources.	Pakistan (NG) Ltd. (PLL) shall supply 150MMCFD ALNG at Qasim with specifications as per Annex M.



4(4)(c)	Details of how the Applicant proposes to meet the safety and service obligations by the Authority.	The Applicant has a stringent HSEQ policy (see Annex N). Furthermore, the EPC Contractor will supplement the existing Policy to ensure the safety and service obligations of the Authority are maintained.
4(4)(d)	Details of capacity and estimated throughput, of the transmission facilities, per annum for ten years following the proposed grant of the licence.	250MMCFD (Capacity), including 100MMCFD capacity, kept as future provision. 91,250 MMCF (estimated throughput per year, including 36,500 MMCF per annum throughput as future provision).
4(4)(e)	Technical specifications of the transmission facilities (existing and proposed), including without limitation, specifications for the design construction, operation and maintenance of the facilities.	Annex Q

K-Electric Board of Directors

S. No.	Name	Position	Address
1	Reyadh S.A.A. Edrees	Chairman	Mubarak Al Abdulla, Block-2, Street 209, House 41, P.O. Box 417, Post Code 13005, Kuwait
2	Syed Moanis Abdullah Alvi	Chief Executive Officer	House No.12, Park Lane-1, Street-17, Khayaban-e-Salier Phase-6, DHA, Karachi
3	Adeeb Ahmad	Non-Executive Director	H. No.23-B, 3rd Giza Street, Phase-4, DHA, Karachi
4	Chaudhary Khagan Saudullah Khan	Non-Executive Director	House No 75/1, Street 11, Khayaban-e-Badr, DHA Phase 6, Karachi
5	Dr. Ahmed Mujtaba Merion	Non-Executive Director	H. No. D-150/2, Block-2, Clifton, Karachi
6	Ianail Akbar	Non-Executive Director	42/1, 23rd Street, Off Khayaban-e-Murhid, DHA-5, Karachi
7	Khalid Rafi	Independent Director	8-C, Khayaban-e-Shujaan Ph-V, DHA, Karachi
8	Mubasher H. Sheikh	Non-Executive Director	House BR-640/P, Eidgah Scheme, Rawalpindi
9	Muhammad Abul Lakhari	Non-Executive Director	H. No 34, Main Khayaban-e-Ittehad, Phase-VI, DHA, Karachi.
10	Ruhail Muhammad	Non-Executive Director	House No 101/1, Khayaban-e-Badr, Phase-V, Karachi
11	Shao A. Ashary	Non-Executive Director	PO Box 54308, Riyadh 11514, Saudi Arabia
12	Syed Asad Ali Shah Jilani	Non-Executive Director	H.No 70/1, Street No.3, Off Khayaban-e-Badr, Phase-6, DHA, Karachi
13	Wasim Mukhtar	Non-Executive Director	Flat No 14-B, 48-Family SITE, G-5, Islamabad



Annexure B 12

**CATEGORIES OF SHAREHOLDERS
AS ON December 31, 2019
ORDINARY SHARES**

Categories of Shareholders

Number	Total	
	Shares	%age

Associated companies, undertakings and related parties
AND / OR

Shareholders holding five percent or more voting rights
in the Company.

KES Power Limited (Holding Company)

1

18,335,542,678

66.40

President of the Islamic Republic of Pakistan (GOP)

1

6,726,912,278

24.36

Mutual Funds

CDC - TRUSTEE PICIC INVESTMENT FUND	1	4,130,500	0.01
CDC - TRUSTEE PICIC GROWTH FUND	1	5,875,500	0.02
CDC - TRUSTEE ATLAS STOCK MARKET FUND	1	6,750,000	0.02
CDC - TRUSTEE MEEZAN BALANCED FUND	1	18,742,000	0.07
CDC - TRUSTEE FAYSAI STOCK FUND	1	200,000	0.00
CDC - TRUSTEE ALFALAH GHP VALUE FUND	1	502,500	0.00
CDC - TRUSTEE AKD INDEX TRACKER FUND	1	650,648	0.00
CDC - TRUSTEE HDL ENERGY FUND	1	8,013,000	0.03
CDC - TRUSTEE AKD OPPORTUNITY FUND	1	25,000,000	0.09
CDC - TRUSTEE AL MEEZAN MUTUAL FUND	1	31,747,500	0.11
CDC - TRUSTEE MEEZAN ISLAMIC FUND	1	188,293,000	0.68
CDC - TRUSTEE UBL STOCK ADVANTAGE FUND	1	4,400,484	0.02
CDC - TRUSTEE ATLAS ISLAMIC STOCK FUND	1	3,200,000	0.01
CDC - TRUSTEE AL-AMEEN SHARAH STOCK FUND	1	8,000,673	0.03
CDC - TRUSTEE NBP STOCK FUND	1	10,164,000	0.04
CDC - TRUSTEE NBP BALANCED FUND	1	355,000	0.00
CDC - TRUSTEE ASKARI ASSET ALLOCATION FUND	1	509,500	0.00
CDC - TRUSTEE MEEZAN TAHAFUZZ PENSION FUND - EQUITY SUB FUND	1	26,995,500	0.10
CDC - TRUSTEE APS-EQUITY SUB FUND	1	350,000	0.00
CDC - TRUSTEE ALFALAH GHP ISLAMIC STOCK FUND	1	5,093,000	0.02
CDC - TRUSTEE HBL - STOCK FUND	1	6,143,000	0.02
CDC - TRUSTEE NBP ISLAMIC SARIMAYA IZAFAT FUND	1	2,753,500	0.01
CDC - TRUSTEE APS - EQUITY SUB FUND	1	1,005,000	0.00
CDC - TRUSTEE HBL MULTI - ASSET FUND	1	186,000	0.00
CDC - TRUSTEE ALFALAH GHP STOCK FUND	1	1,315,000	0.00
CDC - TRUSTEE ALFALAH GHP ALPHA FUND	1	903,000	0.00
CDC - TRUSTEE ABL STOCK FUND	1	8,000,000	0.03
CDC - TRUSTEE FIRST HABIB STOCK FUND	1	100,000	0.00
CDC - TRUSTEE NBP SARIMAYA IZAFAT FUND	1	625,000	0.00
CDC - TRUSTEE NBP MAHANA AMMANI FUND - MT	1	391,500	0.00
CDC-TRUSTEE HBL ISLAMIC STOCK FUND	1	3,320,000	0.01
CDC - TRUSTEE HBL EQUITY FUND	1	780,500	0.00
CDC - TRUSTEE HDL NF EQUITY SUB FUND	1	823,500	0.00
CDC - TRUSTEE HBL PF EQUITY SUB FUND	1	805,000	0.00
CDC - TRUSTEE KSE MEEZAN INDEX FUND	1	6,807,040	0.02
MCBFSL - TRUSTEE PAK OMAN ADVANTAGE ASSET ALLOCATION FUND	1	505,000	0.00
MCBFSL - TRUSTEE PAK OMAN ISLAMIC ASSET ALLOCATION FUND	1	1,086,000	0.00



[Signature]

MOHAMMAD RIZWAN DILAN
Company Secretary
K-10-SEC-TRC LIMITED

CDC-TRUSTEE FIRST HABIB ISLAMIC STOCK FUND	1	100,000	0.00
MCBPSL-TRUSTEE ABL ISLAMIC STOCK FUND	1	4,000,000	0.01
CDC-TRUSTEE AL-AMEEN ISLAMIC ASSET ALLOCATION FUND	1	907,126	0.00
CDC-TRUSTEE FAYSAL SAVINGS GROWTH FUND - MT	1	2,000	0.00
CDC-TRUSTEE AL-AMEEN ISLAMIC RET. SAV. FUND-EQUITY SUB FUND	1	1,560,000	0.01
CDC-TRUSTEE UBL RETIREMENT SAVINGS FUND - EQUITY SUB FUND	1	837,500	0.00
CDC-TRUSTEE NATIONAL INVESTMENT (UNIT) TRUST	1	4,673,775	0.02
CDC-TRUSTEE HBL ISLAMIC EQUITY FUND	1	2,502,500	0.01
CDC-TRUSTEE ABL ISLAMIC PENSION FUND - EQUITY SUB FUND	1	345,000	0.00
CDC-TRUSTEE ABL PENSION FUND - EQUITY SUB FUND	1	120,000	0.00
CDC-TRUSTEE NBP ISLAMIC STOCK FUND	1	3,133,000	0.01
CDC-TRUSTEE NBP INCOME OPPORTUNITY FUND - MT	1	1,408,500	0.01
CDC-TRUSTEE NBP SAVINGS FUND - MT	1	381,000	0.00
CDC-TRUSTEE FAYSAL ISLAMIC ASSET ALLOCATION FUND	1	200,000	0.00
CDC-TRUSTEE AL-AMEEN ISLAMIC DEDICATED EQUITY FUND	1	2,111,330	0.01
CDC-TRUSTEE NBP ISLAMIC ACTIVE ALLOCATION EQUITY FUND	2	901,500	0.00
CDC-TRUSTEE HBL ISLAMIC ASSET ALLOCATION FUND	1	656,500	0.00
CDC-TRUSTEE FAYSAL MTS FUND - MT	1	12,446,000	0.05
CDC-TRUSTEE MEEZAN ASSET ALLOCATION FUND	1	11,225,000	0.04
CDC-TRUSTEE NBP ISLAMIC ENERGY FUND	1	3,320,500	0.01
CDC-TRUSTEE MEEZAN ENERGY FUND	1	6,141,000	0.02
MCBPSL-TRUSTEE ABL ISLAMIC DEDICATED STOCK FUND	1	1,061,500	0.00
CDC-TRUSTEE UBL INCOME OPPORTUNITY FUND - MT	1	40,000	0.00
CDC-TRUSTEE AGPF EQUITY SUB-FUND	1	40,000	0.00
CDC-TRUSTEE AGPF EQUITY SUB-FUND	1	33,000	0.00
CDC-TRUSTEE UBL CAPITAL PROTECTED FUND III	1	100,000	0.00
CDC-TRUSTEE ALFALAH GMP ISLAMIC DEDICATED EQUITY FUND	1	412,000	0.00
CDC-TRUSTEE MEEZAN DEDICATED EQUITY FUND	1	7,754,500	0.03
CDC-TRUSTEE ALFALAH GMP ISLAMIC VALUE FUND	1	137,000	0.00
MCBPSL-TRUSTEE AKD ISLAMIC STOCK FUND	1	743,000	0.00
CDC-TRUSTEE ALFALAH CAPITAL PRESERVATION FUND II	1	506,500	0.00
CDC-TRUSTEE AL-AMEEN ISLAMIC ENERGY FUND	1	855,434	0.00
MCBPSL-TRUSTEE ABL ISLAMIC ASSET ALLOCATION FUND	1	300,000	0.00
CDC-TRUSTEE UBL DEDICATED EQUITY FUND	1	8,953	0.00
MCBPSL-TRUSTEE HBL ISLAMIC DEDICATED EQUITY FUND	1	530,000	0.00
CDC-TRUSTEE ALLIED FINERGY FUND	1	800,000	0.00
CDC-TRUSTEE ATLAS ISLAMIC DEDICATED STOCK FUND	1	528,500	0.00
CDC-TRUSTEE GOLDEN ARROW STOCK FUND	1	12,600,000	0.05
Directors, CEO & their Spouse and Minor Children	1	500	0.00
Executives	3	30,100	0.00
Public Sector Companies and Corporations	15	55,777,112	0.20
Banks, Development Finance Institutions, Non-Banking Finance Companies, Insurance Companies, Takaful, Mudarabah and Venture Funds			
Banks, Financial Institutions	30	252,856,543	0.92
Investment Companies	5	26,917	0.00
Insurance Companies	20	20,348,240	0.07
Joint Stock Companies	232	410,010,975	1.48
Mudarabah Management Companies	3	23,301	0.00



[Signature]

MUHAMMAD AZHARUDDIN
Company Secretary
K-ELECTRIC LIMITED

Moderabas	14	2,899,835	0.01
Charitable Trusts	17	972,013	0.00
Leasing Companies	-	-	-
General Public - Local	24,197	1,243,965,138	6.50
Foreign Shareholders	88	73,168,759	0.26
Others	52	24,618,651	0.09
	24,754	27,615,194,246	100.00

[Handwritten Signature]



WILLIAM ROBERT DALL
Company Secretary
K-ELLECTRIC LIMITED



Karachi Electric Supply Company Ltd.

formerly: Karachi Electric Supply Corporation Ltd.

2nd Floor, Handicraft Bldg., Abdullah Haroon Road, Saddar, Karachi-74400

CERTIFIED TRUE COPY OF THE SPECIAL RESOLUTIONS PASSED AT THE EXTRA-ORDINARY GENERAL MEETING OF THE MEMBERS OF THE COMPANY HELD ON 22 JANUARY 1999

"RESOLVED that the authorized capital of the company be and is, hereby, increased from Rs.2,500,000,000 (Rupees Two Billion Five Hundred Million) to Rs.10,000,000,000 (Rupees Ten Billion)."

"FURTHER RESOLVED that Clause V of the Memorandum of Association of the company be and is, hereby, substituted with the following: -

"The share capital of the company is Rs.10,000,000,000 (Rupees Ten Billion) divided into 1,000,000,000 ordinary shares of Rs.10/- each."

"FURTHER RESOLVED that Article No.6 of the KESC Articles of Association be and is, hereby, substituted with the following: -

"The authorized capital of the Company is Rs.10,000,000,000 (Rupees Ten Billion) divided into 1,000,000,000 ordinary shares of Rs.10/- each."

"RESOLVED that the conversion of Government of Pakistan interest bearing loans of Rs.3,045,123 Billion into equity and the issue of further capital to that extent without making a rights issue be and is, hereby, approved subject to the approval of the Federal Government / Corporate Law Authority as required u/s 86 of the Companies Ordinance 1984."

"FURTHER RESOLVED that the Directors of the Company be and are, hereby, authorized to take all necessary steps in this regard, approve the terms (other than as specified herein) of and effect issuance of 30,512,300 ordinary shares of Rs.10/- each fully paid up at par in full & final settlement of G.O.P. loans of Rs.3,045,123,000 (Rupees Three Billion Forty-Five Million One Hundred Twenty Three Thousand only) subject to completion of all legal requirements envisaged under Companies Ordinance 1984 and KESC Memorandum & Articles of Association. The above shares will rank pari passu in every respect with the existing capital of the company."



TRUE COPY
Witnessed by
Secretary to the Company
KARACHI ELECTRIC SUPPLY CO. LTD.



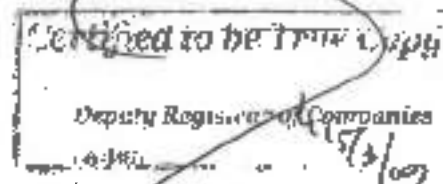
Handwritten signature
Corporate Secretary
Karachi Electric Supply Corp

receipt or other act for conformity, or for any loss or expense happening to Company through the insufficiency or deficiency of title to any property acquired by order of the Directors, Chief Executive, Chairman, or other officer for or on behalf of the Company, or for the insufficiency or deficiency of any security in or upon which any of the moneys of the Company shall be invested, or for any loss or damage arising from the bankruptcy, insolvency or tortious act of any person with whom any money, securities or effect shall be deposited, or for any loss occasioned by any error of judgment or oversight on his part, or for any other loss, damage or misfortune whatever which shall happen in the execution of duties of his office or in relation thereto, unless the same happens through his own willful act, default or dishonesty.

WE, the several persons whose names and addresses are subscribed, are desirous of being formed 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 set opposite our respective names.

Dated this Sixth Day of September, 1913

Name of Subscriber	Address and Description of Subscriber	Number of Ordinary Shares taken by each Subscriber	Witness to Signature
T.L.F. Beaumont	Merchant, Karachi	1 (one)	
Ghulamali G. Chagla	Merchant, Karachi	1 (one)	
Nadirshaw E. Dinshaw	Merchant, Karachi	1 (one)	
W. U. Nicholas	Merchant, Karachi	1 (one)	
B. Frank Jones	Merchant, Karachi	1 (one)	
Chellaram Dulloomal	Merchant, Karachi	1 (one)	
Abdool Rahim Saleh Mohamed	Merchant, Karachi	1 (one)	



would be entitled to receive notice of the meeting, and (c) to the Auditors of the Company for the time being.

NO SHAREHOLDERS TO ENTER THE PREMISES OF THE COMPANY WITHOUT PERMISSION

102. No Member or other person (not being a Director) 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 Board or the Chairman, or Chief Executive, and to require disclosure of any information respecting any details 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 to/of the conduct of the business of the Company and which in the opinion of the Board or the Chief Executive will be inexpedient in the interest of the Members to communicate.

SECRECY

103. Every Director, Chief Executive, Chairman, Manager, Auditor, Trustee, Member of Committee, Officer, Servant, Agent, Accountant, or other person employed in the business of the Company shall, if so required by the Board before entering upon his duties, sign a declaration in the form approved by the Board pledging himself to observe strict secrecy representing all transactions of the Company with the customers and the state of accounts with individuals and in matters relating thereto, and shall by declaration pledge himself not to reveal any of the matters which may come to his knowledge in the discharge of his duties except when required so to do by the Board, or by any Annual General Meeting, or by a court of law, and except so far as may be necessary in order to comply with any provisions in these presents contained.

WINDING UP DISTRIBUTIONS OF ASSETS ON WINDING UP

- 104(i) If the Company shall be 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 amongst the Members in specie or kind, the whole or any part of the assets of the Company, whether they consist of property of same kind or not.
- (ii) For purpose aforesaid, the liquidator may set such value as he deems fair upon any property to be divided as aforesaid and may determine how such division shall be carried out as between the Members or different classes of Members.
- (iii) The liquidator may, with the like sanction, vest the whole or any part of such assets in Trustees upon such trust for the benefit of the contributories as the liquidator, with the like sanction, thinks fit but so that no Member shall be compelled to accept any shares or other securities whereon there is any liability.

INDEMNITY

105. Every Director, Chief Executive, Chairman, Manager or Officer of the Company or any person (whether an officer of the Company or not) employed by the Company as Auditor or Adviser, shall be indemnified out of the funds of the Company against any liability incurred by him as such Director, Chief Executive, Chairman, Manager, Officer, Auditor, or Adviser in defending any proceedings, whether civil or criminal, in which judgment is given in connection with any application under Section 498 of the Ordinance in which relief is granted to him by Court.

INDIVIDUAL RESPONSIBILITY OF DIRECTORS

106. No Director, Chief Executive, Chairman, or other officer of the Company will be liable for the acts, receipts, neglects or defaults of any other Director or Officer or for joining any

and profit and loss accounts, auditors' report and directors' report (annual audited accounts) to its members through CD/DVD/USB at their registered addresses. However, if a member prefers to receive hard copies for all the future annual audited accounts then such preference of the member shall be given to the Company in writing and thereafter the Company shall provide hard copies of all the future annual audited accounts to such member.

AUDIT
APPOINTMENT OF AUDITORS AND THEIR DUTIES

95. Auditors shall be appointed and their duties regulated in accordance with Sections 252 to 255.

NOTICES
HOW NOTICE TO BE SERVED ON MEMBERS

96. A notice may be given by the Company to any Member or Director either personally or by sending it by post to him at his registered address or, (If he has no registered address in Pakistan), to the address, if any, within or outside Pakistan supplied by him to the Company for the giving of notice to him. A notice may be given by telex or facsimile transmission.

SERVICE BY POST

97. 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.

NOTICE TO MEMBERS ABROAD BY ADVERTISING IN NEWSPAPERS

98. If a Member or Director has no registered address in Pakistan and has not supplied to the Company an address within or outside Pakistan for the giving of notices to him, a notice addressed to him or to the shareholders generally and advertised in a newspaper circulating in the Province in which the Office is situated shall be deemed to be duly given to him on the day on which the advertisement appears.

NOTICE TO JOINT HOLDER

99. A notice shall be deemed to be given by the Company to the joint-holder of a share by giving the notice to the joint-holder named first in the Register in respect of the share.

NOTICE TO PERSONS ENTITLED BY TRANSMISSION

100. 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 or 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 persons 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 have been given if the death or insolvency had not occurred.

MANAGING DIRECTOR
COMPANY SECRETARY
M-ELECTRIC LIMITED

NOTICE OF GENERAL MEETING

101. Notice of every General Meeting shall be given in same manner herein before authorized to (a) every Member of the Company except those Member who, having no registered address within Pakistan, have not supplied to the Company an address within or outside Pakistan for the giving of notices to them and also to (b) every person entitled to a share in consequence of the death or insolvency of Member, who but for his death or insolvency

become entitled thereto as capital. All or any part of such capitalized fund may be applied on behalf of such shareholders for payment in full or in part either at par or at such premium as the resolution may provide, for any un-issued shares or Debentures of the Company which shall be distributed accordingly, and such distribution or payment shall be accepted by such shareholders in full satisfaction of their interest in the said capitalized sum.

ACCOUNTS BOOKS OF ACCOUNT TO BE KEPT

89. The Board shall cause to be kept proper books of account as required under the Ordinance.

WHERE BOOKS TO BE KEPT

90. The books of account shall be kept at the office or at such other place as the Board shall think fit and shall be opened to inspection by Directors during business hours.

INSPECTION BY MEMBERS

91. The Board shall from time to time determine whether and to what extent and at what time and places and under what conditions or regulations the accounts and books or papers of the Company or any of them shall be opened to inspection of the Members, and no Member (not being a Director) shall have any right of inspecting any account and books or papers of the Company except as conferred by law or authorized by the Board or by Special Resolution.

PROFIT AND LOSS ACCOUNT AND BALANCE SHEET

92. Within eighteen months of the incorporation of the Company, and subsequently not less than in every calendar year, the Directors shall cause to be prepared and lay before the Company in General Meeting a balance sheet and profit and loss account, both made up in accordance with Ordinance and to a date not more than four months before the date of the Meeting for the period, in the case of first balance sheet and profit and loss account, since incorporation of the Company, and in case of any subsequent balance sheet and profit and loss account, since the preceding account. Every such balance sheet shall be accompanied by an Auditor's report and the Directors' report in accordance with the provisions of the Ordinance in that behalf.

COMPLIANCE WITH ORDINANCE

93. The Directors shall in all respects comply with Sections 230 to 236 in regard to accounts of the Company.

COPIES OF DIRECTORS' REPORT AND BALANCE SHEET TO BE SENT TO MEMBERS

94. A copy of the Balance Sheet and Profit and Loss Account together with a copy of the Auditor's Report and Directors' Report shall be sent to all Members along with the notice convening the Annual General Meeting before which same are required to be laid at least twenty-one days preceding the meeting.

- 94-A: The Company may, with prior consent of the member(s), circulate notices of general meetings and annual balance sheet and profit and loss account, auditors' report and directors' report (annual audited accounts) to its member(s) through email. Further, the Company may, with consent of the members obtained in general meeting in accordance with the provisions of SECP's SRO No.470(1)/2014 dated 31 May 2014 and subject to compliance with the conditions specified therein, and any other conditions / instructions as notified by SECP from time to time in this respect, circulate the annual balance sheet

[Signature]
MEMBERS REMINDERS
Company Secretary
E-MAIL: ELM@ELECTRIC LIMITED

share is issued on the terms that it shall rank for Dividend as from a particular date, such share shall rank for Dividend accordingly.

DIVIDENDS HOW PAID

- 82a. Every Dividend after it is declared shall be paid by crossed cheques or Dividend warrants to be delivered or sent by post to, and at the sole risk of the Members entitled thereto, at the registered addresses of the Members or their agents as provided in Section 250 of the Ordinance and the Company shall not be liable for any loss sustained by a Member by reason of any forged endorsement of any cheque or warrant or the fraudulent recovery by any other person.

POWER OF BOARD TO CREATE RESERVE

83. The Board may before recommending any Dividend, set aside out of the profits of the Company such sum as it thinks proper as a reserve or reserves, which shall, at the discretion of the Board, be applicable for meeting contingencies, or for equalizing Dividends, or for any other purpose to which the profits of the Company may be properly applied, and pending such application may, in the like discretion, either be employed in the business of the Company or be invested in such investments, (other than shares of the Company), as the Board may from time to time think fit.

RECEIPTS FOR DIVIDENDS BY JOINT HOLDERS

84. If several persons are registered as joint holders of any share, any one of them may give effectual receipts for any Dividends payable on the share.

NO INTEREST ON DIVIDENDS

85. No Dividends shall bear interest against the Company. The Dividends shall be paid within the period laid down in the Ordinance.

PAYMENT BY POST

- 86(a) Any Dividend may be paid by Cheque or warrant sent through the post at the registered address of the Member or person entitled thereto, or in the case of joint holders to any one of such joint holders at his registered address, or to such person and at such address as the Member or person entitled or such joint holders, as the case may be, may direct. Every such cheque or warrant shall be made payable to the order of the person to whom it is sent, or to the order of such other person as the Member or person entitled or such joint holders, as the case may be, may direct.

- (b) Unclaimed Dividends may be invested or otherwise used by Board for the benefit of the Company until claimed.

CARRYING FORWARD OF PROFITS

87. The Directors may carry forward any profit which they may think prudent not to distribute without setting them aside as a reserve.

CAPITALISATION CAPITALISATION OF RESERVES

88. Any General Meeting may, upon recommendation of the Board, by ordinary resolution resolve that any undistributed profits of the Company (including profits carried and standing to the credit of any reserve or reserves or other special accounts or representing premiums received on the issue of shares and standing to the Credit of the share premium account and capital reserve arising from realized or unrealized appreciation of the assets or goodwill of the Company or from any acquisition/sale of interests in other undertakings) be capitalized. Such capital undistributed profits and reserve shall be distributed amongst such of the shareholders as would be entitled to receive the same if distributed by way of Dividend, and in the same proportions, on the footing that they

WILLIAMSON PETERSON SALLA
Company Secretary
K-15/ECT/116-1/2012

remove a Chief Executive before the expiration of his term of office notwithstanding anything contained in these Articles or in any agreement between the Company and the Chief Executive.

- (vi) The terms and conditions of appointment of the Chief Executive shall be determined by the Board which shall also determine his remuneration.

POWERS OF CHIEF EXECUTIVE

77. The Chief Executive shall have overall authority over and responsibility for the management of the affairs of the Company and the conduct, and the custody and maintenance of its properties, assets, records and accounts in accordance with the policies and guidelines established by the Board.

In addition, the Board may entrust to and confer upon Chief Executive any of the powers exercisable by the Board other than the powers which are required to be compulsorily exercised under the Ordinance by the Board at its meeting upon such terms and conditions and with such restrictions as it may think fit, and may from time to time revoke, withdraw, alter, vary all or any of such powers.

THE SEAL CUSTODY OF SEAL

78. The Board shall provide a Common Seal for the purposes of the Company and for the safe custody of the Seal, and the Seal shall never be used except by the authority of the Board or a Committee of Directors previously given, and one Director at least shall sign (in the same manner as provided for in Article 14) on every instrument to which the Seal is affixed; provided nevertheless, that any instruments bearing the Seal of the Company and issued for valuable consideration shall be binding on the Company notwithstanding any irregularity touching any authority to make the same. The Board shall also have power to destroy the Seal and substitute a new Seal thereof, if necessary.

DIVIDENDS AND RESERVES DECLARATION OF DIVIDENDS AND RESTRICTION OF AMOUNT THEREOF

79. The Company in General Meeting may declare Dividends, but no Dividends shall exceed the amount recommended by the Board.

INTERIM DIVIDEND

80. The Board may from time to time pay to the Members such Interim Dividends as appear to be justified by the profit of the Company.

DIVIDEND OUT OF PROFITS ONLY

81. No Dividends shall be paid otherwise than out of profits of the year, or any other undistributed profits of prior years.

DECLARATION OF DIVIDENDS IN SPECIE

- 81a. Any declaration of a Dividend may state that such Dividend shall be paid wholly or in part by the distribution of specific assets and in particular of paid up shares, Debentures or debenture stock of the Company or paid up shares, debenture stock of any other Company, or in any one or more of such ways.

DISTRIBUTION OF DIVIDENDS

82. Subject to the rights of any persons entitled to shares with special rights as to Dividends, the profits distributed as Dividends shall be distributed among the shareholders and all Dividends shall be declared and paid according to the amounts paid on the shares. If any

fifteen minutes of the time fixed for the meeting choose one of their Members to be chairman of such meeting.

**WHEN ACTS OF DIRECTORS OR COMMITTEE
VALID NOTWITHSTANDING DEFECTIVE APPOINTMENT**

72. All acts by any meeting of the Board or of a Committee of Directors, or by any person acting as Director or Alternate Director shall, notwithstanding that it be afterwards discovered that there was some defect in the appointment of any such Directors or persons acting as aforesaid, or that they or any of them were disqualified, be as valid as if every such Director or person had been duly appointed and was qualified to act. Provided that as soon as any such defect has come to notice, the Director or other person concerned shall not exercise the right of this office till the defect has been rectified.

RESOLUTION BY CIRCULATION

73. Except for the matters as are required by Section 196 of the Ordinance to be decided at a meeting of the Board, a resolution in writing signed by majority of the Directors shall be effective as if such resolution had been passed at a meeting of the Directors.

COMMITTEE OF DIRECTORS

74. The Board may from time to time delegate all, or any of their powers not required to be exercised at a meeting of the Board, to a committee or committees consisting of two or more Directors as the Board thinks fit. Any committee so formed shall conform to any regulations that may be imposed upon it by the Board and shall be governed, in the exercise of the powers so delegated, by the provisions herein contained for regulating meetings and proceedings applicable to the Directors.

**CHAIRMAN AND CHIEF EXECUTIVE
APPOINTMENT OF CHAIRMAN**

75. Upon the first appointment, and thereafter upon each election of Directors, the Directors shall (i) appoint as the Chairman of the Board of Directors and (ii) determine the period for which he is to hold office.

APPOINTMENT OF CHIEF EXECUTIVE

- 76(a) The Board shall within fifteen days of the Incorporation of the Company appoint an individual (including a Director) as the Chief Executive of the Company designated as the Chief Executive. The first Chief Executive shall hold office until the first Annual General Meeting of the Company (unless he earlier resigns or otherwise ceases to hold office) or until the expiry of a shorter period if the Board had fixed a shorter period for this appointment. If the Chief Executive ceases to hold office before the first Annual General Meeting, the Board shall fill the vacancy within fourteen days, but the person appointed to fill the vacancy shall hold office only till the first Annual General Meeting.
- (ii) Within fourteen (14) days from the date of an election of Directors under Article 36 or within fourteen (14) days from the date on which office of the Chief Executive falls vacant for whatsoever reason, the Board shall appoint any person (including an elected Director) to be the Chief Executive of the Company, but such appointment shall not be for a period exceeding three (3) years from the date of appointment.
- (iii) Upon the expiry of an appointment under clauses (i) and (ii) above a Chief Executive shall be eligible for re-appointment.
- (iv) The Chief Executive shall, if he is not already a Director of the Company, be deemed to be its Director and be entitled to all the rights and privileges, and subject to all liabilities of the office of Director of the Company.
- (v) The Directors of the Company by a resolution passed by not less than three-fourth of the total number of Directors for the time being, or the Company by Special Resolution, may

[Signature]
 MUHAMMAD AZHAR DAZA
 Company Secretary
 K-ELECTRIC LTD

RETIRING DIRECTOR SHALL BE ELIGIBLE FOR RE-ELECTION

- 67a. A retiring Director shall be eligible for re-election. The retiring Directors shall continue to perform their functions until their successors are elected in the manner prescribed by these Articles and the Ordinance.

ALTERNATE DIRECTOR POWER TO APPOINT ALTERNATE DIRECTOR

68. Any Director not permanently resident in Pakistan or any Director so resident but intending to be absent from Pakistan for a period of not less than three months may appoint any person acceptable to the Board to be an Alternate Director of the company to act for him. Every such appointment shall be in writing under the hand of the Director making the appointment. An Alternate Director so appointed shall not be entitled to appoint any other Director, but shall otherwise be subject to provisions of the Articles with regards to Directors, except that he need not be a Member nor shall he require any share qualification. An Alternate Director shall be entitled to receive notices of all meetings of the Board, and to attend and vote as a Director at any such meeting at which the Director appointing him is not personally present, and generally to perform all the functions of his appointer as Director in the absence of such appointer. An Alternate Director shall ipso facto cease to be an Alternate Director if his appointer for any reason ceases to be a Director or if and when his appointer comes or returns to Pakistan, or if the appointee is removed from office by notice in writing under the hand of the appointer.

The appointment of an alternate Director will constitute leave of absence from the Board for the Director for whom such alternate is appointed during such Director's absence.

PROCEEDINGS OF DIRECTORS MEETING OF DIRECTORS

69. The Directors may meet together for the dispatch of business, adjourn, and otherwise regulate meetings of the Board as they think fit. A Resolution moved at any meetings of Directors shall be passed by a majority vote. The Chief Executive or the Secretary may at any time and shall on the written requisition of two Directors at any time, summon a meeting of the Board, unless otherwise decided by the Board, at least seven clear days notice must be given to all Directors to summon a meeting of the Board, and such notice shall set forth the purpose or purposes for which such meeting is summoned. With the consent of all the Directors entitled to receive notice of meeting, or to attend or vote at, any such meeting of the Board may be convened by shorter notice than specified in this Article.

Any Director may waive notice of the time, place and purpose of any meeting of directors either before, at or after such meeting.

- 69-A. The meetings of the Board of Directors and Committees of Directors in emergent situations may be held through tele / video conferencing pursuant to such conditions and guidelines specified by SECP from time to time.

- 69-B. The Directors shall meet together at least once in every quarter of every financial year.

QUORUM OF DIRECTOR'S MEETING AND POWERS

70. A meeting of the Board for the time being at which a quorum is present shall be competent to exercise all or any of the authorities, powers and discretion by or under the Article vested in or exercisable by the Board generally. Six Directors or 1/3rd of their number whichever is greater, for the time being personally present shall constitute a quorum, subject to the provisions of the Ordinance. For the purpose of calculating one-third any fraction shall be ignored.

CHAIRMAN

71. The Chairman shall, whenever present, act as Chairman at each meeting of the Board, but if at any meeting the chairman is present and not willing to act or is absent beyond ten minutes after the time fixed for holding the same, the Directors present shall within

- (a) a person representing the Government or an institution or authority which is a Member;
 - (b) a whole-time Director who is an employee of the company;
 - (c) a Chief Executive; or
 - (d) A person representing a creditor.
- (B) he absents himself from three consecutive meetings of the Directors or from all the meetings of the Directors for a continuous period of three months, whichever is the longer, without leave of absence from the Directors;
- (C) ~~he or any firm of which he is a partner or any private company of which he is a Director:~~
- (i) without the sanction of the Company in General Meeting accepts or holds any office of profit under the Company other than of Chief Executive or a legal or technical adviser or a banker; or
 - (ii) accepts a loan or guarantee from the company in contravention of Section 195 (if applicable in terms of that Section);
- (D) he resigns his office by notice in writing to the company;
- (E) he, being a Director who is an employee of the Company, ceases to be an employee of the Company for whatever reason.
- (F) he does not hold or ceases to hold the share qualification, if any necessary for his appointment.

POWERS OF DIRECTORS

65. The control of the Company shall be vested in the Board and the business of the Company shall be managed by the Board, which may pay all expenses incurred in forming and registering the Company, and may exercise all such powers of the Company as are not by the Ordinance or by these Articles required to be exercised by the Company in General Meeting subject nevertheless to the regulations of these Articles to the provisions of the Ordinance and such regulations (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 Board which would have been valid if the regulation had not been made.

POWER TO OBTAIN FINANCES AND ISSUING SECURITIES

66. The Board may exercise all the powers of the Company to borrow and mortgage or charge its undertaking, property and assets, (both present and future), and to issue Debentures and other securities, whether outright or as collateral security for any debt, liability or obligation of the Company, or of any third party.

DIRECTORS TO COMPLY WITH THE ORDINANCE

67. The Directors shall duly comply with the provisions of the Ordinance or any statutory modification thereof for the time being in force, and in particular with the provisions in regard to the registration of the particulars of mortgage and charges affecting the property of the Company or created by it, to the keeping of a Register of the Directors, and to the sending to the registrar of an Annual list of Members and a summary of particulars relating thereto and notice of any consolidation or increase of share capital, or sub-division of shares and copies of Special Resolutions and a copy of the Register of Directors and notification of any changes therein.

CASUAL VACANCY

60. The Directors may at any time appoint any person to be a Director to fill a casual vacancy in the Board. Any Director so appointed shall hold office for the remainder of the term of the Director in whose place he is appointed.

REMUNERATION OF DIRECTORS

61. Subject to the Ordinance, until otherwise determined by the Company in General Meeting every Director (including an alternate Director but excluding the Chief Executive and a full time Working Director) shall be entitled to be paid as remuneration for his services for Meetings of Board and Committees of Directors as may be prescribed by the Board and per meeting attended by him. Each Director (including each alternate Director), shall be entitled to be reimbursed his reasonable expenses incurred in consequence of his attendance at meetings of the Directors or of Committees of Directors.

EXTRA REMUNERATION MAY BE PAID TO DIRECTOR

62. Any Director who serves on any Committee or who devotes special attention to the business of the Company or who otherwise performs services which, in the opinion of the Board, are outside the scope of the statutory duties of a Director may be paid such extra remuneration as may be fixed by the Board.

SHARE QUALIFICATION OF DIRECTORS

63. Save and except that a Director must be a Member (unless he represents the Government, an institution (including a multi-national company) or an authority which is a member of the Company, or is a whole time working Director, or a Chief Executive or a person representing a creditor on the Board, such Director shall not require any share qualification, so long as only subscribers shares are in issue. Thereafter, the qualification of a Director shall be his holding shares in his own name of such value as may be prescribed by the Ordinance. In the case of Directors representing interest holding shares of requisite value, no such share qualification shall be required, provided intimation in writing as to such representation is lodged with the company forthwith upon appointment / election of a Director.

VACATION OF OFFICE OF DIRECTOR

64. The office of a Director shall ipso facto be vacated if:
- (A) he becomes ineligible to be appointed as a Director on any one or more of the grounds enumerated as follows, that is to say, he:
- (i) is a minor,
 - (ii) is or becomes of unsound mind
 - (iii) has applied to be adjudicated as an insolvent and his application is pending;
 - (iv) is an un-discharged insolvent;
 - (v) has been convicted by court of law for an offence involving moral turpitude;
 - (vi) has been debarred from holding such office under any provision of the Ordinance;
 - (vii) has betrayed lack of fiduciary behaviour and a declaration to this effect has been made by the Court under Section 217 at any time during the preceding five years;
 - (viii) is not a Member.

Provided that this clause (viii) shall not apply in the case of:

FIRST DIRECTORS

55. The first Directors shall be appointed by the subscribers to the Memorandum and shall stand retired from office at the first Annual General Meeting of the Company.

ELECTION OF DIRECTORS

- 56(i) After the first appointment of Directors, the number of elected Directors fixed by the Board under Article 54 shall be elected to office by the Members in General Meeting in the following manner, namely:-

- a Member shall have such number of votes as is equal to the product of voting shares held by him and the number of Directors to be elected;

- 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;

- 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 have been so elected;

- (ii) Where the number of candidates is equal to or less than number of Directors to be elected it will not be necessary to hold an election as laid down in clause (i) of this Article and all the candidates shall be deemed to have been elected under this Article.

TERM OF OFFICE

57. A Director elected under Article 56 shall hold office for a period of three years unless he earlier resigns, becomes disqualified from becoming Director or otherwise ceases to hold office. An election of Directors in the manner prescribed by the preceding Article shall be held once in every three years.

REMOVAL OF DIRECTORS

58. The Company may by resolution in General Meeting remove a Director appointed under Article 55 or 60 or elected or deemed to have been elected under Article 56.

Provided that a resolution for removing a Director shall not be deemed to have been passed unless the number of votes cast in favour of such a resolution is not less than:

- (i) The minimum number of votes that were cast for the election of a Director at the immediately preceding election of Directors, if the resolution relates to removal of Director elected in the manner provided in Article 56; or
- (ii) The total number of votes for the time being computed in the manner laid down in Article 56 divided by the number of Directors for the time being if the resolution relates to removal of a Director appointed under Article 55 or 60.

DISQUALIFICATION AS A DIRECTOR

- 58a. A person shall be disqualified for appointment as Director of the Company on any one or more of the grounds enumerated in Section 187 of the Ordinance.

CONTINUING DIRECTORS TO ACT

59. The continuing Directors may act notwithstanding any vacancy in their body, but if the minimum falls below the number fixed by Article 54 thereof, the Directors shall not, except for the purpose of filling a vacancy in their number or convening a General Meeting, act so long as the number remains below the minimum.


 MUHAMMAD RAZA
 Company Secretary
 H-ELECTRIC LIMITED

PROXY TO BE DEPOSITED AT THE OFFICE

49. No person shall act as Proxy unless the instrument of his appointment and the Power of Attorney, if any, under which it is signed, shall be deposited at the Office at least forty-eight hours before the time for holding the Meeting at which he proposed to vote.

FORM OF PROXY

50. An instrument appointing a Proxy may be in the following form or a form as near thereto as may be:

"I _____ of _____ in the district of _____ being a Member of the K-Electric Limited hereby appoint _____ of _____ as my Proxy to vote for me and on my behalf at the (annual, extraordinary, as the case may be) General Meeting of the company to be held on the _____ day of _____ and at any adjournment thereof".

- 50-A: "An instrument of proxy in relation to e-voting shall be in the following form or a form as near thereto as may be:

I/we _____ of _____ being a member of K-Electric Limited, holder of _____ ordinary share(s) as per registered Folio/Account No. _____ hereby opt for e-voting through intermediary and hereby consent the appointment of execution officer (Mr. _____) as my/our proxy and will exercise e-voting as per the Companies (E-voting) Regulations 2016 and hereby demand for poll for resolutions.

My secured email address is _____, please send login details, password and electronic signature through email."

VALIDITY OF PROXY

51. A vote given in accordance with the terms of an instrument of Proxy shall be valid notwithstanding the previous death of principal or revocation of the Proxy or of any power of attorney under which such Proxy was signed, provided that no intimation in writing of the death or revocation shall be received at the office of the Company before the Meeting or the adjourned Meeting at which Proxy is used.

VALIDITY OF VOTE

52. No objection shall be made to the validity of any vote except at the Meeting or at the poll at which such vote shall be tendered, and every vote whether given personally or by Proxy not disallowed at such Meeting or poll shall be deemed valid for all purposes of such meeting or poll.

CHAIRMAN TO DECIDE

53. If any question is raised, the Chairman of the Meeting shall decide on the validity of every vote tendered at such Meeting in accordance with these Articles.

DIRECTORS

54. The number of Directors shall not be less than seven (7) nor more than thirteen (13) elected Directors. The Board shall fix the number of elected Directors of the Company not later than thirty-five (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 the General Meeting of the Company.

RIGHT TO VOTE OF JOINT HOLDERS

43. In case of joint-holders, 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 joint-holders; and for this purpose seniority shall be determined by the order in which the names stand in the Register.

REPRESENTATIVES OF CORPORATE MEMBERS

44. A company or other body corporate which is a Member of the Company may, by resolution of its Directors, or Proxy signed by authorized officers, authorize any of its officials or any other persons to act as its representative at any meeting of the Company and the person so authorized shall be entitled to exercise the same powers on behalf of the company which he represents as if he was an individual shareholder of the company.

VOTING BY MEMBER OF UNSOUND MIND

45. A Member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on show of hand or on a poll, by his committee or other legal guardian, and any such committee or legal guardian may, on a poll, vote by Proxy.

POLL BY PROXY

46. On a poll, votes may be given either personally or by Proxy.

PROXY

47. Every Proxy shall be appointed in writing under the hand of the appointer or by an agent duly authorized under a Power of Attorney or if such appointer is a company or corporation under the Common Seal of the company or corporation or the hand of its Attorney who may be the appointer. A Proxy must be a Member. A Proxy shall have right as respects speaking and voting at a meeting as are available to a Member personally present at the Meeting. A Member shall not be entitled to appoint more than one Proxy to attend any one Meeting. If any Member appoints more than one Proxy for any one Meeting and more than one Instruments of Proxy are deposited with the Company, all such Instruments shall be rendered invalid.
- 47-A: "A member may opt for e-voting in a general meeting of the Company in accordance with the provisions and requirements under the Companies (E-Voting) Regulations 2016 notified by SECP on 22 January 2016 and any other provision, condition and requirement, as notified by SECP from time to time in this respect, shall be deemed to be incorporated in these Articles of Association, irrespective of other provisions of these Articles of Association and notwithstanding anything contradictory therein. Members may appoint members as well as non-members as PROXIES for the purposes of e-voting to the extent permitted under the applicable laws."

IRREVOCABLE PROXY

48. A Proxy declared expressly on its face to be irrevocable shall not be revoked or be deemed revoked by the Member giving such Proxy without the consent of the Proxy-holder, whether by attendance at any General Meeting held during the period of such Proxy or by any other action on his part whatsoever or otherwise during the term of such Proxy if such Proxy is furnished to and filed with the records of the Company, and the Company shall be bound to recognize and give effect to such Proxy in accordance with terms thereof.

chairman of the Meeting, or 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 the resolution or by any Member or Members present in person or by Proxy and holding shares in the company conferring a right to vote on the resolution being shares on which an aggregate sum has been paid up which is not less than one-tenth of the total sum paid up on all the shares conferring that right, and unless a poll is so demanded, a declaration by the Chairman that a resolution has been carried or carried unanimously or by particular majority or lost, and an entry to that effect in the books of the proceedings of the company shall be conclusive evidence of the fact without further proof of the number or proportion of the votes recorded in favour of or against such Resolution.

CASTING VOTE

- 36a. In the case of equality of votes whether on a show of hands or on a poll, the Chairman of the meeting at which the show of hands takes place or at which the poll is demanded, shall be entitled to a second or casting vote.

POLL

37. If a poll is demanded as aforesaid it shall be taken in such manner and at such time and place as the Chairman of the Meeting directs, and either at once or after an interval or adjournment of not more than fourteen days from the day on which the poll is demanded and the result of the poll shall be the resolution passed at the Meeting at which the poll was held. The demand for a poll may be withdrawn at any time by the person or persons who made the demand.

POLL ON ELECTION OF CHAIRMAN AND ADJOURNMENT

38. Any poll demanded on the election of a Chairman of Meeting or any question of adjournment shall be taken at the Meeting and without adjournment.

EFFECT OF POLL

39. The demand for a poll shall not prevent the continuation of a Meeting for the transaction of any business, other than the question on which the poll was demanded.

MINUTES

40. Minutes shall be made in books provided for the purpose of all resolutions and proceedings at General Meetings, and any such Minutes if signed by any person purporting to have been the Chairman of the Meeting or next following Meeting shall be conclusive evidence of the facts therein stated without further proof.

MINUTES BOOKS

41. The Books containing Minutes of Proceedings of General Meetings of the Company shall be kept at the Registered Office of the Company and during business hours (subject to reasonable restrictions as the Board may from time to time impose but so that not less than two hours each day is allowed for inspection) be open to the inspection of any Member without charge.

VOTES OF MEMBERS

42. Except as provided in Article 36 hereof, upon a show of hands every person entitled to vote and present in person or by Proxy shall have one vote, and upon a poll every Member entitled to vote and present in person or by Proxy shall have one vote for every share held by him.

place, the day and the hour of General Meeting and in case of special business, all material facts concerning such business, shall be given in a manner provided by the Ordinance for the General Meetings to such persons as are, under the Ordinance or the Articles, entitled to receive such notice from the Company.

SPECIAL BUSINESS

30. All business shall be deemed special that is transacted at an Extraordinary General Meeting, and also all that is transacted at an Annual General Meeting with the exception of declaring a dividend, the consideration of the accounts, balance sheet and the reports of Directors and Auditors, the election of Directors, the appointment of and the fixing of the remuneration of the Auditors. Where it is proposed to pass a Special Resolution at a General Meeting, notice of the Meeting shall specify the intention to propose the Resolution as a Special Resolution.

OMISSION TO GIVE NOTICE

31. In a case in which notice of any Meeting is given to the shareholders individually, the accidental omission to give notice to any of the shareholders or the accidental non-receipt thereof shall not invalidate the proceedings at any such Meeting.

PROCEEDINGS AT GENERAL MEETING QUORUM

32. Ten Members, present in person and representing not less than [twenty five (25%)] of the total voting power of the company either on their own account or as proxies shall be a quorum for a General Meeting. No business shall be transacted at any General Meeting unless the requisite quorum is present at the time when the Meeting proceeds to business.

CHAIRMAN OF GENERAL MEETING

33. The Chairman shall be entitled to take the chair at every General Meeting. If there is no Chairman or if at any Meeting he shall not be present within fifteen minutes after the time appointed for holding such Meeting or is unwilling to act, the Directors present may elect a Director as Chairman and if no Director present is willing to act as Chairman, the Members present shall choose one of the Members to be the Chairman.

ADJOURNMENT OF MEETING FOR LACK OF QUORUM

34. If within half an hour after the time appointed for the holding of a General Meeting a quorum is not present, the Meeting if convened on the requisition of the Members shall be dissolved, and in every other case shall stand adjourned to the same day in the week following at the same time and place or to such other day, time and place as the Board may by notice to share holders appoint. If at the adjourned meeting, a quorum is not present the Members present personally being not less than two shall be the quorum and may transact the business for which the meeting was called.

ADJOURNMENT BY CHAIRMAN

35. The Chairman with the consent of a General Meeting may adjourn any Meeting from time to time and from place to place, but no business shall be transacted at any adjourned Meeting other than business left unfinished at the Meeting from which the adjournment took place.

VOTING ON RESOLUTIONS BY SHOW OF HANDS AND WHEN POLL DEMANDED

36. At any General Meeting a Resolution put to the vote of the Meeting shall be decided on a show of hands, unless a poll is (before or on the declaration of the results of the show of hands) demanded by at least five Members present in person or by Proxy or by the


 MUHAMMAD REZHAN TALIA
 Company Secretary
 K-ELECTRIC LIMITED

CONDITIONS OF BONDS, ETC

23. Any 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 by the Board to be for the benefit of the company.

ISSUE AT DISCOUNT

24. Any bonds debentures or other securities may be issued at a discount premium or otherwise and with any special privileges as to redemption, surrender, drawings, convertibility into shares, attending and voting at General Meetings of the Company, appointment of Directors, and otherwise, provided that debentures with the right to be converted into shares shall not be issued without the consent of the Company in General Meeting.

INDEMNITY TO DIRECTORS

25. If Directors or any of them or any other person shall become personally liable for the payment of any sum primarily due from the company, the Board may execute or cause to be executed any mortgage, charge or security over or affecting the whole or any part of the assets of the Company by way of indemnity to secure the Directors or person so becoming liable aforesaid from any loss in respect of such liability.

GENERAL MEETINGS ANNUAL GENERAL MEETING

26. A General Meeting, to be called Annual General Meeting, shall be held, in accordance with the provisions of Section 158, within eighteen months from the date of Incorporation of the Company and thereafter once at least in every calendar year within a period of four months following the close of its financial year and not more than fifteen months after the holding of its last preceding Annual General Meeting as may be determined by the Board.
- 26-A: "The Company may provide video conference facility to its members for attending the general meetings at places other than the town where general meeting is convened subject to fulfilment of such conditions, consent and meeting the requirements relating to number of members and time limit as notified by SECP vide circular no.10 of 2014 dated 21 May 2014 and any other conditions / guidelines notified by SECP from time to time."

EXTRA-ORDINARY GENERAL MEETING

27. All General Meetings of the Company other than an Annual General Meeting shall be called Extraordinary General Meetings.

WHEN EXTRA-ORDINARY GENERAL MEETINGS TO BE CALLED OR REQUISITIONED

28. The Board may call an Extraordinary General Meeting whenever it shall deem fit. An Extraordinary General Meeting may also be called on the requisition of the Members in accordance with the provision of Section 159.

NOTICE OF MEETINGS

29. Twenty-one day's notice at the least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day for which notice is given) specifying the

being registered as a Member in respect of the share, be entitled in respect of it to exercise any rights conferred by Membership in relation to meetings of the Company.

- (vi) The Company shall incur no liability or responsibility whatsoever in consequence of its registering or giving effect to any transfer of shares made or purporting to be made by any apparent legal owner thereof (as shown or appearing in the Register) to the person having or claiming any equitable right, title or interest to or in the same shares, notwithstanding that the Company may have had notice of such equitable right, title or interest or notice prohibiting registration of such transfer, and the Company shall not be bound or required to regard or attend or give effect to any notice which may be given to it of any equitable right, title or interest, or be under any liability whatsoever for refusing or neglecting so to do, but the Company shall nevertheless be at liberty to regard and attend to any such notice and give effect thereto, if the Board shall so think fit.

ALTERATION OF CAPITAL

- 20(i) The Company may from time to time by Special Resolution increase the authorized share capital by such sum to be divided into shares of such amount as the resolution shall prescribe.
- (ii) Except and so far as otherwise provided by the conditions of issue or by the Articles, any capital raised by the creation of new shares shall be considered part of the authorized capital and shall be subject to the provision herein contained with reference to transfer and transmission, voting and otherwise.
- (iii) The Company may by Special Resolution reduce its share capital in any manner and with and subject to any incident, authorization and consent required by law.
- (iv) The Company may in a General Meeting by Ordinary Resolution alter the conditions of its Memorandum as follows:
- Consolidate and divide all and any of its share capital into shares of larger amount than its existing shares.
 - Sub-divide shares or any of them into shares of smaller amounts than originally fixed by the Memorandum, subject nevertheless to the provisions of the Ordinance in that behalf.
 - Cancel shares which at the date of General Meeting have not been taken or agreed to be taken by any person and diminish the amount of its share capital by the amount of the shares so cancelled.

POWER TO BORROW POWER OF THE BOARD

21. The Board may from time to time borrow any moneys for the purpose of the Company from the Members or from any other persons, firms, companies, corporations, government agencies, institutions or banks, or the Directors may themselves lend moneys or provide finance to the company.

GIVING OF SECURITIES

22. The Board may borrow moneys and secure payment thereof in such manner and upon such terms and conditions in all respects as it may think fit, and in particular by the issue of bonds, debentures, or by mortgage or charge or other security on the whole or any part of the property, assets and rights of the Company, (both present and future), including its uncalled capital for the time being.

The Board may from time to time alter or vary the transfer form.

CONDITIONS FOR REGISTRATION OF TRANSFER

18. The Directors shall not refuse to register any transfer of fully paid shares unless the instrument of transfer is defective or invalid or is not accompanied by the Certificate of the shares to which it relates.

TRANSMISSION OF SHARES

- 19(i) Any Member may make and deposit with the company a nomination in writing specifying one or more eligible persons who or each of whom, in the event of the death of the Member, may be entered in the Register as the holder of such number of shares specified in the nomination for such nominee or each such nominee of which the Member remains the registered holder at the date of his death. A person shall be eligible for nomination for the purposes of this Article only if he is a spouse, parent, brother, sister or child of the Member nominating him and the applicable relationship shall be specified in the nomination in respect of each nominee. A Member may at any time by notice in writing cancel, or by making and depositing with the company another nomination before his death vary, any nomination already made by him pursuant to this Article. In the event of the death of a Member any person nominated by him in accordance with this Article may, on written application accompanied by the relative share certificate and evidence establishing the death of the Member, request the Company to register himself in place of this deceased Member as the holder of the number of shares for which the nomination in his favour had been made and deposited with the company, and if it shall appear to the Directors that it is proper so to do, the Directors may register the nominee as the holder of those shares in place of the deceased Member.
- (ii) In case of death of a Member who was a joint holder of shares, the survivor or survivors shall be the only persons recognized by the Company as having any title to his interest in the shares. If the deceased Member was a sole holder of shares, the nominee or nominees of the deceased where a nomination under Article 19(i) is effective, shall be the only person recognized by the Company as having any title to his interest in the shares. In case of such deceased Member who had not made a nomination under Article 19(i), the legal personal representative of such deceased Member where he was a sole holder shall be the only person recognized by the Company as having any title to his interest in the shares.
- (iii) Any person becoming entitled to a share in consequence of the death or insolvency of a Member may, upon such evidence being produced as may from time to time properly be required by the Directors and subject as hereinafter provided, elect either to be registered himself as the holder of the shares or instead of being registered himself, to make such transfer of the share as the deceased or insolvent person could have made, but the Directors shall, in either case, have the same right to decline or suspend registration as they would have had in the case of a transfer of the share by that Member before his death or insolvency as the case may be.
- (iv) If the person so becoming entitled shall elect to be registered himself, he shall deliver or send to the Company a notice in writing signed by him stating that he so elects, if he shall elect to have another person registered he shall testify his election by executing to that person a transfer of the share. All the limitations, restrictions and provisions of these Articles relating to the right to transfer and the registration of transfers of shares shall be applicable to any such notice or transfer as aforesaid as if the death or insolvency of the Member had not occurred and the notice or transfer were a transfer signed by that Member.
- (v) A person becoming entitled to a share by reason of the death or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he was the registered holder of the share, except that he shall not before

**ISSUE OF NEW CERTIFICATE IN PLACE OF
DEFACED, LOST OR DESTROYED CERTIFICATE**

15. If any Certificate is worn-out, defaced or rendered useless, then upon production thereof to the Board, it may order the same to be cancelled and may issue a new Certificate in lieu thereof, and if any Certificate is lost or destroyed, then on proof thereof, to the satisfaction of the Board and on such indemnity as the Board deems adequate being given, a new Certificate in lieu thereof shall be given to the party entitled to such lost or destroyed Certificate. The new Certificate may be issued on such terms and fee as may be prescribed by the Board including payment of expenses incurred by the Company in investigating title.

TRANSFER OF SHARES

16. The instrument of transfer of any shares in the Company shall be executed both by the transferor and transferee, and the transferor shall be deemed to remain holder of the share until the name of the transferee is entered in the Register of Members in respect thereof. The Company shall keep a book to be called the "Register of Transfer" and therein shall be fairly and distinctly entered the particulars of every transfer or transmission of any share.

FORM OF TRANSFER

17. The instrument of transfer of any share shall be in writing in the usual common form or in the form appearing in the next paragraph or as near thereto as circumstances will admit.

K-Electric Limited

"I, _____ son/daughter/wife of _____ and
of _____ being a _____ national, called the "Transferor" in
consideration of the sum of Rs. _____ (Rupees _____) paid to
me by _____ son/daughter/wife of
_____ of _____ a national of _____
and Muslim/Non-Muslim (hereinafter called "The Transferee") do hereby transfer to the
Transferee _____ share(s) numbered _____ in the undertaking
called K-Electric Limited to hold the same unto the said Transferee, his (or her)
executors, administrators and assigns subject to the several conditions on which I held
the same immediately before the execution hereof, and I, the Transferee, do hereby
agree to take the said share(s) subject to the conditions aforesaid. As witness our hands
the day of _____

Witness

Signature: _____
Transferor

Signature _____ dated _____

Signature: _____
Transferee

Full Address:

Witness

Signature: _____

Full Name
Father's / Husband name

Full Address: _____

Nationality:

Occupation and Full Address
of Transferee

WILLIAM PETER DICKINSON
Company Secretary
K-ELECTRIC LIMITED

application of the purchase money nor shall his title to the shares be affected by any irregularity or invalidity in the proceedings in reference to the sale.

ISSUE OF FURTHER SHARES

10. Subject to Section 86, where at any time the Board decides to increase the issued capital of the Company by issuing any further shares, then subject to any direction to the contrary that may be given by the Company in General Meeting, such shares shall be offered 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 the expiration of such time, or on receipt of information from the Member to whom notice is given that he declines to accept the shares offered, the Board may dispose of the same in such manner as it may consider most beneficial to the Company.

The Company shall not give whether directly or indirectly, and whether by means of a loan, guarantee, provisions of security or otherwise, any financial assistance for the purpose of or in connection with a purchase made or to be made by any person of any shares in the Company, nor shall the Company make a loan for any purpose whatsoever on the security of its shares, but nothing in the Articles shall prohibit any transaction which may be permitted by the Ordinance.

REGISTER OF MEMBERS

11. The Company shall cause to be kept a Register of Members and Index of Members in accordance with the provisions of Section 147 of the Ordinance.

EVIDENCE OF MEMBERSHIP

12. Any application for subscription signed by or on behalf of an applicant or subscriber for shares in the Company, followed by an allotment of any shares therein, shall be an acceptance of shares within the meaning of the Articles, and every person who thus or otherwise accepts any shares and whose name is entered on the Register shall for the purpose of the Articles be a Member.

TRUST NOT RECOGNISED

13. Save as here in otherwise provided, the Company shall be entitled to treat the person whose name appears on the Register as the holder of any shares as the absolute owner thereof, and accordingly shall not (except as ordered by a Court of competent jurisdiction or as by law required) be bound to recognize any trust or equity or benefit, equitable, contingent or other claim to or interest in such shares, on the part of any other person whether or not it shall have expressed or implied notice thereof.

CERTIFICATES

14. Every Member shall, on payment of such sum as the Directors may prescribe, be entitled to one certificate for all the shares registered in his name or upon paying such fee as the Board may from time to time determine, to several certificates each for one or more shares. Every certificate of shares shall specify the number and denote the number of shares in respect of which it is issued, and the amount paid thereon, such certificates shall be issued under Seal, and shall bear the signature of one Director and shall be countersigned by the Secretary or by a Second Director, or by some other person appointed for that purpose by the Board. The Directors may by resolution determine, either generally or in any particular case, that the signature of any Director (s) may be affixed by some mechanical means in the mode and manner specified in such resolution, provided that, in respect of a share or shares held jointly by several persons, the Company shall not be bound to issue more than one certificate, and delivery of a certificate for a share to one of several joint-holders shall be sufficient delivery to all.

SHARES

- 7(i) Subject to the conditions, here in contained the shares shall be under the control of the Directors who may allot or otherwise dispose of the same to such persons, on such terms and conditions, and either for cash or for a consideration other than cash, as the Directors think fit.
- (ii) The Company shall have the power to issue Redeemable Capital, by whatever name called liable to be redeemed, or liable at the option of the Company to be redeemed in any manner permissible under the provision of the Ordinance or conditions of any agreement for issue of such certificate or instrument:
- The Redeemable Preference Shares shall be entitled to a preferential dividend at the rate fixed at the General Meeting of the Company.
 - The preferential dividend shall be cumulative.
 - The preference shareholder(s) shall only be entitled to preferential dividend and shall not be entitled to any other dividend (whether cash, bonus shares, right shares etc.) to which ordinary shareholders may become entitled from time to time.
 - The Redeemable Preference Shares shall be redeemed on redemption date or shall be converted into ordinary shares as deemed expedient by the Board of Directors. The Board of Directors shall also finalize other modalities & mechanism with regard to issue of Redeemable Preference Shares, payment of preferential dividend, redemption, conversion etc.
 - Redeemable Preference shareholders shall not be entitled to attend or vote at the meetings of shareholders of the Company.
- (iii) The Company may, upon terms and conditions contained in an agreement in writing, issue to one or more Scheduled Banks, Financial Institutions or such other persons as are specified for the purpose by the Federal Government by notification in the Official Gazette, either severally, jointly or through their syndicate, any instrument in the nature of Redeemable Capital in any or several forms in consideration of any funds, moneys, accommodations received or to be received by the Company whether in cash or specie or against any promise, guarantee, undertaking or indemnity issued to or in favour of or for the benefit of the Company, subject to the legal provisions, on the issue and Section 120 of the Ordinance.
- (iv) The Board shall, as regards any allotment of shares, duly comply with such provisions of Sections 68 to 73 as may be applicable.

SHARES FOR CONSIDERATION OTHER THAN CASH

8. Subject to the provisions of the Ordinance and the Articles, the Board 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.

FRACTIONAL SHARES

9. If and whenever as a result of an issue of new shares any consolidation or sub-division of shares any Member becomes entitled to hold shares in fractions, the Board shall not be required to offer or issue such fractional shares and shall be entitled to sell whole shares at a reasonable price and pay and distribute to and amongst the Members entitled to such fractional shares in due proportion the net proceeds of the sale thereof. For the purpose of giving effect to any such sale, the Board may authorize any person to transfer the shares sold to the purchaser thereof, and the purchaser shall be registered as the holder of the shares comprised in such transfer but he shall not be entitled to see the

"The Board" shall mean the Directors from time to time of the Company acting at a meeting or through a committee of Directors or pursuant to written consent.

"The Company" means K-Electric Limited.

"The Chairman" means the Chairman of the Board appointed from time to time pursuant to the Articles.

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

"The Directors" means the Directors of the Company appointed from time to time pursuant to these Articles including alternate Directors.

"The 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.

"The Ordinance" means the Companies Ordinance 1984, as amended and now in force in Pakistan, and any amendment or re-enactment thereof for the time being in force.

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

"The Seal" means the Common Seal of the Company.

"The Secretary" means the Secretary for the time being of the Company.

"In writing" and "Written" includes printing, lithography and other modes of representing or reproducing words in a visible form.

"Words" importing the singular include the plural number and vice versa.

Words importing the masculine gender only include the feminine gender and words or expression contained in the Articles shall bear the same meaning as in the Ordinance.

Words importing persons include bodies corporate.

BUSINESS

4. The business of the Company shall include the several objects expressed in the Memorandum of Association or those which are within its scope and meaning and all incidental matters taken or to be taken in hand as the Directors in their discretion shall think fit, and all matters which may appear to the Directors to be expedient for attaining these objects. The business shall be carried on by or under the management of Directors, subject only to such control of General Meetings as is provided for by these Articles and the Ordinance.

PUBLIC COMPANY LIMITED BY SHARES

5. The Company is a Public Company with Limited Liability.

CAPITAL

6. The authorized share capital of the Company is Rs.125,000,000,000 (Rupees One Hundred Twenty Five Billion Only) divided into the following kinds of shares:-
 - i. Share Capital of Rs.115,000,000,000 (Rupees One Hundred Fifteen Billion Only) divided into 32,857,142,857 ordinary shares of Rs.3.50 each.
 - ii. Share Capital of Rs.10,000,000,000 (Rupees Ten Billion Only) divided into 2,857,142,857 Redeemable Preference Shares of Rs.3.50 each.

THE COMPANIES ORDINANCE, 1984 COMPANY LIMITED BY SHARES

ARTICLES OF ASSOCIATION OF K-ELECTRIC LIMITED

PRELIMINARY

1. The Regulations contained in Table "A" referred to in Section 26 (2) 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. 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 under the Ordinance) be such as are contained in these Articles.

DEFINITIONS

1. The chapter heading shall not affect the construction hereof, and in these Articles, unless there is something in subject or context inconsistent therewith:

"Debenture" includes debenture stock, Bonds, Term Finance Certificates (TFC) and any other security other than the shares of the Company, whether constituting a charge on the assets of the Company or not.

"Dividend" means the distribution of profits of the Company to its members.

"Member" means a member of the Company within the meaning of clause (21) of subsection (1) of Section 2.

"Month" means a calendar month according to the English calendar.

"Office" means the Registered Office of the Company.

"Participatory Redeemable Capital" or PRC means such Redeemable Capital as is entitled to participate in the profit and loss of the Company.

"Person" shall include a body corporate.

"Proxy" includes an attorney duly constituted under a power of attorney.

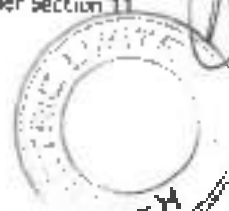
"Redeemable Capital" includes finance obtained on the basis of Participatory Term Certificates (PTC), Mushaka Certificates, Term Finance Certificates (TFC), or any other security or obligation not based on interest as defined in Section 2(30A) of the Ordinance.

"Section" means section of the Ordinance.

"Special Resolution" has the meaning assigned thereto by clause (36) of subsection (1) of Section 2 of the Ordinance.

"The Articles" means those Articles of Association, as originally framed or as altered from time to time by Special Resolution.

"The Authority" means the Corporate Law Authority constituted under Section 11



V. The share capital of the Company is Rs. 125,000,000,000 (Rupees One Hundred Twenty-Five Billion Only) divided into the following kinds of shares:

- i. Share Capital of Rs. 115,000,000,000 (Rupees One Hundred Fifteen Billion Only) divided into 32,857,142,857 ordinary shares of Rs. 3.50 each.
- ii. Shares Capital of Rs. 10,000,000,000 (Rupees Ten Billion Only) divided into 2,857,142,857 Redeemable Preference Shares of Rs. 3.50 each.

WE, the several persons whose names and addresses are subscribed, are desirous of, being formed 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 set opposite our respective names.

Dated this Sixth day of September 1913.

Name of Subscriber	Address and Description of Subscriber	Number of Ordinary Shares taken by each Subscriber	Witness to Signature
T.L.F. Beaumont	Merchant, Karachi	1 (one)	
Ghulamati G. Chagla	Merchant, Karachi	1 (one)	
Nadkarni E. Dinshaw	Merchant, Karachi	1 (one)	
W.U. Nicholas	Merchant, Karachi	1 (one)	
B. Frank Jones	Merchant, Karachi	1 (one)	
Chellaram Dullomai	Merchant, Karachi	1 (one)	
Abdool Rahim Saleh Mahomed	Merchant, Karachi	1 (one)	

Certified to be True Copy

Deputy Registrar of Companies

11/9/13

19. To borrow and raise money in such manner as the Company shall think fit and in particular by the issue of debentures, mortgage debentures, or debenture stock payable to bearer or otherwise and either permanent or redeemable or repayment and collaterally to secure any securities of the Company by means of a trust deed or otherwise.
 20. To invest and deal with the moneys of the Company not immediately required upon such securities and in such manner as may from time to time be determined.
 21. To make, draw, endorse, accept and negotiate Bills of Exchange, promissory notes or any other negotiable instruments.
 22. To receive money on deposit at interest or otherwise and to lend money, and in particular to customers and others having dealings with the Company and to guarantee the performance of any contracts.
 23. To remunerate any person or company for services rendered in placing or assisting to place or in guaranteeing any of the shares in the Company's capital or any debentures or other Securities of the Company.
 24. To indenture, contract or otherwise engage handicraftsmen and other workmen, skilled and unskilled and to import labour.
 25. To grant pensions, allowances, gratuities and bonuses to the persons employed by or trading with the Company and to aid in the establishment and support of and to subscribe to any association or institutions, calculated to benefit persons employed by the Company or having dealings with the Company.
 26. To pay out of the funds of the Company all expenses which the Company may lawfully or by agreement with Government pay, incident to the formation, registration and advertising of or raising money for the Company by debentures or otherwise and the issue of its capital, including brokerage and commission for obtaining applications for or taking, placing or underwriting, shares, debentures or debenture stock and to apply at the cost of the Company to the Government of Pakistan or any other Government Authority, for any extension of the Company's powers.
 27. To guarantee the performance of any contract.
 28. To procure the Company to be registered or recognized in any country or place outside Pakistan and to keep Branch Registers.
 29. To do all or any of the above acts in any part of the world as principals, agents, contractors, trustees or otherwise, and by or through trustees, agents or otherwise, and either alone or in conjunction with others.
 30. To do all such other things as are incidental or conducive to the attainment of the above objects.
 31. And it is hereby declared that the word "company" in this clause shall be deemed to include any authority, partnership or other body of person whether incorporated or not incorporated, and the word "person" shall be deemed to include any partnership, association or other body of persons, and any company if the context so admits; and the intention is that the objects set forth in each of the several paragraphs of this clause have the widest possible construction, and shall be in no wise limited or restricted by reference to or inference from the terms of any other paragraph of this clause or name of the Company except as otherwise expressed therein.
- IV. The Liability of the Members is Limited.


MURAD RAZA
Company Secretary
K-ELECTRIC LIMITED

8. To acquire, erect, construct, lay down, enlarge, alter and maintain any buildings, works, and machinery necessary or convenient for the Company's business.
10. To sell, lease, improve, manage, develop, mortgage, exchange turn to account or otherwise deal with, dispose of absolutely, conditionally, or for any, limited interest, and grant any leave or license in respect of all or any of the rights or privileges of the Company, and to distribute in specie as dividend or bonus any money, shares, stocks, debentures or debenture stock that may be accepted as consideration for any such sale, lease, exchange or other disposition.
11. To promote, amalgamate with or buy up any other Company for the purpose of acquiring all or any of the property and liabilities of this Company, or for any other purpose which may seem directly or indirectly calculated to benefit this other purpose which may seem directly or indirectly calculated to benefit this Company having and to take or otherwise acquire and hold shares in any other company objects altogether or in part similar to those of this Company, or carrying on any business capable of being conducted so as directly or indirectly to benefit this Company.
12. To enter into partnership or into any arrangement for sharing profits, union of interest, co-operation, joint venture, reciprocal concession, or otherwise with any person or company carrying on or engaged in or about to carry on or engage in any business or transaction capable of being conducted so as to directly or indirectly benefit this Company, and to lend money to guarantee the contracts of, or otherwise assist any such person or company, and to take, or otherwise acquire shares and securities of any such company and to sell, hold, re-issue, with or without guarantee, or otherwise deal with the same.
13. To carry on any other business which may seem to the Company capable of being conveniently carried on in connection with the above or calculated to directly or indirectly enhance the value of or render profitable any of the Company's property or rights.
14. To enter into any arrangement with any Government or authority, supreme, municipal, local or otherwise that may seem conducive to the Company's objects or any of them; to obtain from any such Government or authority any rights, privileges, and concessions which the Company may think desirable to obtain and carry out, exercise and comply with any such arrangements, rights, privileges and concessions, and to apply for and obtain licenses, provisional orders, special Acts or other statutory or parliamentary authority for supplying electricity for any public or private purpose.
15. To promote any Bill or Bills in any parliament or any application or applications to any public authority for any order, provisional order or license and to enter into any contract to bear and pay the expenses of or in connection with the same or arising there out, and to underwrite or guarantee the capital required for carrying out any undertaking authorized by any such Act, order or license.
16. To purchase or otherwise acquire any patents, brevets d'inventions, licenses, concessions and the like conferring any exclusive or non-exclusive or limited right to use any invention which may seem capable of being used for any of the purposes of the Company or, the acquisition of which may seem calculated directly or indirectly to benefit the Company, and to use, exercise, develop or grant licenses in respect of, or otherwise turn to account, the property and right so acquired. ✓
17. To pay for any property or rights acquired by the Company either in cash or shares with or without preferred or deferred right, in respect of dividend or repayment of capital, or otherwise, or by any securities which the Company has power to issue or partly in one mode and partly in another and generally on such terms as the Directors may approve.
18. To issue all or any part of the original or other share capital whether preference or ordinary shares of the Company at par or at premium or at discount and as fully or partly paid up.

19

THE COMPANIES ORDINANCE 1984
COMPANY LIMITED BY SHARES

MEMORANDUM OF ASSOCIATION
OF
K-ELECTRIC LIMITED

- I. The name of the company is K-Electric Limited.
- II. The registered offices of the Company will be situated in Karachi, Sindh, Pakistan.
- III. --The objects for which the Company is established are:--
 1. To carry on at Karachi and elsewhere in Pakistan, the business of an electric light company in all its branches and in particular to construct, lay down, establish and fix all necessary cables, wires, lines, accumulators, lamps and works and to generate, accumulate, transmit, distribute and supply electricity and to light cities, towns, streets, docks, markets, theaters, buildings and places both public and private.
 2. To carry on the business of Electrical Engineers, Electricians, Engineers, and Contractors, Shopkeepers, Agents and Manufacturers of Electrical apparatus, and of generating, producing and supplying light, heat, sound and power by electricity, galvanism, magnetism or otherwise, suppliers of electricity whether for the purposes of light, heat, motive power, telephonic, telegraphic industrial or other purposes and generally to provide, work, maintain and carry out all necessary cables, wires, accumulators, lamps exchanges telephones and apparatus.
 3. For the purposes of the above section, to buy, sell, hire or deal in cables, wires, accumulators, lamps, exchanges, telephones, fittings and furniture and apparatus of every kind with special reference to apparatus connected with the producing, storing, supplying, using, regulating or measuring the supply or facilitating the use of electricity or electrical currents or force.
 4. To buy, sell, hire, manufacture, deal in, turn to account, plant, machinery, implements, convenience, provisions, articles and products capable of being used in connection with the operations of or required by workmen and others employed by the Company or incidentally or conveniently connected with any such business as aforesaid.
 5. To construct, purchase, lease or otherwise acquire any tramways, railways, aerial ropeways or any other means of transport by land, air or water.
 6. To equip and to maintain and work by electricity, steam, petrol or other mechanical power or by animal power, all tramways, railways, aerial ropeways or other means of transport by air, land or water in which the Company may at any time be interested.
 7. To carry on the business of tramways, railways, omnibus and van proprietors and carriers of passengers and goods by air, land or water and of manufacturers of and dealers in tramways, carriages, trucks, locomotives, launches, accumulators, dynamos and other chattels and effect and conveniences required for making, maintaining equipping and working tramways, railways, aerial ropeways or any other means of transport by air, land or water.
 8. To purchase, take in, exchange or lease rent, occupy or otherwise acquire any lands, hereditaments and estates and any property and effects thereon or used or connected therewith and to acquire any grants, concessions, leases, rights easements, licenses, privileges, and any other interests in land.


RICHARD ROBERT DALLA
Company Secretary
K-ELECTRIC LIMITED

	ARTICLE	PAGE
Payment by post	85	23
Carrying forward of Profits	87	23
Capitalization of Reserves	88	23
Books of Account to be kept	89	24
Where Book to be kept	90	24
Inspection by Members	91	24
Profit & Loss Account and Balance Sheet	92	24
Compliance with Ordinance	93	24
Copies of Director's Report and Balance Sheet Sheet to be Sent to Members	94	24
Notices of General Meetings and Balance Sheet Through CD / DVD / USB	94a	24
Appointment of Auditors and their duties	95	25
How Notice to be served on Members	96	25
Service by post	97	25
Notice to Members abroad by advertising in newspapers	98	25
Notice to Joint Holder	99	25
Notice to persons entitled by transmission	100	25
Notice of General Meeting	101	25
No Shareholders to enter the premises of the Company without permission	102	26
Secrecy	103	26
Distributions of Assets on winding up	104	26
Indemnity	105	26
Individual responsibility of Directors	106	26



1 + 76

	ARTICLE	PAGE
Right of vote of Joint Holders	43	15
Representatives of Corporate Members	44	15
Voting by Member of unsound mind	45	15
Poll by proxy	46	15
Proxy	47	15
E-Voting	47a	15
Irrevocable proxy	48	15
Proxy to be deposited at the office	49	16
Form of Proxy	50	16
Validity of Proxy	51	16
Validity of Vote	52	16
Chairman to decide	53	16
Directors	54	16
First Directors	55	17
Election of Directors	56	17
Term of Office	57	17
Removal of Directors	58	17
Disqualification as a Director	58a	17
Continuing Directors to Act	59	17
Casual Vacancy	60	18
Remuneration of Directors	61	18
Extra remuneration may be paid to Directors	62	18
Share qualification of Directors	63	18
Vacation of office of Director	64	18
Powers of Directors	65	18
Power to obtain finances & issuing securities	66	19
Directors to comply with the Ordinance	67	19
Retiring Director shall be eligible for re-election	67a	20
Power to appoint Alternate Director	68	20
Meeting of Directors	69	20
Quorum of Director's Meeting & Powers	70	20
Chairman	71	20
When acts of Directors or Committee valid		
Notwithstanding defective Appointment	72	21
Resolution by Circulation	73	21
Committee of Directors	74	21
Appointment of Chairman	75	21
Appointment of Chief Executive	76	21
Powers of Chief Executive	77	22
Custody of Seal	78	22
Dividends & Reserves declaration of Dividends and restriction of amount thereof	79	22
Interim Dividend	80	22
Dividend out of profits only	81	22
Declaration of Dividends in specie	81a	22
Distribution of Dividends	82	22
Dividends how paid	82a	23
Power of Board to create Reserve	83	23
Receipts for Dividends by Joint Holders	84	23
No Interest on Dividends	85	23



[Signature]
 REGISTRAR GENERAL PUNJAB
 Company Sec-
 K-12, SECTOR 29

K-Electric Limited

INDEX

MEMORANDUM OF ASSOCIATION

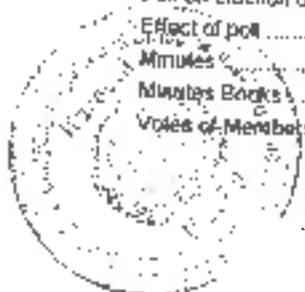
PAGE

01 - 04

ARTICLES OF ASSOCIATION

ARTICLE

Definitions	03	05
Business	04	06
Public Company Ltd. by Shares	05	08
Capital	06	06
Shares	07	07
Shares for consideration other than cash	08	07
Fractional Shares	09	07
Issue of Further Shares	10	08
Register of Members	11	08
Evidence of Membership	12	08
Trust Not Recognized	13	08
Certificates	14	08
Issue of new certificates in place of defaced, lost or destroyed certificates	15	08
Transfer of Shares	16	09
Form of Transfers	17	09
Conditions for registration of transfer	18	10
Transmission of Shares	19	10
Alteration of Capital	20	11
Power to borrow / power of the Board	21	11
Giving of securities	22	11
Conditions of Bonds, etc.	23	12
Issue at discount	24	12
Indemnity to Directors	25	12
General Meetings / Annual General Meetings	26	12
Video Conferencing Facility	26a	12
Extra Ordinary General Meeting	27	12
When Extra-Ordinary General Meetings to be Called or Requisitioned	28	12
Notice of Meetings	29	12
Special Business	30	13
Omission to give notice	31	13
Proceedings at General Meeting quorum	32	13
Chairman of General Meeting	33	13
Adjournment of Meeting for lack of quorum	34	13
Adjournment by Chairman	35	13
Voting on resolutions by show of hands & when poll demanded	36	13
Casting Vote	36b	14
Poll	37	14
Poll on election of Chairman & adjournment	38	14
Effect of poll	39	14
Minutes	40	14
Minutes Books	41	14
Votes of Members	42	14



Annexure "C"
15



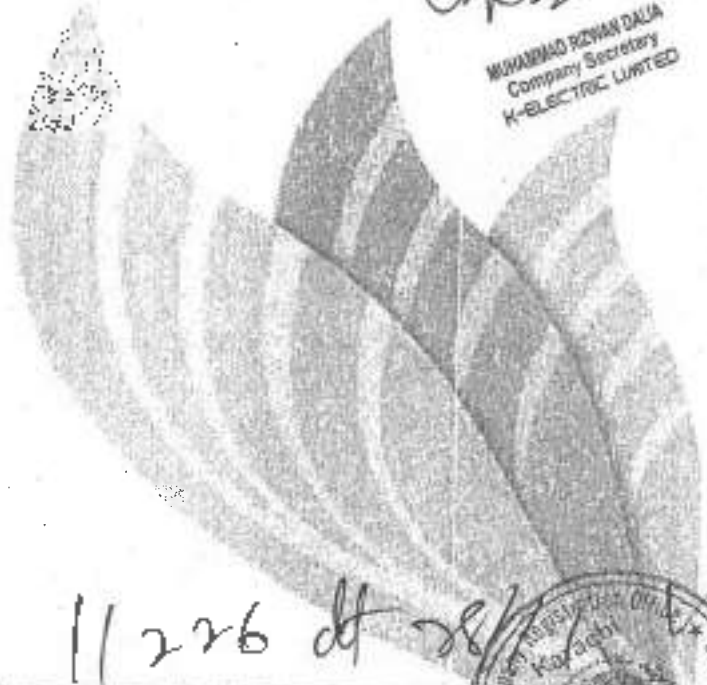
K-ELECTRIC LIMITED



MEMORANDUM & ARTICLES OF ASSOCIATION

[Signature]

MUHAMMAD RIZWAN DALLA
Company Secretary
K-ELECTRIC LIMITED



11226 dt 28/1/2017



Certificate of Commencement of Business

K-Electric Limited (KE) formerly known as the "Karachi Electric Supply Company Limited (KESCL)" was incorporated as a Joint Stock Company under Indian Companies Act 1882 on 13 September 1913. Certificate of Registry / Incorporation was accordingly issued by the Registrar of Joint Stock Companies, Bombay, which was conclusive evidence pursuant to the provisions of the above-named Act. Had Certificate of commencement of business was a statutory requirement at that time, the same had also been issued. Governor of Bombay sanctioned Karachi Electric License 1913 on 27 August 1913 and the Company after completing the above legal and statutory requirements, commenced business in 1913. The Company has been continuously engaged in the business of generation, transmission and distribution of electricity since 1913 and has obtained all requisite licenses and certificates pursuant to various enactments from time to time.

Business of the Company is continuing since 1913 and applying for issuance of Certificate of Commencement of Business at this stage would be illogical. In post independence era, Company also obtained a Certificate from Registrar Joint Stock Companies, Karachi, on 16 March 1953 confirming Incorporation of the Company on 13 September 1913. Pursuant to promulgation of Companies Ordinance 1984, the Company complies with the requirement of Section 513 as under:

Section 513. Transitional provisions. - Within one year from the commencement of this Ordinance, all companies shall alter their memorandum and articles or any existing contract or agreement and shall take such other actions as are necessary to bring the constitution, working and procedures of the company in conformity with the provisions of this Ordinance:

Provided that, notwithstanding the fact that such actions have not been taken or such changes have not been made, the companies shall comply with the provisions of this Ordinance as if they were registered under this Ordinance.

Memorandum & Articles of the Company were amended, approved at AGM and registered with the Registrar Joint Stock Companies.

Neither in 1953 at the time of issuing fresh Certificate of Incorporation, nor in 1985 at the time of registration of revised Memorandum & Articles of Association, the Company was required to apply for issue of Certificate of Commencement of Business, which clearly indicates and substantially confirms that all the registration requirements and certifications issues were fully complied with and the Registrar did not see any rationale to ask for Certificate of Commencement of Business. Section 440 of Companies Ordinance 1984 specifies as under:

Section 440. Application of Ordinance to companies formed and registered under previous Companies Acts. - This Ordinance shall apply to existing companies as follows:-

- (a) In the case of a limited company other than a company limited by guarantee, this Ordinance shall apply in the same manner as if the company had been formed and registered under this Ordinance as a company limited by shares;

Formerly Karachi Electric Supply Company Limited
 K-Electric Limited, KE House, 39-B, Sunset Boulevard, DHA II, Karachi, Pakistan
 Phone: 92-21-32637133, UAN: 111-537-211, Fax: 92-21-99205165, Website: www.ke.com.pk





K-ELECTRIC LIMITED

(b) in the case of a company limited by guarantee, this Ordinance shall apply in the same manner as if the company had been formed and registered under this Ordinance as a company limited by guarantee; and

(c) In the case of a company other than a limited company, this Ordinance shall apply in the same manner as if the company had been formed and registered under this Ordinance as an unlimited company;

Provided that reference, express or implied, to the date of registration shall be construed as a reference to the date at which the company was registered under the previous Companies Act concerned.

During last more than six decades, KE was listed on Karachi, Lahore, Islamabad Stock Exchanges, registered with CDC, obtained Electric licenses from Government of Sindh, Baluchistan and lately from NEPRA, entered into a number of financing facilities agreements with local and international financial institutions and finally the Company was privatized in November 2005 preceded by comprehensive due diligence conducted by Price Waterhouse Cooper (WPC). There was no demand from any institution to obtain Certificate of Commencement of Business as they were fully knowledgeable of the fact that the Company has been continuing the business since 1913.

Moreover, name of the Company was first changed on 9 January 2008 from "Karachi Electric Supply Corporation Limited" to "Karachi Electric Supply Company Limited" and then on 16 January 2014 from "Karachi Electric Supply Company Limited" to "K-Electric Limited". SECP approved the above two (2) name changes and accordingly issued fresh Certificate of Incorporation dated 9 January 2008 and 16 January 2014 respectively and consequently revised Memorandum & Articles of Association were filed and registered with SECP. The above name change processes were completed without conditioning or referring to the issue of Certificate of Commencement of Business.

In view of the above, we understand that requirement of obtaining "Certificate of Commencement of Business, pursuant to Section 146 of the Companies Ordinance 1984" is not applicable in KE's case.



MUHAMMAD RIZWAN DALIA
Company Secretary
K-ELECTRIC LIMITED

2.9 Particulars of the holding / subsidiary company, if any

Name of holding company	Holding	% of shares held
MPS Power Limited Floor 4, Yellow House Cricket Square, Grand Cayman Cayman Islands	18,383,542,479	66.10%

2.10 Chief Executive Officer

Name	Syed Shariq Hussain Khan
Address	House # 45/77, Street No. 26, Chrysalis-a-Block, Phase-IV, DHA, Karachi
NIC No.	4 2 2 0 1 - 6 8 2 6 1 9 1 - 3

2.11 Chief Financial Officer

Name	Muhammad Asim Akhtar
Address	24-L-1, Block-7, MECHS, Karachi
NIC No.	6 2 3 0 1 - 2 8 0 9 1 1 8 - 3

2.12 Company Secretary

Name	Muhammad Farhan Qadir
Address	44, No. 137, Rough Conqueror Housing Society, Block P-3, Karachi
NIC No.	4 2 3 0 1 - 2 8 0 9 1 1 8 - 3

2.13 Legal Advisor

Name	Adv. Ali R. Syed & Co.
Address	Plot 208, Old 4 Canton, DC 4, Block-3, Faisalabad District, Karachi

2.14 Particulars of Auditor(s)

Name	Audit
A.S. Ferguson & Co., Chartered Accountants	State Life Building P.O. 3-C, 16 Chaudhary Road, P.O. Box 4715, Karachi-74000
MSO Ghoshal & Co., Chartered Accountants	2 nd Floor, Block-C, Lohori Square, Building No. 2, Service Station Road, Karachi-74301

2.15 Particulars of Share Registrar

Name	CDC Share Registrar Services Limited (CDCSRSL)
Address	CDC House, 97-B, Block-B, SACC, 1 st Floor, Shalimar-e-Faisal Karachi
e-mail	info@cdcsl.com



Muhammad Farhan Qadir
Company Secretary
K-ELECTRIC LIMITED



Section 3

7.15 List of Directors as on the date of receipt of form

S/N	Name	Address	Nationality	PRC No. (Registration No. of Director)	Appointment or Election
1	Samuel M. Mwangi	12th Floor, Nairobi City Road, P.O. Box 1000, Nairobi 00100	Kenyan	4001-430100-7	30.07.2018
2	Samuel Mwangi	House 2, 4th Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
3	John Mwangi	Apartment 101, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
4	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
5	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
6	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
7	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
8	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
9	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
10	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
11	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
12	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018
13	Dr. Mwangi	4th Floor, 1st Floor, P.O. Box 1000, Nairobi, Kenya	Kenyan	4001-430100-7	30.07.2018



MUHAMMAD RIZWAN DAIK
Company Secretary
K-ELECTRIC LIMITED

2.17 List of members & ordinary holders of the company as at the date this Form is made

No.	Full Name	Address	Nationality	No. of shares held/holdings	NIC No. (Persons No. if Foreigner)
List continued on					
	Amara-B	Ordinary Physical Shareholders			
	Amara-C	Ordinary Shareholders in CDS			
	Amara-D	PHILIC-4 Members			
Members holding 10% or more ordinary shares					
	* 1st Power Ltd	CDC A/C P 307 F-00316		18,325,847,676	66-906
	* President of Pakistan / C/o	Folio B LEP		6,796,513,774	24,366

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

No.	Name of Transferor	Name of Transferee	Number of shares transferred	Date of registration of transfer
		Details attached at		
		Amara-E	Ordinary Shares	

Particulars

- 2.1 Declaration:
- I do hereby solemnly and sincerely declare that the information provided in the form is:
- (i) true and correct to the best of my knowledge, in accordance with the facts as maintained by the Company and nothing has been concealed; and
 - (ii) having reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, bye-laws, charters and regulations whichever is applicable.

2.2 Name of Authorized Officer with Designation/Authorized intermediary

Muhammad Rizwan Durr
Chief People Officer & Company Secretary, IT

2.3 Signature

[Signature]

2.4 Registration No. of Authorized intermediary, if applicable

N/A

2.5 Date

11 12 2019

INSTRUCTIONS FOR FILING FORM-A

1. The information to be filed on the Form A is to be filed by the company or the person authorized by the company to file the Form A.
2. Under the heading 'Particulars', the company should provide details of the shares held by each shareholder as per the records maintained by the company.
3. The company should also provide details of the shares held by the company itself, if any.
4. The company should also provide details of the shares held by the company's subsidiaries, if any.
5. The company should also provide details of the shares held by the company's associates, if any.
6. The company should also provide details of the shares held by the company's directors, if any.
7. The company should also provide details of the shares held by the company's officers, if any.
8. The company should also provide details of the shares held by the company's employees, if any.
9. The company should also provide details of the shares held by the company's contractors, if any.
10. The company should also provide details of the shares held by the company's vendors, if any.
11. The company should also provide details of the shares held by the company's customers, if any.
12. The company should also provide details of the shares held by the company's suppliers, if any.
13. The company should also provide details of the shares held by the company's distributors, if any.
14. The company should also provide details of the shares held by the company's agents, if any.
15. The company should also provide details of the shares held by the company's representatives, if any.
16. The company should also provide details of the shares held by the company's advisors, if any.
17. The company should also provide details of the shares held by the company's consultants, if any.
18. The company should also provide details of the shares held by the company's experts, if any.
19. The company should also provide details of the shares held by the company's specialists, if any.
20. The company should also provide details of the shares held by the company's professionals, if any.
21. The company should also provide details of the shares held by the company's advisors, if any.
22. The company should also provide details of the shares held by the company's consultants, if any.
23. The company should also provide details of the shares held by the company's experts, if any.
24. The company should also provide details of the shares held by the company's specialists, if any.
25. The company should also provide details of the shares held by the company's professionals, if any.

Certified to be true Copy
[Signature]
 Authorized Signatory of Company



[Signature]
 MUHAMMAD RIZWAN DURR
 Company Secretary
 K-ELECTE



Annex F

2019 Annual Report separately attached.

Appendix "C" 54



**Certified True Copy (CTC) of Resolutions dated 14 April 2020
passed by KE Board of Directors**

RLNG SPUR PIPELINE FOR BQPS-IN (900MW CCPP)

IT BE AND IS HEREBY RESOLVED THAT

K-Electric Limited be and is hereby authorized to file a petition with Oil and Gas Regulatory Authority (OGRA) to issue Transmission License to the Company and to invite bids for construction, operation and maintenance of the Spur Pipeline for supply of RLNG to KE's 900 MW RLNG Combined Cycle Power Plant (BQ-MI) at Bm Qasim;

Chief Executive Officer (CEO), jointly with any one of the Chief Generation & Transmission Officer (CGTO) and Chief Financial Officer (CFO), be and are hereby authorized to (i) finalize and sign the petition, after completing statutory requirements and legal review by Internal / external legal counsels, for filing with OGRA to issue transmission license to the Company (ii) to obtain the Right of Way and any other Government approvals and (iii) negotiate the EPC contract subject to review by BS&PC and approval by the Board;

CEO, jointly with any one of the CGTO and CFO, be and are hereby further authorized to take all necessary actions and sign such other deeds, documents, instruments, undertakings etc. incidental and related to the execution and filing of petition with OGRA, for and on behalf of the Company. CEO, jointly with any one of the CGTO and CFO, be and are hereby further authorized to delegate their powers to any KE officer, as they deem fit, to sign such other deeds, documents, instruments, undertakings etc. incidental and related to the execution and filing of the petition with OGRA and appear before any authority including OGRA and admit execution thereof for and on behalf of the Company.

**Muhammad Aizwan Dalia
Chief People Officer & Company Secretary**



**MUHAMMAD AIZWAN DALIA
Company Secretary
K-ELECTRIC LIMITED**

Certificate of Incorporation

LLOYA RANKING

DO HEREBY CERTIFY, pursuant to the Companies Law, 1958, that all requirements of the said Law in respect of registration have been complied with by

LLOYA RANKING

an Exempted Company incorporated in the Cayman Islands with limited liability with effect from the 27th day of July Two Thousand Five

Given under my hand and Seal at George Town in the Island of Grand Cayman this 27th day of July Two Thousand Five



Assistant Registrar of Companies,
Cayman Islands, B.W.I.

Certified as a true and correct copy

By: *[Signature]*
Maples and Calder
The Exchange Building, 5th Floor
Dubai International Financial Centre
PO Box 139980, Dubai, UAE

[Signature]
11/55

Handwritten: "H" 56

Final Version

THE COMPANIES LAW (AS AMENDED)
COMPANY LIMITED BY SHARES
AMENDED AND RESTATED
MEMORANDUM AND ARTICLES OF ASSOCIATION
OF
KES POWER LTD.

(ADOPTED BY SPECIAL RESOLUTION DATED 18 MAY 2008)

Certified as a true and correct copy

By: *[Signature]*
Naples and Calder
The Exchange Building, 5th Floor
Dubai International Financial Centre
PO Box 119980, Dubai, UAE

Date: 8 APRIL 2010
[Signature]
PRESIDENT

WALKERS

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REF: VQ/cb/A1842.56427



Final Version

THE COMPANIES LAW (AS AMENDED)

COMPANY LIMITED BY SHARES

AMENDED AND RESTATED
MEMORANDUM OF ASSOCIATION

OF

KES POWER LTD.

(ADOPTED BY SPECIAL RESOLUTION DATED 18 MAY 2009)

1. The name of the Company is KES Power Ltd. (the "Company").
2. The registered office of the Company will be situated at the offices of Bank of Bermuda (Cayman) Limited, PO Box 513 OT, Strathvada House, George Town, Grand Cayman, Cayman Islands or at such other location as the Directors may from time to time determine.
3. The objects for which the Company is established are restricted to the following:
 - (a) acquiring in one or more transactions shares ("Shares") issued by Karachi Electric Supply Company Limited, a company existing under the laws of the Islamic Republic of Pakistan ("KESCO");
 - (b) exercising any rights attached to Shares from time to time;
 - (c) disposing of any Shares from time to time in one or more transactions;
 - (d) making loans or otherwise providing finance to KESCO;
 - (e) issuing shares from time to time;
 - (f) borrowing or otherwise incurring indebtedness for the purpose of acquiring Shares or making investments in KESCO (including, without limitation, by way of loan or other accommodation) from time to time;
 - (g) underwriting any rights issue proposed by KESCO; and
 - (h) entering into any agreements, documents or arrangements necessary, incidental or conducive to the accomplishment of the foregoing or to any of the transactions contemplated thereby.
4. The Company shall have and be capable of exercising all the functions of a natural person of full capacity (irrespective of any question of corporate benefit as provided by Section 27(2) of the Law.
5. The Company will not trade in the Cayman Islands with any person, firm or corporation except in furtherance of the business of the Company carried on outside the Cayman Islands; provided that nothing in this section shall be construed as to prevent the Company effecting and concluding contracts in the Cayman Islands, and exercising in the Cayman Islands all of its powers necessary for the carrying on of its business outside the Cayman Islands.
6. The liability of the members of the Company is limited to the amount, if any, unpaid on the shares respectively held by them.

Certified as a true and correct copy

By:

Maples and Calder
Maples and Calder
The Exchange Building 5th Floor
Dubai International Financial Centre
PO Box 119980, Dubai, UAE

Date:

3 April 2010
Abir A. Basim
Associate



58

7. The capital of the Company is US\$50,000.00 divided into 5,000,000 Class O shares of a nominal or par value of US\$0.01 each provided always that subject to the Law and the Articles of Association the Company shall have power to redeem or purchase any of its shares and to subdivide or consolidate the said shares or any of them and to issue all or any part of its capital whether original, redeemed, increased or reduced with or without any preference, priority, special privilege or other rights or subject to any postponement of rights or to any conditions or restrictions whatsoever and so that unless the conditions of issue shall otherwise expressly provide every issue of shares whether stated to be ordinary, preference or otherwise shall be subject to the powers on the part of the Company hereinafore provided.
8. The Company may exercise the power contained in Section 22B of the Law to deregister in the Cayman Islands and be registered by way of continuation in some other jurisdiction.

CERTIFIED TO BE A TRUE AND CORRECT COPY

SIC. MELANIE E. RIVERS-WOODS
Assistant Registrar
Dated 3rd June 2009



59

TABLE OF CONTENTS

CLAUSE	PAGE
TABLE A.....	1
INTERPRETATION.....	1
PRELIMINARY.....	4
SHARES.....	5
VARIATION OF RIGHTS ATTACHING TO SHARES.....	8
CALLS ON SHARES.....	8
TRANSFER OF SHARES.....	8
TRANSMISSION OF SHARES.....	8
ALTERATION OF CAPITAL.....	10
REDEMPTION AND PURCHASE OF OWN SHARES.....	10
CLOSING REGISTER OF MEMBERS OR FIXING RECORD DATE.....	11
GENERAL MEETINGS.....	11
NOTICE OF GENERAL MEETINGS.....	11
PROCEEDINGS AT GENERAL MEETINGS.....	12
VOTES OF MEMBERS.....	13
CORPORATIONS ACTING BY REPRESENTATIVES AT MEETINGS.....	13
DIRECTORS.....	14
ALTERNATE DIRECTOR.....	14
POWERS AND DUTIES OF DIRECTORS.....	15
BORROWING POWERS OF DIRECTORS.....	16
DISQUALIFICATION OF DIRECTORS.....	16
DIVIDENDS.....	16
CAPITALISATION OF PROFITS.....	19
SHARE PREMIUM ACCOUNT.....	20
NOTICES.....	20
NON-RECOGNITION OF TRUSTS.....	21
WINDING-UP.....	22
AMENDMENT OF ARTICLES OF ASSOCIATION.....	22
REGISTRATION BY WAY OF CONTINUATION.....	22



THE COMPANIES LAW (AS AMENDED)
COMPANY LIMITED BY SHARES
AMENDED AND RESTATED
ARTICLES OF ASSOCIATION
OF
KES' POWER LTD.

(ADOPTED BY SPECIAL RESOLUTION DATED 18 MAY 2008)

TABLE A

The Regulations contained or incorporated in Table 'A' in the First Schedule of the Law shall not apply to Kes' Power Ltd. (the "Company") and the following Articles shall comprise the Articles of Association of the Company.

INTERPRETATION

In these Articles the following defined terms will have the meanings ascribed to them, if not inconsistent with the subject or context.

"Abraxaj" means KOCF SPV 21 Limited, an exempted company incorporated with limited liability under the laws of the Cayman Islands;

"Abraxaj Director" means each five persons (or less) as have been appointed in writing by Abraxaj to act as Abraxaj Directors;

"Al Jomaih" means Al Jomaih Power Limited, an exempted company incorporated with limited liability under the laws of the Cayman Islands;

"Al Jomaih Directors" means such three persons (or less) as have been appointed in writing by Al Jomaih to act as Al Jomaih Directors;

"Business Day" means a day (other than a Friday or Saturday) in which banks are usually open in Dubai and Keraschi for normal business;

"Capital Call Limit" means US\$920 million;

"Chairman" means such Director as appointed from time to time by Abraxaj or, in the event that Abraxaj is no longer a Shareholder of the Company, such other person nominated by the Directors;

"Class O Share" means a Class O Share in the capital of the Company, including a fraction of a Class O Share, having the rights and entitlements set out herein;

"Deed of Adherence" means a deed of adherence in the form attached to the Shareholder Agreement whereby a transferee of shares undertakes to assume the duties and obligations of the transferor of such shares under the Shareholder Agreement and to be bound by the Shareholder Agreement;

"Dentank" means Dentank Investment Ltd., an exempted company incorporated with limited liability under the laws of the Cayman Islands;

Certified as a true and correct copy

By:

Maples and Calder
The Exchange Building 5th Floor
Dubai International Financial Centre
PO Box 119980, Dubai, UAE

Date:

8 April 2010
BY: MARIA BASAK
ASSOCIATE



"Denham Directors" means such two persons (or less, as have been appointed in writing by Denham) to act as Denham Directors;

"Directors" and "Board of Directors" means the Directors of the Company for the time being, or as the case may be, the Directors assembled as a Board or as a committee thereof;

"Financial Year-End" means 31 December in each year;

"Further Subsidiary Ordinary Shares" means any ordinary shares in the capital of the Subsidiary issued by the Subsidiary from time to time and held by the Company in addition to its holding of the Subsidiary Shares;

"Group" means the Company, KESC and their respective subsidiaries from time to time and Group Company means any of them;

"Law" means the Companies Law (as amended) of the Cayman Islands;

"Member" means a person whose name is entered in the Register of Members and includes each subscriber to the Memorandum of Association pending the issue to him of the subscriber share or shares;

"Memorandum of Association" means the Memorandum of Association of the Company, as amended and re-stated from time to time;

"Ordinary Resolution" means a resolution:

- (a) passed by a simple majority of such Members as, being entitled to do so, vote in person or, where proxies are allowed, by proxy at a general meeting of the Company and where a poll is taken regard shall be had in computing a majority to the number of votes to which each Member is entitled; or
- (b) approved in writing by all of the Members entitled to vote at a general meeting of the Company in one or more instruments each signed by one or more of the Members and the effective date of the resolution so adopted shall be the date on which the instrument, or the last of such instruments if more than one, is executed;

"paid up" means paid up as to the par value and any premium payable in respect of the issue of any shares and includes credited as paid up;

"Person" means any natural person, firm, company, joint venture, partnership, corporation, association or other entity (whether or not having a separate legal personality) or any of them as the context so requires.

"Quarter End" means each of 31 March, 30 June, 30 September and 31 December in each year;

"Register of Members" means the register to be kept by the Company in accordance with Section 40 of the Law;

"Reserved Matter" means those matters which are not otherwise reserved at Law for the Members that shall not be undertaken without the consent of Abrar, Al Jomaih and Denham (it being acknowledged by each party that some of the following matters are within the competence of the Board), being the following:

- (a) any amendment to the constitutional documents of the Subsidiary;



- (b) any alteration of the Financial Year and/or (except insofar as is necessary to comply with International Financial Reporting Standards) of the accounting policies or practices of the Subsidiary;
- (c) any alteration (except insofar as is necessary to comply with International Financial Reporting Standards) of the accounting policies or practices of the Company;
- (d) the declaration or distribution of any dividend or other payment (whether in cash or in specie) out of the distributable reserves of the Company or its Subsidiary or the reduction of any other reserve of the Company or its Subsidiary;
- (e) any change in the auditors of the Subsidiary;
- (f) the advent liquidation, winding-up or dissolution of the Subsidiary;
- (g) any issuance by the Company or its Subsidiary of any debenture or loan stock or any writ by the Company of any loan or guarantee, in each case other than as provided for in the Sources of Funds except where this would require an amendment to these Articles and the Memorandum of Association;
- (h) any arrangement for a joint venture, partnership or other business organisation by the Company or its Subsidiary, with a value in excess of US\$250 million (rising to US\$500 million following completion of all of the Abraj Capital Cuts);
- (i) any merger or acquisition of the Company or its Subsidiary with a value in excess of US\$250 million rising to US\$500 million following completion of all of the Abraj Capital Cuts;
- (j) any change in the nature of the business of the Company or any Group Company not contemplated by these articles of association or other constituent documents of the Company;
- (k) making any loans or guarantees by the Company or its Subsidiary that are not related to the business of the Company or its Subsidiary;
- (l) any action or omission that would create a lien over the shares of the Subsidiary (other than any lien created in respect of any financing of the Subsidiary up to an amount provided for in the Sources of Funds);
- (m) the approval, renewal, modification, termination or any action regarding the Services Contract (other than in accordance with the terms of the Shareholders Agreement); and
- (n) the admission of a new shareholder to the Company other than in accordance with the terms of the Shareholders Agreement.

"Seal" means the Common Seal of the Company (if adopted) including any facsimile thereof;

"Services Contract" means the services contract between the Subsidiary and/or the Company and Abraj Investment Management Limited (or its nominee);

"share" means any share in the capital of the Company, including a fraction of any share;

"Shareholder" means, in respect of any Share, the person whose name is entered in the Register of Members in respect thereof and "Class O Shareholder" shall be construed accordingly;

"Shareholder Agreement" means the Shareholder Agreement dated 15 October 2005 as amended from time to time;

"signed" includes a signature or representation of a signature affixed by mechanical means;



"Sources of Funds" means the sources of funds set out in Schedule 1 to the Shareholders' Agreement;

"Special Resolution" means a resolution;

- (a) passed by 100% of such Members as, being entitled to do so, vote in person or, where proxies are allowed, by proxy at a general meeting of the Company of which notice specifying the intention to propose the resolution as a Special Resolution has been duly given and where a poll is taken regard shall be had in computing a majority to the number of votes to which each Member is entitled; or
- (b) approved in writing by all of the Members entitled to vote at a general meeting of the Company in one or more instruments each signed by one or more of the Members and the effective date of the Special Resolution so adopted shall be the date on which the instrument or the first of such instruments if more than one, is executed;

"Subsidiary" means Karachi Electric Supply Company Limited, a public limited company existing under the laws of Pakistan;

"Subscription Agreement" means the Subscription Agreement dated 15 October 2008 as amended from time to time;

"Subsidiary Ordinary Shares" means ordinary shares in the capital of the Subsidiary; and

"Subsidiary Preference Shares" means any preference shares issued by the Subsidiary.

2. In these Articles, save where the context requires otherwise:

- (a) words importing the singular number shall include the plural number and vice versa;
- (b) words importing the masculine gender only shall include the feminine gender;
- (c) words importing persons only shall include companies or associations or bodies of persons, whether corporate or not;
- (d) "may" shall be construed as permissive and "shall" shall be construed as imperative;
- (e) references to a "dollar" or "dollars" or "\$" is a reference to dollars of the United States; and
- (f) references to a statutory enactment shall include reference to any amendment or re-enactment thereof for the time being in force.

3. Subject to the last two preceding Articles, any words defined in the Law shall, if not inconsistent with the subject or context, bear the same meaning in these Articles.

PRELIMINARY

- 4. The business of the Company may be commenced as soon after incorporation as the Directors see fit, notwithstanding that part only of the Shares may have been allotted or issued.
- 5. The registered office of the Company shall be at such address in the Cayman Islands as the Directors shall from time to time determine. The Company may in addition establish and maintain such other offices and places of business and agencies in such places as the Directors may from time to time determine.



SHARES

6. No Class O Shares shall be issued to any person who is not an existing Member unless such person enters into a Deed of Adherence and becomes a party to the Shareholders Agreement.
7. The Board shall make capital calls in accordance with the terms of the Shareholders Agreement.
8. The Board shall, from time to time with Abraxj consent (but in any event in accordance with the timetable set out in Schedule 10 of the Shareholders Agreement), make a capital call or a series of capital calls on Abraxj up to an aggregate amount, when taken together with the Subscription Price (as defined in the Subscription Agreement), of US\$361,327,000 (each an Abraxj Capital Call). An Abraxj Capital Call shall be made by notice to Abraxj and shall include (i) the total aggregate number of Class O Shares to be subscribed; (ii) the date of closing with respect to the subscription of the Class O Shares, being not less than 30 days following the date of the notice (an Abraxj Capital Call Closing Date); and (iii) wire transfer instructions with respect to the payment of the applicable subscription price. Abraxj shall, on an Abraxj Capital Call Closing Date, pay the subscription price for the relevant Class O Shares and, on receipt, the Company shall issue those Class O Shares to Abraxj and deliver to Abraxj duly executed share certificates evidencing the Class O Shares. For the avoidance of doubt, each issue of Class O Shares pursuant to an Abraxj Capital Call shall be made free of any pre-emption rights in favour of the other Members and each other Member hereby irrevocably waives any pre-emptive rights it may have in respect of such issue of Class O Shares to Abraxj.
9. Subject to Articles 7 and 12, the Board may from time to time make capital calls on Members pro rata to their holdings of Class O Shares (a Capital Call) which in aggregate shall not exceed the Capital Call Limit. A Capital Call shall be made by notice to every Member and shall include (i) the total aggregate number of Class O Shares to be subscribed and the number of Class O Shares allocated to each Member (such allocation to be pro rata to each Member's holding of Class O Shares); (ii) the date of closing with respect to the subscription of the Class O Shares, being not less than 30 days following the date of the notice (the Capital Call Closing Date); and (iii) wire transfer instructions with respect to the payment of the applicable subscription price. Each Member shall, on the Capital Call Closing Date (as set out in the relevant notice), pay the subscription price for the Class O Shares allocated to it and, on receipt, the Company shall issue those Class O Shares to that Member and deliver to that Member duly executed share certificates evidencing its Class O Shares.
10. If, with respect to any Capital Call made in accordance with Article 9 above or as approved by the Members in accordance with Article 11 below, a Member fails to subscribe for its required number of Class O Shares (as set out in the relevant Capital Call notice (the Default Shares)) on the Capital Call Closing Date and fails to subscribe for all such Class O Shares within five Business Days after the service of a notice on that Member of such failure then all of the Default Shares shall be offered to the other Members for subscription at the same subscription price (in the case of competition, such Default Shares to be allocated between the other Members on a pro rata basis).
11. Any Capital Call proposed by the Board which exceeds the Capital Call Limit (or such other amount as agreed by the Members from time to time), shall require a simple majority approval of the Members (following good faith consultation between the Members as to the funding requirements of the Company and its Subsidiary and the ability of the Company or its Subsidiary to obtain such funding from alternative sources), such approval not to be unreasonably withheld or delayed.
12. Other than in respect of sub clause 92.1 or 92.9 of the Shareholders Agreement, no capital call shall be made on the Members until Abraxj has fully complied with Abraxj Capital Calls of an aggregate amount, when taken with the Subscription Price (as defined in the Subscription Agreement), of US\$361,327,000. To the extent that, notwithstanding this, it is agreed by the



65

parties that a capital call should be made, it is acknowledged that such capital call should be on a pro rata basis (with such pro rata proportion being calculated on the assumption that Abmaaj has subscribed in full for the Total Shares (as defined in the Shareholders Agreement)).

13. No Class O Shares shall be issued to any person who is not an existing member unless such person enters into a Deed of Adherence and becomes a party to the Shareholder Agreement.
14. The authorized share capital of the Company as at the date of adoption of these Articles is US\$50,000 divided into 5,000,000 Class O Shares of a nominal or par value of US\$0.01 each.
15. The rights and resolutions attaching to the Class O Shares are as follows:
 - (a) **Dividends**

Holders of Class O Shares shall be entitled to be paid in respect of each fiscal year by way of dividend such amounts as are lawfully available for distribution, subject always to the provisions of Article 121, and the consent of Abmaaj, Al Jomaih and Denham.
 - (b) **Voting**
 - (i) Holders of the Class O Shares shall have the right to receive notice of, attend, speak and vote at general meetings of the Company and shall be entitled to one vote in respect of each Class O Share held.
 - (ii) The Directors shall obtain the prior written approval of Al Jomaih, Denham and Abmaaj (but only in so far as such entity is a Shareholder) prior to considering, approving or entering into any Reserved Matters.
 - (c) **Redemption**

No Class O Share shall be redeemable at the option of the holder thereof.
 - (d) **Return of Capital on Liquidation**

On a return of capital on liquidation or winding up of the Company, the holders of the Class O Shares shall be entitled to return of capital in accordance with Article 145.
16. The Company may transfer as may be permitted by law, pay a commission to any person in consideration of his subscribing or agreeing to subscribe whether absolutely or conditionally for any shares. Such commissions may be satisfied by the payment of cash or the lodgement of fully or partly paid-up shares or partly in one way and partly in the other. The Company may also on any issue of shares pay such brokerage as may be lawful.

VARIATION OF RIGHTS ATTACHING TO SHARES

17. Subject to the provisions of these Articles, if at any time the share capital is divided into different classes of shares, the rights attaching to any class (unless otherwise provided by the terms of issue of the shares of that class) may be varied or abrogated with the consent in writing of the holders of two-thirds of the issued shares of that class, or with the sanction of a resolution passed by at least a two-thirds majority of the holders of shares of the class present in person or by proxy at a separate general meeting of the holders of the shares of the class. To every such separate general meeting the provisions of these Articles relating to general meetings of the Company shall mutatis mutandis apply, but so that the necessary quorum shall be at least one person holding or representing by proxy at least one-third of the issued shares of the class and that any holder of shares of the class present in person or by proxy may demand a poll.



18. The rights conferred upon the holders of the shares of any class issued with preferred or other rights shall not, unless otherwise expressly provided by the terms of issue of the shares of that class, be deemed to be varied or abrogated by the creation or issue of further shares ranking pari passu therewith or the redemption or purchase of shares of any class by the Company.

CERTIFICATES

19. Every person whose name is entered as a member in the Register of Members shall, without payment, be entitled to a certificate in the form determined by the Directors. Such certificate may be under the Seal. All certificates shall specify the share or shares held by that person and the amount paid up thereon, provided that in respect of a share or shares held jointly by several persons the Company shall not be bound to issue more than one certificate, and delivery of a certificate for a share to one of several joint holders shall be sufficient delivery to all.
20. If a share certificate is defaced, lost or destroyed it may be renewed on such terms, if any, as to evidence and indemnity as the Directors think fit.

FRACTIONAL SHARES

21. The Directors may issue fractions of a share of any class of shares, and, if so issued, a fraction of a share (calculated to three decimal points) shall be subject to and carry the corresponding fraction of liabilities (whether with respect to any unpaid amount thereon, contribution, calls or otherwise), limitations, preferences, privileges, qualifications, restrictions, rights (including, without limitation, voting and participation rights) and other attributes of a whole share of the same class of shares. If more than one fraction of a share of the same class is issued to or acquired by the same Member, then such fractions shall be accumulated.

LIEN

22. The Company shall have a first priority lien and charge on every partly paid share for all moneys (whether presently payable or not) called or payable at a fixed time in respect of that share, and the Company shall also have a first priority lien and charge on all partly paid shares standing registered in the name of a Member (whether held solely or jointly with another person) for all moneys presently payable by him or his estate to the Company, but the Directors may at any time declare any share to be wholly or in part exempt from the provisions of this Article. The Company's lien, if any, on a share shall extend to all distributions payable thereon.
23. The Company may sell, in such manner as the Directors in their absolute discretion think fit, any shares on which the Company has a lien, but no sale shall be made unless an amount in respect of which the lien exists is presently payable nor until the expiration of 14 days after a notice in writing, stating and demanding payment of such part of the amount in respect of which the lien exists as is presently payable, has been given to the registered holder for the time being of the share, or the persons entitled thereto by reason of his death or bankruptcy.
24. For giving effect to any such sale the Directors may authorise some person to transfer the share sold to the purchaser thereof. The purchaser shall be registered as the holder of the share comprised in any such transfer and he shall not be bound to see to the application of the purchase money, nor shall his title to the share be affected by any irregularity or invalidity in the proceedings in reference to the sale.
25. The proceeds of the sale after deduction of expenses, fees and commission incurred by the Company shall be received by the Company and applied in payment of such part of the amount in respect of which the lien exists as is presently payable, and the residue shall (subject to a lien for sums not presently payable as entered upon the share prior to the sale) be paid to the person entitled to the share at the date of the sale.



CALLS ON SHARES

26. The Directors may from time to time make calls upon the Members in respect of any moneys unpaid on their partly paid shares, and each Member shall (subject to receiving at least 14 days notice specifying the time or times of payment) pay to the Company at the time or times so specified the amount called on such shares.
27. The joint holders of a share shall be jointly and severally liable to pay calls in respect thereof.
28. If a sum called in respect of a share is not paid before or on the day appointed for payment thereof, the person from whom the sum is due shall pay interest upon the sum at the rate of eight per centum per annum from the day appointed for the payment thereof to the time of the actual payment but the Directors shall be at liberty to waive payment of that interest wholly or in part.
29. The provisions of these Articles as to the liability of joint holders and as to payment of interest shall apply in the case of non-payment of any sum which, by the terms of issue of a share, becomes payable at a fixed time, whether on account of the amount of the share, or by way of premium, as if the same had become payable by virtue of a call duly made and notified.
30. The Directors may make arrangements on the issue of partly paid shares for a difference between the Members, or the particular shares, in the amount of calls to be paid and in the times of payment.
31. The Directors may, if they think fit, receive from any Member willing to advance the same all or any part of the moneys uncalled and unpaid upon any partly paid shares held by him, and upon all or any of the moneys so advanced may (until the same would, but for such advance, become presently payable) pay interest at such rate (not exceeding without the sanction of an Ordinary Resolution, eight per cent, per annum) as may be agreed upon between the Member paying the sum in advance and the Directors.

FORFEITURE OF SHARES

32. If a Member fails to pay any call or instalment of a call in respect of partly paid shares on the day appointed for payment, the Directors may, at any time thereafter during such time as any part of such call or instalment remains unpaid, serve a notice on him requiring payment of so much of the call or instalment as is unpaid, together with any interest which may have accrued.
33. The notice shall name a further day (not earlier than the expiration of 14 days from the date of the notice) on or before which the payment required by the notice is to be made, and shall state that in the event of non-payment at or before the time appointed the shares in respect of which the call was made will be liable to be forfeited.
34. If the requirements of any such notice as aforesaid are not complied with, any share in respect of which the notice has been given may at any time thereafter, before the payment required by the notice has been made, be forfeited by a resolution of the Directors to that effect.
35. A forfeited share may be sold or otherwise disposed of on such terms and in such manner as the Directors think fit, and at any time before a sale or disposition the forfeiture may be cancelled on such terms as the Directors think fit.
36. A person whose shares have been forfeited shall cease to be a Member in respect of the forfeited shares, but shall, notwithstanding, remain liable to pay to the Company all moneys which at the date of forfeiture were payable by him to the Company in respect of the shares forfeited, but his liability shall cease if and when the Company receives payment in full of the amount unpaid on the shares forfeited.



- 68
37. A statutory declaration in writing that the declarant is a Director, and that a share has been duly forfeited on a date stated in the declaration, shall be conclusive evidence of the facts in the declaration as against all persons claiming to be entitled to the share.
 38. The Company may receive the consideration, if any, given for a share on any sale or disposition thereof pursuant to the provisions of these Articles as to forfeiture and may execute a transfer of the share in favour of the person to whom the share is sold or disposed of and that person shall be registered as the holder of the share, and shall not be bound to see to the application of the purchase money, if any, nor shall his title to the shares be affected by any irregularity or invalidity in the proceedings in reference to its forfeiture, sale or disposal of the share.
 39. The provisions of these Articles as to forfeiture shall apply in the case of non-payment of any sum which by the terms of issue of a share becomes due and payable, whether on account of the amount of the share, or by way of premium, as if the same had been payable by virtue of a call duly made and notified.

TRANSFER OF SHARES

40. The instrument of transfer of any share shall be in any usual or common form or such other form as the Directors may, in their absolute discretion, approve and be executed by or on behalf of the transferor and if in respect of a nil or partly paid up share, or if so required by the Directors, shall also be executed on behalf of the transferee, shall be accompanied by the certificate (if any) of the shares to which it relates and such other evidence as the Directors may reasonably require to show the right of the transferor to make the transfer. The transferee shall be deemed to remain a holder of the share until the name of the transferee is entered in the Register of Members in respect thereof.
41. The Directors shall decline to register any transfer of shares unless the proposed transferee, if not already a party to the Shareholders Agreement, has executed a Deed of Adherence. The Directors shall also decline to register any transfer of Class Q Shares that is not in compliance with the terms of the Shareholders Agreement.
42. The registration of transfers may be suspended at such times and for such periods as the Directors may, in their absolute discretion, from time to time determine, provided always that such registration shall not be suspended for more than 45 days in any year.
43. All instruments of transfer which are registered shall be retained by the Company, but any instrument of transfer which the Directors decline to register shall (except in any case of fraud) be returned to the person depositing the same.

TRANSMISSION OF SHARES

44. The legal personal representative of a deceased sole holder of a share shall be the only person recognized by the Company as having any title to the share. In the case of a share registered in the name of two or more holders, the survivors or survivor, or the legal personal representatives of the deceased survivor, shall be the only person recognized by the Company as having any title to the share.
45. Any person becoming entitled to a share in consequence of the death or bankruptcy of a Member shall upon such evidence being produced as may from time to time be required by the Directors, have the right either to be registered as a Member in respect of the share or, instead of being registered himself, to make such transfer of the share as the deceased or bankrupt person could have made; but the Directors shall, in either case, have the same right to decline or suspend registration as they would have had in the case of a transfer of the share by the deceased or bankrupt person before the death or bankruptcy.



- 69
46. A person becoming entitled to a share by reason of the death or bankruptcy of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he were the registered holder of the share, except that he shall not, before being registered as a Member in respect of the share, be entitled in respect of it to exercise any right conferred by membership in relation to meetings of the Company.

ALTERATION OF CAPITAL

47. The Company may from time to time by Ordinary Resolution increase the share capital by such sum, to be divided into shares of such classes and amount as the resolution shall prescribe.
48. The Company may by Ordinary Resolution:
- (a) consolidate and divide all or any of its share capital into shares of a larger amount than its existing shares;
 - (b) convert all or any of its paid up shares into stock and reconvert that stock into paid up shares of any denomination;
 - (c) subdivide its existing shares, or any of them into shares of a smaller amount provided that in the subdivision the proportion between the amount paid and the amount, if any, unpaid on each reduced share shall be the same as it was in case of the share from which the reduced share is derived;
 - (d) cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person and diminish the amount of its share capital by the amount of the shares so cancelled.
49. The Company may by Special Resolution reduce its share capital and any capital redemption reserve in any manner authorized by law.

REDEMPTION AND PURCHASE OF OWN SHARES

50. Subject to the provisions of the Law, the Company may:
- (a) issue shares on terms that they are to be redeemed or are liable to be redeemed at the option of the Company or the Member on such terms and in such manner as the Directors may, before the issue of such shares, determine;
 - (b) purchase its own shares (including any redeemable shares) on such terms and in such manner as the Directors may determine and agree with the Member; and
 - (c) make a payment in respect of the redemption or purchase of its own shares otherwise than out of profits or the proceeds of a fresh issue of shares.
51. Any share in respect of which notice of redemption has been given shall not be entitled to participate in the profits of the Company in respect of the period after the date specified as the date of redemption in the notice of redemption.
52. The redemption or purchase of any share shall not be deemed to give rise to the redemption or purchase of any other share.
53. The Directors may when making payments in respect of redemption or purchase of shares, if authorized by the terms of issue of the shares being redeemed or purchased or with the agreement of the holder of such shares, make such payment either in cash or in specie.



CLOSING REGISTER OF MEMBERS OR FIXING RECORD DATE

54. For the purpose of determining those Members that are entitled to receive notice of, attend or vote at any meeting of Members or any adjournment thereof, or those Members that are entitled to receive payment of any dividend, or in order to make a determination as to who is a Member for any other purpose, the Directors may provide that the Register of Members shall be closed for transfers for a stated period which shall not exceed in any case 40 days. If the Register of Members shall be so closed for the purpose of determining those Members that are entitled to receive notice of, attend or vote at a meeting of Members the register shall be so closed for at least 10 days immediately preceding such meeting and the record date for such determination shall be the date of the closure of the Register of Members.
55. In lieu of or apart from closing the Register of Members, the Directors may fix in advance a date as the record date for any such determination of those Members that are entitled to receive notice of, attend or vote at a meeting of the Members and for the purpose of determining those Members that are entitled to receive payment of any dividend the Directors may, at or within 90 days prior to the date of declaration of such dividend fix a subsequent date as the record date for such determination.
56. If the Register of Members is not so closed and no record date is fixed for the determination of those Members entitled to receive notice of, attend or vote at a meeting of Members or those Members that are entitled to receive payment of a dividend, the date on which notice of the meeting is mailed or the date on which the resolution of the Directors declaring such dividend is adopted, as the case may be, shall be the record date for such determination of Members. Where a determination of those Members that are entitled to receive notice of, attend or vote at a meeting of Members has been made as provided in this Article, such determination shall apply to any adjournment thereof.

GENERAL MEETINGS

57. The Directors may, whenever they think fit, convene a general meeting of the Company.
58. General meetings shall also be convened on the written requisition of any Member or Members entitled to attend and vote at general meetings of the Company who hold not less than 10 per cent of the paid up voting share capital of the Company deposited at the registered office of the Company specifying the objects of the meeting for a date not later than 21 days from the date of deposit of the requisition signed by the requisitionists, and if the Directors do not convene such meeting for a date not later than 45 days after the date of such deposit, the requisitionists themselves may convene the general meeting in the same manner, as nearly as possible, as that in which general meetings may be convened by the Directors, and all reasonable expenses incurred by the requisitionists as a result of the failure of the Directors to convene the general meeting shall be reimbursed to them by the Company.
59. If at any time there are no Directors, any two Members (or if there is only one Member then that Member) entitled to vote at general meetings of the Company may convene a general meeting in the same manner as nearly as possible as that in which meetings may be convened by the Directors.

NOTICE OF GENERAL MEETINGS

60. At least seven days notice counting from the date service is deemed to take place as provided in these Articles specifying the place, the day and the hour of the meeting and, in case of special business, the general nature of that business, shall be given in the manner hereinafter provided or in such other manner (if any) as may be prescribed by the Company by Ordinary Resolution to each person as is, under these Articles, entitled to receive such notices from the Company, but with the consent of all the Members entitled to receive notice of some particular meeting and



71

shall and vote thereat, that meeting may be convened by such shorter notice or without notice and in such manner as those Members may think fit.

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

PROCEEDINGS AT GENERAL MEETINGS

62. All business carried out at a general meeting shall be deemed special with the exception of sanctioning a dividend, the consideration of the accounts, balance sheets, and any report of the Directors or of the Company's auditors, the appointment and removal of Directors and the fixing of the remuneration of the Company's auditors. No special business shall be transacted at any general meeting without the consent of all Members entitled to receive notice of that meeting unless notice of such special business has been given in the notice convening that meeting.
63. No business shall be transacted at any general meeting unless a quorum of Members is present at the time when the meeting proceeds to business. Save as otherwise provided by these Articles, one or more of the Members holding more than 51% of the paid up voting share capital of the Company present in person or by proxy shall be a quorum.
64. If within half an hour from the time appointed for the meeting a quorum is not present, the meeting, if convened upon 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 the adjourned meeting a quorum is not present within half an hour from the time appointed for the meeting the Member or Members present and entitled to vote shall be a quorum (except in relation to an adjournment to a general meeting concerning a Reserved Matter, for which the quorum shall be one or more of the Members present in person or by proxy who hold more than 51% of the outstanding issued Class G Shares of the Company).
65. If the Directors wish to make this facility available to Members for a specific or all general meetings of the Company, a Member may participate in any general meeting of the Company, by means of a telephone or similar communication equipment by way of which all persons participating in such meeting can hear each other and such participation shall be deemed to constitute presence in person at the meeting.
66. The Chairman, if any, of the Board of Directors shall preside as Chairman at every general meeting of the Company.
67. If there is no such Chairman, or if at any general meeting he is not present within fifteen minutes after the time appointed for holding the meeting or is unwilling to act as Chairman, the Members present shall choose one of their number to be Chairman of that meeting.
68. The Chairman may with the consent of any general meeting at which a quorum is present (and shall if so directed by the meeting) adjourn a meeting from time to time and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for 14 days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
69. At any general meeting a resolution put to the vote of the meeting shall be decided on a show of hands, unless a poll is (before or on the declaration of the result of the show of hands) demanded by one or more Members present in person or by proxy entitled to vote, and unless a poll is so demanded, a declaration by the Chairman that a resolution has, on a show of hands, been carried, or carried unanimously, or by a particular majority, or lost, and an entry to that effect in



72

the book of the proceedings of the Company, shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favour of, or against, that resolution.

70. If a poll is duly demanded it shall be taken in such manner as the Chairman directs, and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.
71. In the case of an equality of votes, whether on a show of hands or on a poll, the Chairman of the meeting at which the show of hands takes place or at which the poll is demanded, shall be entitled to a second or casting vote.
72. A poll demanded on the election of a Chairman of the meeting or on a question of adjournment shall be taken forthwith. A poll demanded on any other question shall be taken at such time as the Chairman of the meeting directs.

VOTES OF MEMBERS

73. Subject to any rights and restrictions for the time being attached to any class or classes of shares, on a show of hands every Member present in person and every person representing a Member by proxy shall at a general meeting of the Company have one vote and on a poll every Member and every person representing a Member by proxy shall have one vote for each share of which he or she is the person represented by proxy or the holder.
74. In the case of joint holders 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 joint holders and for the purpose seniority shall be determined by the order in which the names stand in the Register of Members.
75. A Member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on a show of hands or on a poll, by his committee, or other person in the nature of a committee appointed by that court, and any such committee or other person may vote by proxy.
76. No Member shall be entitled to vote at any general meeting unless all calls or other sums presently payable by him in respect of shares carrying the right to vote held by him have been paid.
77. On a poll votes may be given either personally or by proxy.
78. The instrument appointing a proxy shall be in writing under the hand of the appointor or of his attorney duly authorised in writing or, if the appointor is a corporation, either under Seal or under the hand of an officer or attorney duly authorised. A proxy need not be a Member.
79. An instrument appointing a proxy may be in any usual or customary form or such other form as the Directors may approve.
80. The instrument appointing a proxy shall be deemed to confer authority to demand or join in demanding a poll.
81. A resolution in writing signed by all the Members for the time being entitled to receive notice of and to attend and vote at general meetings (or being corporations by their duly authorised representatives) shall be as valid and effective as if the same had been passed at a general meeting of the Company duly convened and held.

CORPORATIONS ACTING BY REPRESENTATIVES AT MEETINGS

82. Any corporation which is a Member or a Director may by resolution of its directors or other governing body authorise such person as it thinks fit to act as its representative at any meeting of



the Company or of any class of Members or of the Board of Directors or of a committee of Directors, and the person so authorised shall be entitled to exercise the same powers on behalf of the corporation which he represents as that corporation could exercise if it were an individual Member or Director.

DIRECTORS

83. The Board of Directors shall be comprised of ten Directors.
84. Abreej may appoint up to five Abreej Directors and remove from office any Abreej Director and appoint another in his place.
85. Al Jomaih may appoint up to three Al Jomaih Directors and remove from office any Al Jomaih Director and appoint another in his place.
86. Denham may appoint up to two Denham Directors and remove from office any Denham Director and appoint another in his place.
87. At any time that Abreej, Al Jomaih and Denham are entitled to vote for the election or removal of any of the Abreej, Al Jomaih or Denham Directors, they will not vote in favour of the removal of any of the Abreej, Al Jomaih or Denham Directors as the case may be.
88. A Member has the right to request another Member to remove a Director appointed by that Member for Cause. For purposes of this Article 38, Cause shall mean (a) such Director's conviction of a crime constituting a felony (b) gross negligence (as such term is construed under English law), wilful misconduct or fraud on the part of a Director's conduct in connection with performance of his duties, or (c) disqualification of such Director to serve as a director of a company incorporated under the laws of the Cayman Islands.
89. The remuneration of the Directors may be determined by the Board of Directors or by the Company by Ordinary Resolution.
90. There shall be no shareholding qualification for Directors unless determined otherwise by the Company by Ordinary Resolution.

ALTERNATE DIRECTOR

91. Any Director may in writing appoint another person to be his alternate to act in his place at any meeting of the Directors at which he is unable to be present. Every such alternate shall be entitled to notice of meetings of the Directors and to attend and vote thereat as a Director when the person appointing him is not personally present and where he is a Director to have a separate vote on behalf of the Director he is representing in addition to his own vote. A Director may at any time in writing revoke the appointment of an alternate appointed by him. Such alternate shall not be an officer of the Company and shall be deemed to be the agent of the Director appointing him. The remuneration of such alternate shall be payable out of the remuneration of the Director appointing him and the proportion thereof shall be agreed between them.
92. Any Director may appoint any person, whether or not a Director, to be the proxy of that Director to attend and vote on his behalf, in accordance with instructions given by that Director, or in the absence of such instructions at the discretion of the proxy, at a meeting or meetings of the Directors which that Director is unable to attend personally. The instrument appointing the proxy shall be in writing under the hand of the appointing Director and shall be in any usual or common form or such other form as the Directors may approve, and must be lodged with the Chairman of the meeting of the Directors at which such proxy is to be used, or first used, prior to the commencement of the meeting.



POWERS AND DUTIES OF DIRECTORS

93. Subject to the provisions of the Law, these Articles and to any resolutions made in a general meeting, the business of the Company shall be managed by the Directors, who may pay all expenses incurred in setting up and registering the Company and may exercise all powers of the Company subject to any delegation of powers to service providers as contemplated in Article 152: provided that, the Directors shall not be entitled to act in relation to any Reserved Matter unless previously approved by Abraj, Al Joziah and Dentam.
94. The Directors may from time to time appoint any person, whether or not a Director to hold such office in the Company as the Directors may think necessary for the administration of the Company, including but not limited to, the office of president, one or more vice-presidents, treasurer, assistant treasurer, manager or controller, and for such term and at such remuneration (whether by way of salary or commission or participation in profits or partly in one way and partly in another), and with such powers and duties as the Directors may think fit. Any person so appointed by the Directors may be removed by the Directors. The Abraj Directors may also appoint one or more of their number to the office of managing director upon like terms, but any such appointment shall ipso facto determine if any managing director ceases from any cause to be a Director.
95. The Directors may appoint a Secretary (and if need be an Assistant Secretary or Assistant Secretaries) who shall hold office for such term, at such remuneration and upon such conditions and with such powers as they think fit. Any Secretary or Assistant Secretary so appointed by the Directors may be removed by the Directors.
96. The Directors may delegate any of their powers to committees consisting of such member or members of their body as they think fit; any committee so formed shall in the exercise of the powers so delegated conform to any regulations that may be imposed on it by the Directors.
97. The Directors may from time to time and at any time by power of attorney appoint any company, firm or person or body of persons, whether nominated directly or indirectly by the Directors, to be the attorney or attorneys of the Company for such purposes and with such powers, authorities and discretion (not exceeding those vested in or exercisable by the Directors under these Articles) and for such period and subject to such conditions as they may think fit, and any such power of attorney may contain such provisions for the protection and convenience of persons dealing with any such attorney as the Directors may think fit, and may also authorize any such attorney to delegate all or any of the powers, authorities and discretion vested in him.
98. The Directors may from time to time provide for the management of the affairs of the Company in such manner as they shall think fit and the provisions contained in the three next following Articles shall not limit the general powers conferred by this Article.
99. The Directors from time to time and at any time may establish any committees, local boards or agencies for managing any of the affairs of the Company and may appoint any persons to be members of such committees or local boards and may appoint any managers or agents of the Company and may fix the remuneration of any such persons.
100. The Directors from time to time and at any time may delegate to any such committee, local board, manager or agent any of the powers, authorities and discretions for the time being vested in the Directors and may authorize the members for the time being of any such local board, or any of them to fill any vacancies therein and to act notwithstanding vacancies and any such appointment or delegation may be made on such terms and subject to such conditions as the Directors may think fit and the Directors may at any time remove any person so appointed and may annul or vary any such delegation, but no person dealing in good faith and without notice of any such annulment or variation shall be affected thereby.



101. Any such delegates as aforesaid may be authorized by the Directors to subdelegate all or any of the powers, authorities, and discretion for the time being vested in them

BORROWING POWERS OF DIRECTORS

102. The Directors may exercise all the powers of the Company to borrow money and to mortgage or charge its undertaking, property and uncalled capital or any part thereof, to issue debentures, debenture stock and other securities whenever money is borrowed or as security for any debt, liability or obligation of the Company or of any third party.

DISQUALIFICATION OF DIRECTORS

103. The office of Director shall be vacated, if the Director:
- (a) becomes bankrupt or makes any arrangement or composition with his creditors;
 - (b) is found to be or becomes of unsound mind;
 - (c) resigns his office by notice in writing to the Company;
 - (d) is removed from office by Special Resolution; or
 - (e) is in the case of an Abnaaj Director, Al Jomaih Director and Darham Director, removed from office by Abnaaj, Al Jomaih or Darham respectively.

PROCEEDINGS OF DIRECTORS

- 104.
- (a) The Directors may meet together (either within or without the Cayman Islands) for the despatch of business, adjourn, and otherwise regulate their meetings and proceedings as they think fit. Any Director shall have the right to require the Chairman to convene a meeting of the Board. Notwithstanding the foregoing, at least 4 meetings shall take place annually, except that no such meetings shall take place unless the date and time of such meeting has been approved by Abnaaj. Questions arising at any meeting shall be decided by a majority of votes. In the case of an equality of votes the Chairman shall have a second or casting vote. A Director may, and a Secretary or Assistant Secretary on the requisition of a Director shall require the Chairman to convene a meeting of the Directors.
 - (b) At least ten Business days notice of each meeting of the Board shall be given to the Directors.
 - (c) An agenda and copies of any appropriate supporting papers shall be sent to each Director not later than five Business days prior to the date of each board meeting.
105. A Director or Directors may participate in any meeting of the Board of Directors, or of any committee appointed by the Board of Directors of which such Director or Directors are members, by means of telephone, video conferencing or similar communication equipment by way of which all persons participating in such meeting can hear each other and if he so wishes, to address all other participating Directors simultaneously and such participation shall be deemed to constitute presence in person at the meeting. All meetings shall be conducted in English.
106. The quorum necessary for the transaction of meetings of the Directors shall be five Directors of which a majority shall be Abnaaj Directors and at least one Director appointed by each of A/



76

Jointly and Severally (but only for so long as such party is a Shareholder). A Director represented by proxy or by an Alternate Director at any meeting shall be deemed to be present for the purposes of determining whether or not a quorum is present. If a quorum is not present within 30 minutes of the allotted commencement time, the meeting shall be adjourned until the same time on 5th Business Day after initial meeting date at which time the quorum shall consist of any 5 Directors.

107. A Director who is in any way, whether directly or indirectly, interested in a contract or proposed contract with the Company shall declare the nature of his interest at a meeting of the Directors. A general notice given to the Board of Directors by any Director to the effect that he is a member of any specified company or firm and is to be regarded as interested in any contract which may thereafter be made with that company or firm shall be deemed a sufficient declaration of interest in regard to any contract so made. A Director may vote in respect of any contract or proposed contract or arrangement notwithstanding that he may be interested therein and if he does so his vote shall be counted and he may be counted in the quorum at any meeting of the Directors at which any such contract or proposed contract or arrangement shall come before the meeting for consideration.
108. A Director may hold any other office or place of profit under the Company (other than the office of auditor) in conjunction with his office of Director for such period and on such terms (as to remuneration and otherwise) as the Directors may determine and no Director or intending Director shall be disqualified by his office from contracting with the Company either with regard to his tenure of any such other office or place of profit or as vendor, purchaser or otherwise, nor shall any such contract or arrangement entered into by or on behalf of the Company in which any Director is in any way interested, be liable to be avoided, nor shall any Director so contracting or being so interested be liable to account to the Company for any profit realised by any such contract or arrangement by reason of such Director holding that office or of the fiduciary relation thereby established. A Director, notwithstanding his interest, may be counted in the quorum present at any meeting of the Directors whereat he or any other Director is appointed to hold any such office or place of profit under the Company or whereat the terms of any such appointment are arranged and he may vote on any such appointment or arrangement.
109. Any Director may act by himself or his firm in a professional capacity for the Company, and he or his firm shall be entitled to remuneration for professional services as if he were not a Director; provided that nothing herein contained shall authorise a Director or his firm to act as auditor to the Company.
110. The Directors shall cause minutes to be made in books or loose-leaf folders provided for the purpose of recording:
 - (a) all appointments of officers made by the Directors;
 - (b) the names of the Directors present at each meeting of the Directors and of any committee of the Directors;
 - (c) all resolutions and proceedings at all meetings of the Company, and of the Directors and of committees of Directors;
111. Minutes of each Board meeting written in English shall be circulated to each Director no later than 10 Business Days after the relevant meeting.
112. When the Chairman of a meeting of the Directors signs the minutes of such meeting those minutes shall be deemed to have been duly held notwithstanding that all the Directors have not actually come together or that there may have been a technical defect in the proceedings. Notwithstanding the foregoing, minutes of each meeting shall be written in English and shall be circulated to each Director no later than ten Business days after the relevant meeting.



77

113. A resolution signed by all the Directors shall be as valid and effectual as if it had been passed at a meeting of the Directors duly called and constituted. When signed a resolution may consist of several documents each signed by one or more of the Directors.
114. The continuing Directors may act notwithstanding any vacancy in their body but if and so long as their number is reduced below the number fixed by or pursuant to these Articles as the necessary quorum of Directors, the continuing Directors may act for the purpose of increasing the number, or of summoning a general meeting of the Company, but for no other purpose.
115. The Chairman of the Board shall be such Director as may from time to time be nominated by the Board.
116. A committee appointed by the Directors may elect a Chairman of its meetings. If no such Chairman is elected, or if at any meeting the Chairman is not present within five minutes after the time appointed for holding the meeting, the members present may choose one of their number to be Chairman of the meeting.
117. A committee appointed by the Directors may meet and adjourn as it thinks proper. Questions arising at any meeting shall be determined by a majority of votes of the committee members present and in case of an equality of votes the Chairman shall have a second or casting vote.
118. All acts done by any meeting of the Directors or of a committee of Directors, or by any person acting as a Director, shall notwithstanding that 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 disqualified, be as valid as if every such person had been duly appointed and was qualified to be a Director.
119. [Not used]

DIVIDENDS

120. Subject to Article 15(a) and any rights and restrictions for the time being attached to any class or classes of shares, the Directors may from time to time declare dividends (including interim dividends) and other distributions on shares in issue and authorize payment of the same out of the funds of the Company lawfully available therefor.
121. Subject to Article 15(a) and any rights and restrictions for the time being attached to any class or classes of shares, the Company by Ordinary Resolution may declare dividends, but no dividend shall exceed the amount recommended by the Directors.
122. The Directors may, before recommending or declaring any dividend, set aside out of the funds legally available for distribution such sums as they think proper as a reserve or reserves which shall, in the absolute discretion of the Directors be applicable for meeting contingencies, or for equalizing dividends or for any other purpose to which those funds may be properly applied and pending such application may in the absolute discretion of the Directors, either be employed in the business of the Company or be invested in such investments as the Directors may from time to time think fit.
123. Any dividend may be paid by cheque sent through the post to the registered address of the Member or person entitled thereto, or in the case of joint holders, to any one of such joint holders at his registered address or to such person and such address as the Member or person entitled, or such joint holders as the case may be, may direct. Every such cheque shall be made payable to the order of the person to whom it is sent or to the order of such other person as the Member or person entitled, or such joint holders as the case may be, may direct.



124. The Directors when paying dividends to the Members in accordance with the provisions of these Articles may make such payment either in cash or in specie.
125. Subject to any rights and restrictions for the time being attached to any class or classes of shares, all dividends shall be declared and paid according to the amounts paid on the shares, but if and so long as nothing is paid up on any of the shares dividends may be declared and paid according to the par value of the shares. No amount paid on a share in advance of calls shall, while carrying interest, be treated for the purposes of this Article as paid on the share.
126. If several persons are registered as joint holders of any share, any of them may give attached receipts for any dividend or other moneys payable on or in respect of the share.
127. No dividend shall bear interest against the Company.
128. No dividend shall be paid otherwise than out of profits or, subject to the restrictions of the Law, the share premium account.

ACCOUNTS AND AUDIT

129. The books of account relating to the Company's affairs shall be kept in such manner as may be determined from time to time by the Directors.
130. The books of account shall be kept at the registered office of the Company, or at such other place or places as the Directors think fit, and shall always be open to the inspection of the Directors.
131. The Directors shall from time to time determine whether and to what extent 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 Directors, and no Member (not being a Director) shall have any right of inspecting any account or book or document of the Company except as conferred by law or authorized by the Directors or by the Company by Ordinary Resolution.
132. The management accounts relating to the Company's affairs shall be provided to the holders of the Class O Shares within 30 days of each Quarter End Date and the Company's financial statements shall be audited annually and provided to each Shareholder as soon as they are available but in any event within 120 days of the relevant Financial Year End.

CAPITALISATION OF PROFITS

133. Subject to the Law, the Directors may, with the authority of an Ordinary Resolution:
- (a) resolve to capitalise an amount standing to the credit of reserves (including a share premium account, capital redemption reserve and profit and loss account), whether or not available for distribution;
 - (b) appropriate the sum resolved to be capitalised to the Members in proportion to the nominal amount of Shares (whether or not fully paid) held by them respectively and apply that sum on their behalf in or towards:
 - (i) paying up the amounts (if any) for the time being unpaid on shares held by them respectively; or
 - (ii) paying up in full unissued shares or debentures of a nominal amount equal to that sum;



79

and all the shares or debentures, credited as fully paid, to the Members (or as they may direct) in those proportions, or partly in one way and partly in the other, but the share premium account, the capital redemption reserve and profits which are not available for distribution may, for the purposes of this Article, only be applied in paying up unissued shares to be allotted to Members credited as fully paid;

- (c) make any arrangements they think fit to resolve a difficulty arising in the distribution of a capitalised reserve and in particular, without limitation, where shares or debentures become distributable in fractions the Directors may deal with the fractions as they think fit;

- (d) authorise a person to enter (on behalf of all the Members concerned) into an agreement with the Company providing for either:

- (i) the allotment to the Members respectively, credited as fully paid, of shares or debentures to which they may be entitled on the capitalisation, or
- (ii) the payment by the Company on behalf of the Members (by the application of their respective proportions of the reserves resolved to be capitalised) of the amounts or part of the amounts remaining unpaid on their existing shares,

and any such agreement made under this authority being effective and binding on all those Members; and

- (e) generally do all acts and things required to give effect to the resolution.

SHARE PREMIUM ACCOUNT

134. The Directors shall in accordance with the Law establish a share premium account and shall carry to the credit of such account from time to time a sum equal to the amount or value of the premium paid on the issue of any share.

135. There shall be debited to any share premium account on the redemption or purchase of a share the difference between the nominal value of such share and the redemption or purchase price provided always that at the discretion of the Directors such sum may be paid out of the profits of the Company or, if permitted by the Law, out of capital.

NOTICES

136. Any notice or document may be served by the Company or by the person entitled to give notice to any Member either personally, by facsimile or by sending it through the post in a prepaid letter or via a recognised courier service, fees prepaid, addressed to the Member at the address as appearing in the Register of Members. In the case of joint holders of a share, if notice shall be given to that one of the joint holders whose name stands first in the Register of Members in respect of the joint holding, and notice so given shall be sufficient notice to all the joint holders.

137. Any Member present, either personally or by proxy, at any meeting of the Company shall for all purposes be deemed to have received due notice of such meeting and, where requisite, of the purposes for which such meeting was convened.

138. Any notice or other document, if served by (a) post, shall be deemed to have been served five days after the time when the letter containing the same is posted, or, (b) facsimile, shall be deemed to have been served upon production by the transmitting facsimile machine of a report confirming transmission of the facsimile in full to the facsimile number of the recipient or (c) recognised courier service, shall be deemed to have been served 48 hours after the time when the letter containing the same is delivered to the courier service. In proving service by post or



80

courier service it shall be sufficient to prove that the letter containing the notice or documents was properly addressed and duly posted or delivered to the courier service.

139. Any notice or document delivered or sent by post to or left at the registered address of any Member in accordance with the terms of these Articles shall notwithstanding that such Member be then dead or bankrupt, and whether or not the Company has notice of his death or bankruptcy, be deemed to have been duly served in respect of any share registered in the name of such Member as sole or joint holder, unless his name shall at the time of the service of the notice or document, have been removed from the Register of Members as the holder of the share, and such service shall for all purposes be deemed a sufficient service of such notice or document on all persons interested (whether jointly with or as claiming through or under him) in the share.
140. Notice of every general meeting of the Company shall be given to:
- (a) all Members holding shares with the right to receive notice and who have supplied to the Company an address for the giving of notices to them; and
 - (b) every person entitled to a share in consequence of the death or bankruptcy of a Member, who but for his death or bankruptcy would be entitled to receive notice of the meeting.

No other person shall be entitled to receive notices of general meetings.

INDEMNITY

141. Every Director (including for the purposes of this Article any alternate Director appointed pursuant to the provisions of these Articles), Secretary, Assistant Secretary, or other officer for the time being and from time to time of the Company (but not including the Company's auditors) and the personal representatives of the same shall be indemnified and secured harmless out of the assets and funds of the Company against all actions, proceedings, costs, charges, expenses, losses, damages or liabilities incurred or sustained by him in or about the conduct or purported conduct of the Company's business or affairs or in the execution or discharge or purported execution or discharge of his duties, powers, authorities or discretions, including without prejudice to the generality of the foregoing, any costs, expenses, losses or liabilities incurred by him in defending (whether successfully or otherwise) any civil proceedings concerning the Company or its affairs in any court whether in the Cayman Islands or elsewhere.
142. This indemnity shall not apply to any liability to the extent that it is recovered from any other person and is subject to such Director taking reasonable steps to effect such a recovery, to the extent that the indemnity shall not apply where any alternative right of recovery is available and capable of being enforced.
143. No such Director, alternate Director, Secretary, Assistant Secretary or other officer of the Company (but not including the Company's auditors) shall be liable (a) for the acts, receipts, neglects, defaults or omissions of any other such Director or officer or agent of the Company or (b) for any loss on account of defect of title in any property of the Company or (c) on account of the insufficiency of any security in or upon which any money of the Company shall be invested or (d) for any loss incurred through any bank, broker or other similar person or (e) for any loss occasioned by any negligence, default, breach of duty, breach of trust, error of judgement or oversight on his part or (f) for any loss, damage or misfortune whatsoever which may happen in or arise from the execution or discharge of the duties, powers, authorities, or discretions of his office or in relation thereto, unless the same shall happen through his own dishonesty.

NON-RECOGNITION OF TRUSTS

144. No person shall be recognised by the Company as holding any share upon any trust and the Company shall not, unless required by law, be bound by or be compelled in any way to recognise



81

(even when having notice thereof) any equitable, contingent or future interest in any of its shares or any other rights in respect thereof except an absolute right to the entirety thereof in each Member registered in the Register of Members. Notwithstanding the foregoing, the Company shall be entitled to recognize any such interests as shall be determined by the Directors in their absolute discretion.

WINDING UP

145. The Company shall be taken to have commenced a voluntary winding up and dissolution upon the passing of a Special Resolution of the holders of the Class D Shares to wind up, dissolve, liquidate and terminate the Company.
146. If the Company shall be wound up, the Liquidator shall apply:
- (a) all the assets of the Company:
 - (i) first in paying the costs and expenses of the winding up, liquidation and dissolution of the Company;
 - (ii) secondly, to the creditors of the Company, in the order of priority provided by law;
 - (iii) thirdly, to establish reserves adequate to meet any and all contingent, unliquidated liabilities or obligations of the Company, provided that at the expiration of a period not exceeding three years after the final liquidation distribution, the balance of such reserves remaining after the payment of such contingencies or liabilities shall be distributed in the manner described herein;
 - (b) thereafter, all of the remaining assets of the Company, to the Class D Shareholders in proportion to the capital paid up on the Class D Shares held by each such Member at the commencement of the winding up.

AMENDMENT OF ARTICLES OF ASSOCIATION

147. Subject to the Law and the rights attaching to the various classes of shares, the Company may at any time and from time to time by Special Resolution alter or amend these Articles in whole or in part.

REGISTRATION BY WAY OF CONTINUATION

148. The Company may by Special Resolution resolve to be registered by way of continuation in a jurisdiction outside the Cayman Islands or such other jurisdiction in which it is for the time being incorporated, registered or existing. In furtherance of a resolution adopted pursuant to this Article, the Directors may cause an application to be made to the Registrar of Companies to deregister the Company in the Cayman Islands or such other jurisdiction in which it is for the time being incorporated, registered or existing and may cause all such further steps as they consider appropriate to be taken to effect the transfer by way of continuation of the Company.

THE SEAL

149. The Seal shall not be affixed to any instrument except by the authority of a resolution of the Board of Directors provided always that such authority may be given prior to or after the affixing of the Seal and if given after may be in general form confirming a number of affixings of the Seal. The Seal shall be affixed in the presence of a Director or a Secretary (or an Assistant Secretary) or in the presence of any one or more persons as the Directors may appoint for the purpose and every person as aforesaid shall sign every instrument to which the Seal is so affixed in their presence.



82

150. The Company may maintain a facsimile of the Seal in such countries or places as the Directors may appoint and such facsimile Seal shall not be affixed to any instrument except by the authority of a resolution of the Board of Directors provided always that such authority may be given prior to or after the affixing of such facsimile Seal and if given after may be in general terms conferring a number of affixings of such facsimile Seal. The facsimile Seal shall be affixed in the presence of such person or persons as the Directors shall for this purpose appoint and such person or persons as aforesaid shall sign every instrument to which the facsimile Seal is so affixed in their presence and such affixing of the facsimile Seal and signing as aforesaid shall have the same meaning and effect as if the Seal had been affixed in the presence of and the instrument signed by a Director or a Secretary (or an Assistant Secretary) or in the presence of any one or more persons as the Directors may appoint for the purpose.
151. Notwithstanding the foregoing, a Secretary or any Assistant Secretary shall have the authority to affix the Seal, or the facsimile Seal, to any instrument for the purpose of attesting authenticity of the matter contained therein but which does not create any obligation binding on the Company.

SERVICE PROVIDERS

162. The Directors may appoint any one or more Persons to act as service providers to the Company (including, without limitation to act as manager, administrator, custodian, Investment Manager, investment adviser, sponsor and/or prime broker to the Company) and the Directors may entrust to and confer upon such Persons any of the powers exercisable by them as Directors upon such terms and conditions including the right to remuneration payable by, and indemnification from, the Company and with such restrictions and with such powers of delegation as they may determine and either collaterally with or to the exclusion of their own powers.

CERTIFIED TO BE A TRUE AND CORRECT COPY

SIG.

MELANIE E. RIVERS WOODS

Assistant Registrar

Date

30 June 2009



Annex I**Details of the technical and financial expertise and resources available for carrying on the relevant regulated activities**

The required gas transmission line is for supply of fuel to the Applicant's own power plants.

The Applicant has a combined installed capacity of 2,267 MW with network spanning 6,500 sq km and customer base of 2.5 million.

The Applicant has experience in managing large infrastructure projects, including extensive pipeline networks to delivery fuel safely to its facilities. It operates and maintains multiple gas receiving facilities and associated pipelines ranging from 20MMCFD to 300MMCFD capacity for transportation and supply of natural gas to power generation units situated at various locations in Karachi city. The applicant has engaged contractors previously in the safe implementation of EPC contracts for above mentioned power plants, such as Harbin Electrical International Company Limited (HEI) for 560MW CCPP which includes gas compressing stations and is in operation since 2012, METKA for 247 Combined Cycle Power Plant at Korangi, Black and Veatch and others for 1260MW Thermal Power Plant.

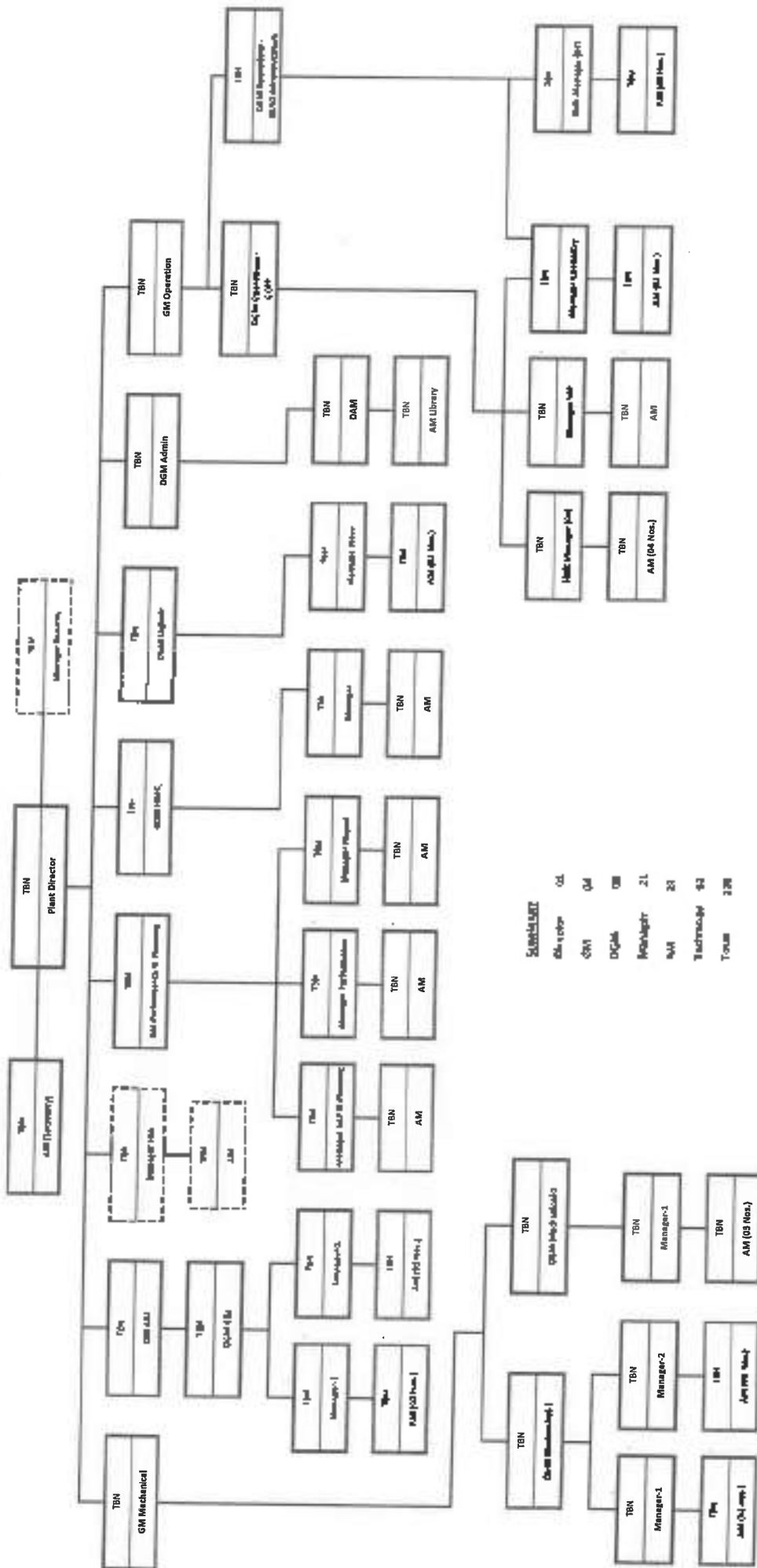
The Applicant has recently engaged HEI/Siemens as EPC Contractor for KE's flagship 900MW CCPP Project. The EPC scope also includes Gas Pressure Reduction System for RLNG, to be received at 85barg, the basic design of which has been facilitated by ENAR Petrotech Services Pvt. Ltd. This Gas Infrastructure is one of its kind for handling high pressure RLNG and includes installation of Gas Metering, Gas Heaters, Gas Pressure Reduction Skid, Analyzers and allied pipeline system.

The Applicant has invested over USD 2.4 billion across the energy value chain between 2009 to 2019 and in the last three years alone, nearly USD 1 billion. The financial statements herewith provided demonstrate the Applicant's robust financial resources and indicative of its broad expertise is as follows:

- (i) **Technical team:** The Applicant has a multi-disciplinary team of engineers capable of undertaking any project from implementation to operation. The Applicant and its team have successfully self-managed projects in excess of Rs.1 billion, including 1260MW Bin Qasim Thermal Power Plant, 560MW Combined Cycle Power Plant, 247MW Korangi Combined Cycle Power Plant, 100MW Site Gas Turbine Combined Cycle Power Plant.
- (ii) **Operation and maintenance:** Successful operation and maintenance of above mentioned power plants and associated gas infrastructures as demonstrated by managing electricity generation and distribution facilities, the Applicant's O&M teams are unparalleled.
- (iii) **Project and business management:** The Applicant has handled the setting up, upgrading and developing facilities requiring excellent procurement and project management resources to ensure its projects are timely concluded.

(iv) **Financial capabilities:** The Applicant has substantial resources and excellent relationships with local and foreign lenders. It is intended that the intended pipelines will be financed by debt financing and company's resources, in the ratio of 80%-20%.

Proposed Organization for SOCOMW BQPS-III Project and RING Infrastructure (O&M Team)



25

Annex J

Details of the resources and expertise available to handle emergency situations arising out of natural calamities, accidental or criminal acts or omissions, specifying which such resources are available and which are to be procured.

The Applicant is successfully managing pipelines since for the last 30 years to supply fuel to its electricity generating facilities. The pipeline is designed in accordance with international standards and to withstand natural calamities including earthquake and flood etc. The major portion of pipeline will be underground and inherently safe from natural calamities. As regards protection against criminal acts, the pipeline is to run within the lands of the PQA which are secured. Additionally, the Applicant will have in-place various security regimes collaborated with multiple security contractors to reinforce the safety and security of its installations.

The Applicant is committed to maintain a high state of emergency preparedness, including conducting regular vulnerability assessments, regular reviewing and revising policies and procedures, providing prepositioned emergency response resources and routinely testing and evaluating emergency response procedure.

In responding to major emergencies priority will always be placed on preventing or minimizing harm or injury to individuals and the adverse effects of emergency.

The Applicant maintains following resources as minimum at all of its facilities to proactively handle any emergency situation and same is planned for the proposed facility:

1. Plant emergency trip systems with remote emergency shutdown capability
2. Site emergency siren
3. Hotline / emergency communication system
4. Onsite Emergency Response Team (ERT) consisting of trained operational, HSE & maintenance staff
5. Emergency & Safety Equipment
6. Onsite Firefighting system
7. Onsite Medical Facility
8. Integral Security – well armed, highly trained ex-army servicemen
9. Mutual Assistance from neighboring companies/government agencies.
10. Emergency Management Plan – This procedure is intended to reflect the basic response of individuals should be taken in the most common emergencies (fire, explosions, etc) likely to be experienced at the plants and to define the management model to be employed when company employees must respond to major emergencies of all types

The EPC contractor shall prepare an Emergency Response Plans specific to the transmission line.

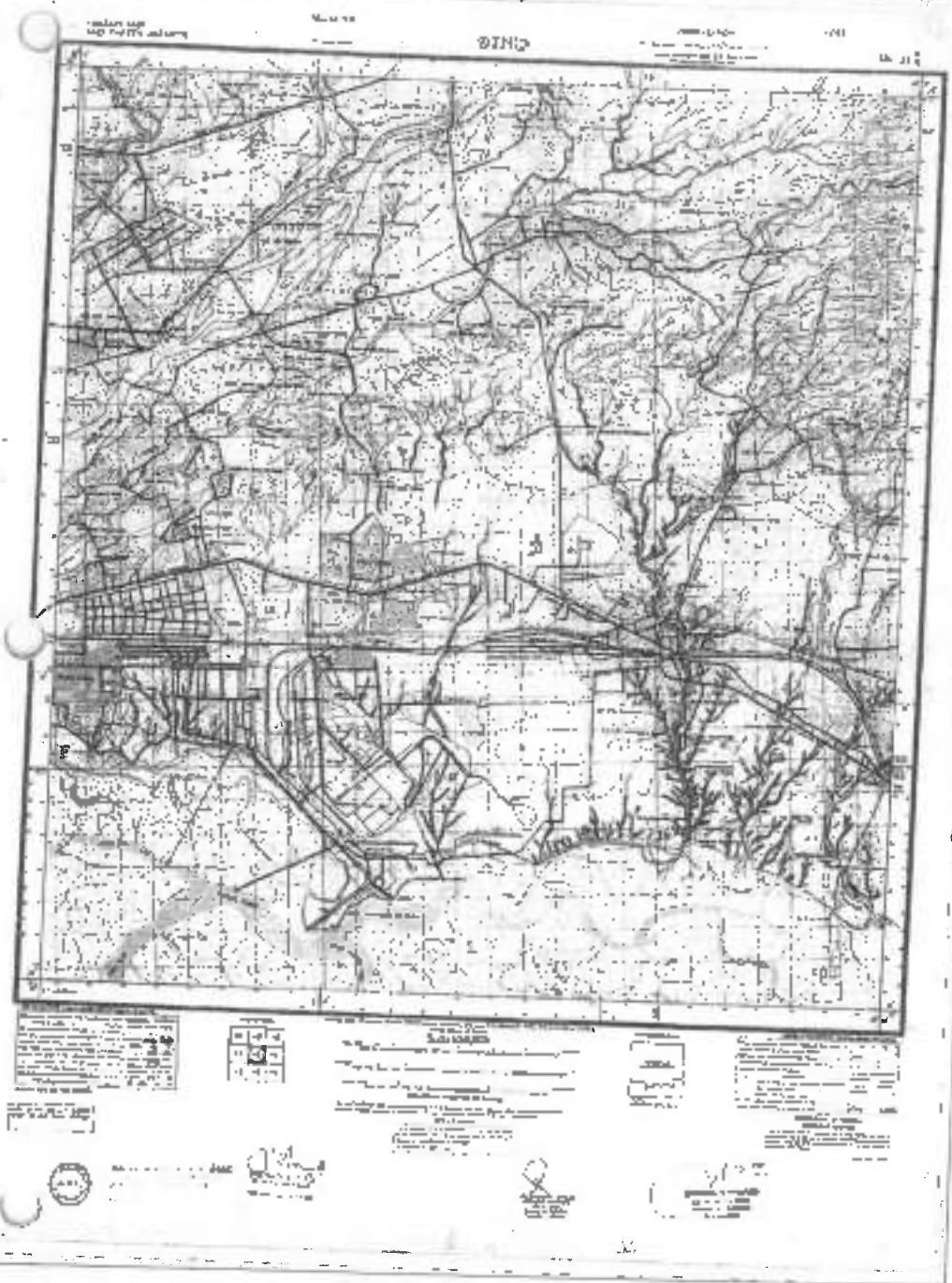
Annex K

List of Senior Management

In all cases the business addresses are: KE House, 39-B, Sunset Boulevard, DHA Phase II, Karachi.

S.No.	Name	Designation	Department
1	Syed Moonis Abdullah Alvi	Chief Executive Officer	CEO Secretariat
2	M. Rizwan Dalia	Chief People Officer	Human Resources
3	Muhammad Aamir	Chief Financial Officer	Finance
4	Dale Roger Sinkler	Chief Generation & Transmission Officer	Group Head Office
5	Mahreen Aziz Khan	Chief Marketing & Communication Officer	Marketing & Communication
6	Naz Khan	Chief Strategy Officer	Strategy
7	Tahir Ali Khan	Director L-2	BQPS-II
8	Pervez Musani	Director	Taxation & Insurance
9	Asif Raza	Chief Internal Auditor	Internal Audit
10	Muhammad Ali	Director	Business Finance G&T & Others
11	Muhammad Owais	Director BF & RM	Revenue Budget & Receivable Monitoring
12	Ahsan Anis	Head of Strategy & Comm. Planning L-2	Business Strategy
13	Zehra Aneek	Director	ESG & Sustainability
14	Mustafa Kamal	Director	Business Finance G&T & Others
15	M. Adrian Ali Rizvi	Director L-2	Business Development
16	Kamran Hashmi	Director New Connections	Energy Planning & Above 50 NC
17	Aamir Rizwan Qureshi	Director	Business Development
18	M. Bilal Ahmed Mirza	Director	Project Implementation
19	Arshad Iftikhar	Head of Distr Projects & Coordination	Distribution Strategy & Planning
20	Abdul Saleem	Director Grid System Maintenance	Grid System Maintenance
21	Ayaz Jaffar Ahmed	Director	Regulatory Affairs
22	Imdad Afzal	Head of Supply Chain	SCM Office
23	Abbas Hussain Siahwala	Deputy Chief Gen & Trans Officer	Generation & Transmission
24	Rizwan Peernani	Head of Treasury & Corp Finance	Treasury
25	Farooq Niaz	Director G&T and Enabling Functions	HRBP Generation & Transmission
26	Jamil A Bajwa	Director Employee Relations	Employee Relations
27	Muhammad Faizan Mahmood Khan	Chief of Information Technology	CIO Office
28	Razaq Ahmad Anjum	Director L-2	BQPS I
29	Hammad Khalid	Director People Services	People Services
30	Syed Irfan Ali Shah	Head of Legal Affairs	Legal Affairs
31	Inamullah Siddiqui	Director IT	Enterprise Business Support
32	Aadil Riaz	Lead HRBP - Distribution	HRBP Distribution
33	Haris Jamil Siddiqui	Director Public Affairs & Govt. Relations	Public Affairs & Govt. Relations
34	Rehan Sajjad	Head of Corporate HSEQ	Corporate HSEQ
35	Rana M. Imran	Director Corp. Communications	Corporate Communication

Amesbury L B
BB





K&E ELECTRIC LIMITED				
	100-100-100 (P.A.) CO. 100-100-100 (P.A.) CO. 100-100-100 (P.A.) CO.		100-100-100 100-100-100	
	100-100-100 (P.A.) CO. 100-100-100 (P.A.) CO.		100-100-100 100-100-100	
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100-100-100 (P.A.) CO. 100-100-100 (P.A.) CO.				



DRAWING ON FIXED COORDINATE

DOT LINE ROUTE COORDINATES

Sheet K-ELECTRIC LIMITED	
 K-Electric Limited All rights reserved.	OVER NO. 100-0001-001
THE COMPANY'S POLICY IS TO PROVIDE THE BEST SERVICE TO ITS CUSTOMERS.	REV. 1.
PREPARED BY: ENGINEER (ELECTRIC) / K-ELECTRIC LIMITED	CHECKED BY: ENGINEER (ELECTRIC) / K-ELECTRIC LIMITED
DATE: 10/10/2010	SCALE: 1:1
TALK: 10/10/2010	A1: 1:1

Annotation "M"
91

Pakistan LNG Ltd. (PLU) shall supply 150MMCF/D RING at 85 barg with following specifications range

Ref.	Characteristics	Unit of Measurement	Limits
1	Higher Heating Value	BTU/SCF	947.6-1140
2	Wobbe Index	BTU/SCF	1292-1435
3	Inert Gases, Total	% vol/vol	4 max
4	Carbon dioxide	% vol/vol	2 max
5	Oxygen	% vol/vol	0.2 max
6	Hydrogen Sulphide	mg/m ³	5.49 max
7	Total Sulphur	mg/m ³	35 max
8	Hydrocarbon Dew Point	°C	-4 max at 5500 kPa abs
9	Total Mercury	pg/Nm ³	0

Amendure "N" 92

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 1 of 32
		Dated	15 th Jan 2020

KE Bin Qasim Re Liquefied Natural Gas Pipeline Project - HSE Plan

Revision History			
Rev No.	Author(s)/Initiated by	Revision Date	Description/Details of Change
00	Zahid Faqir, DGM HSEQ Level - II, BQPS-III - 900 MW RLNG CCPP & Associated Grids Project	15 th Jan, 2020	Original Issue

Review Matrix		
	Name / Designation	Signature
Changes/ Initiated by	Zahid Faqir DGM HSEQ	
Reviewed by	Syed Imran Ali DD Planning & Contracts	
Ratified by	Ameer Iqbal GM Mechanical	
Approved by	Tahir Ali Khan Director Level II, BQPS Complex	

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex POA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 2 of 32
		Dated	15 th Jan 2020

1. **Purpose of this document.** To establish a baseline document for ensuring safety during and after laying of a 2 KM long RLNG Pipeline in Port Qasim Region Karachi between SSGC RLNG Custody Power Station located near Engro Polymer and KE Bin Qasim Power Complex.

2. Fundamental Principles.

- KE understands and commits itself as a responsible member of corporate family to the safety of its employees, workers, contractors, sub-contractors, neighbors, stake holders and community at large.
- All efforts and drives shall be initiated while laying the line to inform all stake holders and neighbors in the vicinity about risks and hazards associated with the RLNG Transportation.
- Periodic and preventive condition monitoring and maintenance of the line as mentioned in para 3c shall be done as established in due consultation with OEMs, suppliers, designers and contractors during construction phase.
- All Local, national, and international laws related to HSE and technical compliances for pipelines of such nature shall be complied with at all stages from conception to erection, pitching, commissioning and then operations as well.
- RLNG supply pipeline shall be the integral part of Bin Qasim Power Complex, therefore, HSE plan for the Complex shall also be applicable to the pipeline to the relevant extent.
- Compliance of OGRA's Standard SRO No. 675(I)/2004 shall be ensured for RLNG Spur Pipeline.

3. Procedural Considerations

- Understanding RLNG.** The first and foremost responsibility of all stake holders involved in planning, designing, pitching, commissioning, operations, and safety of RLNG Pipeline demands an understanding of RLNG which shall include but not limited to following guidelines:-

(1) LNG Stands for Liquefied Natural Gas whose MSDS No is 2015001 and is also sometime interpreted as LNG, RLNG, Liquid Methane, Natural Gas Refrigerated Liquid. It is produced in number of countries where natural gas is in abundance for further transportation through shipping vessels and where possible through intra continental pipelines as well.

(2) **Hazard Identification/Classification**

RLNG is categorized as among flammable gases category one and gases at high pressure (Under the United nations Globally harmonized system of classification and labeling of chemicals GHS, the lower the hazard category number, the greater the hazard and the higher the hazard category number, the less severe the hazard). Signal Word for RLNG shall be DANGER and in hazard statements the term extremely flammable gas H220 shall be used as it contains refrigerated gas which may cause cryogenic burns or injury H281.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 3 of 32
		Dated	15 th Jan 2020

Pictograms



National Fire Protection Association (NFPA)* 704 Hazard Rating

Health: 3 Flammability: 4 Instability: 0
(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)



Hazardous Material Identification System (HMIS)* Hazard Rating

Health: 3 Flammability: 4 Physical Hazard: 3
(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Liquefied Natural Gas

HEALTH	3
FLAMMABILITY	4
PHYSICAL HAZARD	3
PERSONAL PROTECTION	

{3} Precautions

- Do not use or handle unless all safety precautions have been read and understood.
- Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources, including internal combustion engines. No smoking.
- Take action to prevent static discharge, including static discharge from cell phones and other electronic devices.
- Wear cold insulating gloves, a cold insulating apron, eye protection, and face shield.
- If exposed to liquid, seek immediate medical attention.
- Eliminate all ignition sources if safe to do so.
- Limbs affected by frostbite may be thawed with lukewarm water. Do not rub affected area. See immediate medical attention.
- Do not extinguish fires from leaking gas unless leak can be stopped safely. (P377) * Store in a well-ventilated space. (P403) **
- Use only non-sparking tools. (P242) **
- Applicable GHS Hazard Code.
- ** Applicable GHS Precautionary Statement Code.

(4) Supplementary Hazard Information.

- High concentrations of RLNG vapors may displace oxygen, especially in a confined space.
- RLNG and its vapors do not exhibit the characteristic odor of natural gas.
- Containers of RLNG are typically under pressure and temperature-controlled conditions.
- These containers may explode if heated or if temperature control is not maintained.

35

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-WQPS HSEQ-003-2020
		Page	Page 4 of 32
		Dated	15 th Jan 2020
Version: 00			
15) Composition and Appointment: 00000			

(5) Composition and ingredients of LNG.

RLNG is gasified form of Liquefied natural gas (LNG) which is a cryogenic liquid derived from natural gas by processing. LNG consists primarily of methane and ethane; the table below identifies the components in LNG that may be present in concentrations of 1 percent or more by volume. For health and safety determination purposes, the LNG composition listed in the table below represents the widest range of components observed in the LNG produced and stored by PGW based upon the results of sample analysis. The following constituents may also be present in LNG at concentrations less than 1 percent by volume: iso-Butane, normal butane, pentanes, hexanes, heavier hydrocarbons (C6+), and nitrogen.

Component Name	Synonyms	Chemical Formula	CAS Number	Concentration (% Volume)
Methane	Methyl hydride, marsh gas, carbane	CH ₄	74-82-8	67-97
Ethane	N/A	C ₂ H ₆	74-84-0	3-29
Propane	N/A	C ₃ H ₈	74-98-6	0-4

(6) First Aid Measures. Keeping in view likely impacts and effect of LNG in case of release to humans following First Aid Measures shall be taken

- **Eye Contact:** Contact with product may cause frostbite. In case of frostbite or freeze burns, gently soak the eyes with cool to lukewarm water. DO NOT WASH THE EYES WITH HOT WATER (i.e. over 105F). Open eyelids wide to allow liquid to evaporate. If the person cannot tolerate light, protect the eyes with a bandage or handkerchief. Do not introduce ointment into the eyes without medical advice. Seek immediate medical attention.
- **Skin Contact:** Contact with product may cause frostbite. In case of frostbite or freeze burns, remove contaminated clothing, and flush the affected area with cool to lukewarm water. Immediately place frozen area in a circulating warm water bath or in flowing warm water (100 to 105F). DO NOT USE HOT WATER (i.e. over 105F) OR DRY HEAT. Seek immediate medical attention if blistering, tissue freezing, or frostbite has occurred. Under no circumstances should the frozen part be rubbed, either before or after warming.
- **Inhalation (Breathing):** Inhalation of large quantities of LNG vapors may cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. LNG and associated vapor are a simple asphyxiant and may cause loss of consciousness, serious injury, or death by displacing air, thereby resulting in insufficient oxygen to support life. Prompt medical attention is strongly recommended in all cases of inhalation overexposure. Rescue personnel should be equipped with a self-contained breathing apparatus. Remove inhalation victims to fresh air quickly. If inhalation victim is not breathing, ensure that their airways are open and administer cardiopulmonary resuscitation.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSE Q-001-2020
	Version: 00	Page	Page 5 of 14
		Dated	25 th Jan 2020

(CPR). If necessary, have a trained person administer air or oxygen once breathing is restored. Seek immediate medical treatment.

- **WARNING:** The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause loss of consciousness, serious injury, or death.
- **Ingestion (Swallowing):** This material is a gas under atmospheric temperature and pressure conditions and ingestion is unlikely. Seek immediate medical attention if material is ingested.

(7) Fire Fighting Procedure

- LNG vapors are extremely flammable and can be ignited by heat, sparks, flames, static electricity, and other sources of ignition, such as pilot lights, mechanical/electrical equipment, and electronic devices that are not intrinsically safe. Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Vapors may accumulate in confined spaces.
- LNG fires should not be extinguished unless the source of the leak can be stopped safely.
- In most cases, it is best to eliminate the source of the leak and allow the liquid to burn off.
- Isolate the leak area, particularly around the ends of storage vessels, and maintain a safe distance upwind and uphill of the leak area.
- Let the vessel, tank, or container burn unless the leak can be stopped.
- LNG is stored under pressure and temperature-controlled conditions; containers of LNG exposed to excessive heat or flame may rupture violently and suddenly without warning due to vessel over pressurization.
- Fragmentation of the container should be anticipated.
- Withdraw immediately in the event of a rising sound from a venting safety device.
- Use water fog and/or deluge to cool equipment, surfaces, and containers exposed to fire and excessive heat.
- Do not direct water at the source of the leak, pooled LNG, or safety devices; the indiscriminate use of water on surfaces of cryogenic containers and piping can lead to heavy icing, causing excessive loads on structures and the failure of valves, instrumentation, and other control devices.
- Application of water to pools of LNG will cause the LNG to vaporize more rapidly, generating more gas to feed a fire or create a larger vapor cloud.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No. Page Dated	KE-Gen-BQP5 HSEQ-001-2020 Page 6 of 32 15 th Jan 2020
	Version: 00		

- For large fires, use unmanned hose holders or monitor nozzles to minimize personnel exposure. Appropriate fire extinguishing media include dry chemical, carbon dioxide, halon, and high expansion foam.
- While water may be used to cool equipment and structures adjacent to an LNG fire, water is not an appropriate extinguishing media when responding to LNG fires as water can increase the volatilization of the LNG or cause ice formation as described above.
- Refer to Section 8 for Exposure Controls/Personal Protection and refer to Section 9 for flash point and flammability limits (explosive range). Refer to Section 16 for the National Fire Protection Association® 704 Hazard Rating.

(8) Accidental Release Management

- In case of an accidental release, KE shall activate the facility's contingency plan which may include following measures.
- Evacuate non-essential personnel and secure all ignition sources. Do not allow road flares, smoking, cell phones, or other sources of ignition in the hazardous area. Internal combustion engines generate sparks that would serve to ignite LNG vapors, so do not drive vehicles through the vapor dispersion area, and do not attempt to start vehicles that are within the vapor dispersion area.
- Evaluate wind direction and speed to determine the direction of product travel. The vapor cloud may be white, but the color will dissipate as the cloud disperses; however, the fire hazard is still present! Stay upwind and uphill, if possible, and avoid low lying areas.
- Test the area for hazardous atmospheres before re-entering. Stop the source of the release, if safe to do so.
- Ventilate confined areas and check for hazardous atmospheres before entering.
- Notify relevant authorities in accordance with all applicable requirements.
- Refer to Section for Exposure Controls/Personal Protection.

(9) Handling during Storage at various intermittent storage points

- When handling LNG, wear all appropriate personal protective equipment as described in Section 8 to avoid contact of material with eyes, skin, or clothing.
- Handle only with adequate ventilation, and do not breathe LNG vapors. Eliminate all sources of ignition, such as flames, sparks (including from internal combustion engines), or high temperatures when working in areas where vapors may be present.
- Ground and bond all lines to avoid static discharge buildup when transferring product (i.e. truck loading/unloading).



K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi

HSEQ Department - HSE Plan for 2 KM RLNG Line

Version: 00

Doc No.

KE-Gen-BQPS HSEQ-001-2020

Page

Page 7 of 32

Dated

15th Jan 2020

- Use non-sparking tools when working around LNG transfer lines and equipment. Be sure that all electrical equipment used in the area is UL listed Class I, Division I, Group D hazardous locations. Do not use cell phones in an area where LNG is stored or transferred.
- Polyester clothing may cause static discharge and must not be worn at LNG locations. Avoid cold burns from transfer lines or process equipment.
- Store LNG only in specifically designed, cryogenic containers in a cool, dry, isolated, well ventilated area away from heat and sources of ignition.
- Do not store LNG adjacent to oxidizers or other incompatible materials as listed in relevant Section.

{10} Exposure Control Parameters for Personal Protection

- As far as LNG release or leakage is concerned following parameters shall be referred to while dealing with exposure control issues and personal protection of the personal

Component Name and CAS Number	ACGIH TLV	OSHA PEL	NIOSH IDLH	Notes
Methane 74-82-8	TWA: 1,000 ppm	N/A	N/A	Simple Asphyxiant
Ethane 74-84-0	TWA: 1,000 ppm	N/A	N/A	Simple Asphyxiant
Propane 74-99-6	TWA: 1,000 ppm	TWA: 1,000 ppm	N/A	Simple Asphyxiant

- ACGIH: American Conference of Industrial Hygienists
- OSHA: Occupational Safety and Health Administration
- NIOSH: National Institute for Occupational Safety and Health
- TLV: Threshold Limit Value - PEL: Permissible Exposure Level
- TWA: Time Weighted Average
- IDLH: Immediately Dangerous to Life and Health - ppm: Parts per million
- Engineering Controls: Provide adequate ventilation to keep gas and vapor concentrations below occupational exposure and flammability limits (less than 20% of the lower explosive level) and maintain sufficient oxygen levels. In confined spaces, local and general ventilation should be provided. Follow appropriate confined space entry procedures. Use explosion proof general ventilation and lighting in classified/controlled areas. Be sure explosion proof flashlights and equipment are used.
- Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is a potential for liquid to contact the eye. Depending upon the conditions of use, a face shield may also be necessary.
- Skin/Hand Protection: Wear thermal insulating gloves and a face shield when working with materials that present thermal hazards (hot or cold). Ensure that the protective

24

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department – HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BOPS HSEQ-001-2020
	Version: 00	Page	Page 8 of 32
		Dated	15 th June 2020

equipment is rated for the temperature of the material to be handled. Flame retardant clothing is recommended in any situation where LNG vapors may ignite accidentally.

- **Respiratory Protection:** A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH). A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant the use of a respirator.

(11) Physical & Chemical Properties as are required to be referred while planning handling and management of LNG

- Appearance of LNG is a colorless liquid. Cold gas may freeze water vapor in the air, creating a visible white cloud. The visible cloud is useful for determining wind direction & product dispersion, but it does not define the boundary of the combustible gas. Combustible vapors may exist outside of the visible cloud.
- State: liquid (refrigerated gas) -
- Odor: LNG is odorless; it does not exhibit the characteristic odor of natural gas.
- Odor Threshold: N/A*; LNG is odorless. - pH: N/A
- Melting Point/Freezing Point: No data available
- Boiling Point: -259F (-162C)
- Flash Point: < -306F (< -188C)
- Evaporation Rate (n-butyl acetate = 1): >1
- Flammability: Liquid LNG is not flammable, but its vapors are flammable.
- Lower Explosive Limit (vol % in air): As low as 4.0% depending upon LNG composition; the higher the ethane content, the lower the lower explosive limit.
- Upper Explosive Limit (vol % in air): As high as 15.0% depending upon LNG composition; the higher the methane content, the higher the upper explosive limit.
- Vapor Pressure: Approximately 700 psia at -110F -
- Vapor Density: 0.0435 – 0.0481 lb/ft³ at 14.7 psia and 60F -
- Relative Vapor Density: 0.57-0.60 at 14.7 psia and 60F; 1.5 at 14.7 psia and <-160 oF (Air = 1.0); NOTE: The vapor density is heavier than air when the vapor temperature is less than 160F; this phenomenon will occur when the LNG vapors are initially released from the LNG liquid).
- Liquid Density: 3.5-4.0 lbs/gallon at -260F (H₂O = 8.33 lbs/gallon at 60F) -
- Relative Density/Specific Gravity: 0.43 at -260F (H₂O = 1) -

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 9 of 12
		Dated	15 th Jan 2020

- Solubility in Water: Negligible, below 0.1%
- Partition Coefficient (n-octanol/water): No data available
- Auto-Ignition Temperature: 999F (537C) -
- Decomposition Temperature: Not applicable
- Viscosity: No data available
- Heat of Vaporization: 220 BTU/lb
- Percent Volatile: 100
- Expansion Volume: Approximately 625 to 1
- *N/A indicates Not Applicable.

(12) Stability, reactivity, and Compatibility of LNG

- Reactivity: When LNG vapors mix with appropriate amounts of oxidizing agents, including air and oxygen, in the presence of an ignition source, an uncontrolled explosive reaction can occur.
- Chemical Stability: LNG is stable under controlled conditions of use.
- Possibility of Hazardous Reactions: Not applicable.
- Conditions to Avoid: LNG vapors are extremely flammable and explosive; avoid heat, sparks, open flames, and all possible sources of ignition. Heat will increase pressure in the storage tank.
- Materials to Avoid (Incompatible Materials): LNG vapors will form explosive mixtures with air or oxygen and will also burn or explode in the presence of strong oxidizing agents such as chlorine, chlorine dioxide, bromine pentafluoride, oxygen difluoride, liquid oxygen, and nitrogen trifluoride.
- LNG will spontaneously ignite when mixed with chlorine dioxide.
- Also avoid contact with acids, aluminum chloride, and halogens. Hazardous Decomposition Products: Thermal decomposition products may include carbon monoxide, carbon dioxide, smoke, and other toxic combustion products.
- Hazardous Polymerization: Not known to occur

(13) Toxicity & its Management

- Inhalation: LNG vapors are not toxic; however, if LNG vapors escape and accumulate in a confined area or if large amounts of LNG vapor are released as a result of a leak, the LNG vapors may displace air from the area and cause loss of consciousness, serious injury, or death.
- Skin Absorption: Contact with liquefied or pressurized gas will cause severe frostbite, but otherwise, this product is not expected to cause skin irritation.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Bin-Qasim HSEQ-001-2020
	Version: 00	Page	Page 10 of 32
		Dated	15 th Jan 2020

- **Serious Eye Damage/Irritation:** Contact with the liquefied or pressurized gas may cause eye damage and swelling. Otherwise, this product is not expected to cause eye irritation.
- **Skin Corrosion/Irritation:** Contact with liquefied or pressurized gas will cause severe frostbite, but otherwise, this product is not expected to cause skin irritation.
- **Skin Sensitization:** Skin contact should be avoided, and sensitization as a result of skin contact is not expected.
- **Signs and Symptoms:** Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances, and vomiting.
- **Continued exposure** can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness, and death.
- **Carcinogenicity:** LNG is not expected to cause cancer. This substance is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or OSHA.

(14) Ecological Impacts and their management

- **Ecotoxicity:** Petroleum gases are volatile & rapid evaporable both land & water.
- **Persistence and Degradability:** Not expected to remain on land surface or water for any period. Bio accumulative Potential: No data available.
- **Mobility in Soil:** No data available.
- **Other Adverse Effects:** No data available.

b. Compliance of World Bank & IFC Guidelines with regards to RLNG Pipeline Project.

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice. When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These industry sector EHS Guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors. For complex projects, use of multiple industry sector guidelines may be necessary. A complete list of industry sector guidelines can be found at www.ifc.org/ehsguidelines.

c. Bin Qasim LNG Pipeline Project Specific HSE Plan & Arrangements.

The line to be laid between the terminal station till BQPS Power Complex shall be approximately 2 KM as shown in the plan

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 11 of 32
		Dated	15 th Jan 2020



(1) Scope of HSEQ Plan

- This Plan covers the Health, Safety, Environment & Quality (HSEQ) System of LNG Pipeline Project for Bin Qasim Power Complex located at PQA, Karachi. The HSE system has been developed to keep ourselves as close as practically feasible to the ISO-14001-2015 Standard on Environment Management System, OHS 45001-2018 Occupational Health & Safety Management System Furthermore ISO-9001-2015, and Quality Management System.
- This Plan shall apply to all the employees, workers, staff, contractual employees or contractors and their sub-contractors who deem to work with in the areas control of BQPS Management.
- This Plan serve as a basic guideline for overall HSEQ Management System, however for job specific or function specific more elaborate Standard Operating HSEQ Procedures shall be developed and continuously improved upon for good ground controls.

(2) Context of the Project Team.

As per BQPS Power Complex Quality Management System It is imperative to determine internal and external issues and concerns related to BQPS power complex and also assess the expectations of the Interested Parties for which a Sub-QMR committee was promulgated which included rep from HSEQ, Operations, Maintenance & Admin departments who conducted multiple cross functional discussions and evaluations and ultimately prepared this document as referral during various business/operational activities of the Plant. As a matter of principle teams and employees need to understand that the ultimate objective of successful construction, operations and business continuity

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 12 of 32
		Dated	15 th Jan 2020

cannot be achieved without good quality & safety management system. It is furthermore important that all those factors that can influence or affect our operations and/or business activities shall be identified and established. While establishing issues and concerns that may affect the plant operations or business activities it is also important that the expectations of the contractors, vendors, stake holders and/or interested parties are also known.

(3) External Issues & Concerns.

Following External Issues are hereby declared as pivotal to our business continuity/Plant Operations.

- **Security.**

BQPS Power Complex sharing more than 70% need of electricity of Karachi which makes it vulnerable to anti state elements. It makes the plant as national asset. Resultantly we expect to have high level of security of the plant for which KE as Mother Organization has delegated a Full Fledge and well-equipped security team headed by retired military officer of 80 plus guards. Furthermore, security commitment and coordination has been established with local police, rangers, intelligence agencies and PQA Authority for unforeseen or unexpected needs related to security. More than 200 CCTV Cameras have further been incorporated to augment security needs. A Security and safety access system is in place at the gate. Security Clearance Management system is introduced for new hires and even contractors.

- **Availability of Critical Equipment's, Parts & Resources.**

Where Plant Operations & Business Continuity is largely dependent on supply of basic raw material, it also depends upon good and timely maintenance plans. These Maintenance plans and regimes depend upon supply chain of many critical equipment's and parts which may not be necessarily available in local or immediate market. Thereafter it was mandated that all such critical equipment's/supplies must be proactively procured with Minimum/Maximum level storage parameters defined or established. This is being done at BQPS Complex and Min Max levels have been declared by the Complex.

- **3rd Party Contractors & Vendors.**

As BQPS Power Complex Team shall continue to understand that where regular employees would continue to play most significant part in its operations and business continuity the contractors and vendors would remain involved. The bigger challenge would remain the diversity and alignment of contractors with our work environment and conditions. To address the same a special contractor management system is introduced at the Plant. Vendors and contractors are managed through a declared KE Liaison Officer. Furthermore, each contractor must pass through safety induction system, and they must further depute or delegate their own monitoring system.

- **Attendance & Availability of Requisite Staff.**

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Bin-QPS HSEQ-001-2020
	Version: 00	Page	Page 13 of 32
		Dated	15 th Jan 2020

Due to road and traffic situation there may be an occasion where some or complete of the Plant Teams may not be able to reach the plant. In that case the preceding shift shall continue to operate, and all efforts shall be made to facilitate necessary and accessible employees to reach the Plant. Furthermore, to address the problem rest rooms have been incorporated closed to admin block.

- **Environmental Issues.**

The location of BQPS Power Complex in the proximity of the Arabian Sea makes it vulnerable to environmental concerns like humidity and corrosion. In this regard maximum efforts shall be made to use anti corrosive paints, equipment's, enhanced frequency of PM Plans.

- **Statutory & Legal issues.**

BQPS Power Complex wherein, operates under the management and control of KE Head Office It considers itself responsible to national and international laws and the statutory /legal bodies ensuring the implementation of those laws and enactments. They surely serve as influencers for our operations and control. Resultantly we shall maintain a Legal Register (A document that contains and carries extracts if relevant laws and/or rules.

(4) Internal Issues & Concerns.

Following Internal Issues and Concerns are hereby identified and pronounced for clarity of all Team Members BQPS Power Complex:

- **Business Continuity Needs & On Job Trainings.** The fact that the plant must remain in continued operation makes it difficult for operations team to be available for trainings away from BQPS Power Complex, so they must be given on job trainings covering RLNG pipeline as well.
- **Hazardous Areas.** Hazardous Gases, Hot surfaces, chemical hazards, and process related risks have been taken care of in basic design engineering. However due to process disruptions, workmanship issues etcetera there exist an inherent risk in the operations and business continuity to employees, contractors, and workers. Various steps have been taken by the management of the plant to mitigate all such risks from engineering controls to administrative controls. Safety Induction Management System, Safety Access Management System and the Work Permit System are few of the mechanisms that help to generate requisite safety discipline.

(5) Interested Parties. BQPS Power Complex as Business Unit of K-Electric clearly understands that there may large number of interested parties having multi-dimensional interests in our plants. The expectations of these interested parties are well known to Plant Team and management so that we can conduct and interact accordingly. It helps us in ensuring good quality management system. These parties may include but shall not be limited to the following:

- **General Public,** that serves as the consumer of our product that is electricity. As consumers every consumer expects continuous supply of electricity. Though this expectation is directly managed by

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RING Line	Doc No.	KE-Gen-BQPS HSEQ-001.2020
	Version: 00	Page	Page 14 of 32
		Dated	15 th Jan 2020

LDC however in case the plant becomes unreliable or unavailable due to internal failures the plant may become responsible for such err. With this expectation in mind our complete quality management system aims at facilitating the good performance.

- **Contractors & Vendors.** During operations large number of vendors and contractors may also be interested in limited or long-term maintenance/supply contracts. It entails proactive scrutiny of the right contractors and well processed contracts.
 - **PQA.** Plant is in PQA geographical and administrative ambits. As plant team we fully acknowledge that PQA rules and regulations are equally applicable on us. Close coordination with PQA Fire & Security teams shall be continuous affair. BQATF is a forum created by PQA and we remain active member of this forum.
 - **Neighboring Industries.** Due to Environmental Issues, safety, security and support functions the nearby industries are also one of the interested parties i.e. Tuwairqi Steel Mills Limited in the North, Coal Jetty, DP world, PSO Terminals in the West and 1320 MW Coal Power Plant, BQPS-I & Engro in the East. Having established these industrial neighbors as interested parties a special coordination and cooperation efforts shall continue to be in place with these organizations.
 - **Statutory Bodies & 3rd Party Certification Groups.** They would also expect us to follow local and international laws, standards related to our Plant and having established this BQPS Power Complex Team continuously shall thrive to achieve and meet up to the required expectations of these bodies and regulators.
- (6) **Specific Scope of QMS.**
- BQPS Power Complex Quality Management System shall be applicable to all KE employees working at Plant and/or the contract workers engaged through manpower or 3rd Party Job contracts.
 - It would include operational as well as nonoperational area working.
 - It is imperative for each employee to understand that though we have only electricity as an end product which is supplied to LDC for further dispatch to end consumers through distribution but the uninterrupted generation and supply of electricity serves as the end result of our good work practices and QMS.
- (7) **Continual Improvements.** To ensure that all teams are engaged in improving the work conditions, processes, plant operation and administration of the Plant management expects following sub systems be implemented in different cadres
- Operational Risk Assessment be a continuous process and before every work permit risk assessment in writing be carried out and record shall be available with permits.
 - Equipment Failures shall be dealt with Equipment Incident Report briefly expressed as EIR, which shall include Root Cause Analysis through team for each failure and shall be managed by the Performance Department.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-G4M-BQPS HSEQ-001-2020
	Version: 00	Page	Page 15 of 32
		Dated	15 th Jan 2020

- Process Related Failure and plant tripping shall be separate reported, recorded and investigated by the Performance Department.
- Safety & Environmental incident shall be reported through an incident/accident reporting management system under the umbrella of HSEQ.
- After Audits or incidents as the modifications are advised they shall be incorporated through a set quality management system with written traceable record of all modifications taking course at plants.
- For dealing with Mess & Hygiene related issues a separate complaint register shall be in place to ensure that improvements can be suggested, and each employee has access to contribute to Plant Quality Management system.
- Performance Review meetings and reports shall serve as indicators of overall improvement or plant performance.
- EOP – emergency operating procedures shall be prepared and maintained by the operations team.
- Maintenance standard operating procedures shall be prepared and maintained by Maintenance team.
- Admin department shall organize all its functions through set of written standard operating procedures related to Food Facility, Induction a gate, transport, management, rest house management and head Imprest management.
- Stores shall identify and establish procedures for material inward / outward gate passes, Store Issuances and store management
- HSEQ department shall also document its safety and environmental standards operating procedures in documented form and shall continue to keep all employees aware of these procedures. These procedures shall be periodically reviewed for continual Improvement and process Improvement.

(8) BQPS Power Complex HSEQ Policy Guideline

- **Principle Statement.** BQPS Power Complex Management in align with KE Management is committed to the provision and maintenance of safe and healthy work conditions, equipment and procedures for its employees, contractual staff and contracted companies and/or visitors visiting the Plant Site. It is the policy to ensure as far as is reasonably practicable,
 - A safe BQPS Power Complex and safe systems of work.
 - Health, safety, and welfare of all employees while at work.
 - Safe use, handling, storage and transport of articles and substances.
 - Adequate welfare facilities as are mandated for safe workplace.
 - Availability of necessary information, instructions, training, and supervision to the employees.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 16 of 32
		Dated	15 th Jan 2020

- **How would it be achieved?** This will be achieved using comprehensive safety rules, procedures and codes of safe practice relating to activities. BQPS Power Complex Management will:
 - Provide the necessary standard operating procedures and resources for establishing and ensuring safe working environment at Plant. (This will include hazard identification, the use of written risk assessments, planning & implementing necessary actions and reviewing the adequacy of these measures).
 - Development and availability of Plant Emergency/evacuation Procedure/Plans.
 - Remain in conformity with local, provincial, national, or international regulations on safety as far as practically practicable.
 - Provide, maintain, and ensure the use of necessary safety equipment including Personal Protective equipment, tools, or other items necessary for the safe execution of work.
 - Provide continuous health and safety surveillance where appropriate. Furthermore, recognize representatives of employee safety.
 - Record & investigate accidents and dangerous occurrences & implement changes where required.
 - Monitor safety performance using self-audits independent audits external audits.
 - Review the policy, organization, and arrangements annually, or when changes in legislation, plant, personnel, or procedures require it.
- (9) **Employee Responsibility.** At BQPS Power Complex we truly believe that "Safety is Everyone's Individual Responsibility" and in order to endorse this statement we expect all employees to remain aware of their Safety Responsibility i.e. they shall work in accordance with the laid down Plant Procedures and will try to remain updated with any changes thereof. Furthermore, BQPS Power Complex Management obligates its employees/personal to comply with any statutory Health and Safety obligations (or arrangements specified in this safety policy) for themselves or others who may be affected by their acts or omissions.
- (10) **Contractors & Their Employees.** All contractors who are engaged to work for KE BQPS Power Complex shall be expected to adhere to BQPS Power Complex Safety Policy and Procedures. However, they shall be directly responsible for the safety and conduct of their sub-contractors, employees, and workers. To ensure this BQPS Complex Management expects that all Process Owners from KE shall ensure this compliance through safe and proactive contracts/execution supervision.
- (11) **BQPS Power Complex – HSEQ Responsibility**
 - **Basic Understanding.** BQPS Power Complex Operates under the Management of KE Head Office within the Umbrella of Generation Management however our HSEQ Depart also remains align with KE Corporate HSEQ Directives.

108

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan For 2 KM RING Line	Doc No.	Kf-Gen BQPS HSEQ-001-2020
	Version: 00	Page	Page 17 of 32
		Dated	15 th Jan 2020

- **HSEQ Structure at the Plants.** At BQPS Power Complex HSEQ Management will be organized through following

(1)	Principle Responsibility	Safety Is Everyone's Individual Responsibility
(2)	Functional Responsibility	All Functional Heads are responsible to ensure that their departments, teams, units & sub-units perform in accord with basic & standard HSEQ Parameters and they remain in concurrence with applicable company policies, procedures & also those required by the state
(3)	Advisors & Monitors	HSEQ Departments and teams would serve as anchors and managers of all safety drives apart from providing necessary advisory as well as monitoring support to their management on all HSEQ Issues and Concerns
(4)	Plant Management	Plant Management would provide an environment facilitating growth of HSEQ Culture at Plant apart from exhibiting highest standard of HSEQ Commitment
(5)	Special Committees	Plant HSEQ Structure would be further strengthened through various Committees i.e. Plant HSEQ Committee, Mass Management Committee, Special Incident Investigation Committee as when deemed necessary
(6)	G&T HSE	Being Part of G&T HSE Group the Plant HSEQ Responsibility is also shared by Safety Team who would continue to provide necessary Guidance and Supervision to Plant HSEQ Team

(12) BQPS Power Complex HSEQ Structure.

Apart from this Fundamental Structure of HSEQ Function, Following Structure will be used to coordinate various HSEQ Management Activities and drives.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex POA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RUNG Line		Doc No. KE-Gen-BQPS HSEQ-001-2020
	Version: 00		Page Page 19 of 32
			Dated 15 th Jan 2020

(14) HSEQ Objectives & Targets

- **Basic Philosophy** Objectives and targets are activities or projects which the company wishes to carry out to make improvements to working practices and maintain a safe working environment. The Management shall develop a system enabling:
 - Setting of HSE goals and objectives.
 - Communication of these objectives to the organization and to and to all stakeholders.
 - Review of performance on achieving these objectives.
- **Essential Features**
 - Goals and Objective setting: The objectives shall be in line with HSEQ Policy and KE's corporate safety objectives. The objectives shall be specific, measureable, attainable, and realistic and time bound (SMART).
 - Every department shall also develop its own goals. Ultimately, these shall cascade down as specific objectives for everyone whereby everyone contributes towards achieving corporate objectives.
 - Communication of goals and objectives: The goals and objectives shall be clearly communicated to management and other stakeholders.
- **Review of Performance.** The performance on the set goals shall be reviewed periodically through various mechanisms like,
 - Stewardship at HSEQ forums (Corporate Safety Committee meeting, HSE Committee meeting etcetera)
 - Annual Personnel Appraisal system
 - Maintain Safety KPI's such as Days since Lost Time Injury, Total Recordable Injury Rate etc.

(15) HSEQ Legal & Statutory Requirements

- **Basic Philosophy.** The Management shall shape the processes and operations to achieve HSEQ objectives without compromising legal requirements. The Management shall identify, plan, and abide by all legal requirements set forth by Government of Pakistan and other HSEQ codes which are applicable to business. The Management shall continually review performance on compliance of the legal requirements and update ourselves on any new developments or legislation governing our operations.
- **Essential Features.** A procedure shall be in place to ensure the following:
 - Identify & maintain all prevailing legal & other HSE requirement concerning our operations.
 - Assign clear responsibility of ensuring compliance & meeting all requirements of such laws.
 - Identify documentation and records that must be maintained.
 - Periodically review any changes in prevailing laws or development of new laws governing the operation.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RUNG Line		Doc No.
	Version: 00		Page
			Dated
			KE-Gen-BQPS HSEQ-001-2020
			Page 20 of 22
			17 th Jan 2020

- Periodically audit the compliance to the requirement using spot and documentary audits.

Foot Note: A Register of applicable legal requirements shall be developed.

(16) Hazard Identification, Risk Assessment and Determining Controls

- **Basic Philosophy.** The first step towards implementing an HSE system is to identify the existing hazards. Once these hazards have been identified the next logical step is to evaluate the associated risk in a systematic and methodical way and implement controls to mitigate risks. However, sometimes a modification or a condition may change the risk assessment previously carried out. In situations like these, there is a need to properly manage the change. Therefore, Management shall provide procedures for:
 - Hazard Identification & Risk Assessment
 - Management of Technology Change
- **Procedure of Hazard Identification and Risk Assessment.** Risk Assessments use an organized, methodical study approach to achieve a multi-disciplined consensus on Hazard control of identified Risks. There is no one method for hazard identification and risk analysis. As a rule, the type and rigor of the risk assessment process adopted shall depend on the potential severity of the harm that could occur and the likelihood of occurrence. For the greatest severity consequences or where there are high levels of risk, very rigorous risk analysis (Quantitative) is required. On the other hand, where the consequences are less serious and/or the level of risk is low, simpler techniques (Qualitative) can be used.
- **The Risk Assessment shall consider:**
 - Routine and non-routine processes.
 - Activities of all persons having access to workplace.
 - Human behavior, capabilities, and other human factors.
 - Any identified external hazards
 - Infrastructure, equipment, and materials at workplace.
 - Changes in organizational structure.
 - Legal requirement relating to risk assessment.
 - Design of work areas, processes, installations, machinery / equipment, operating procedures, and work organization.
 - Risk Assessment activity shall be periodic and systematic.
 - Risk Assessment can also be used to evaluate an infrequent or one-time activity.
 - Scope, timeline, and responsibility of conducting a Risk Assessment shall be defined.

(17) Procedure for Management of Change

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi			
	HSEQ Department - HSE Plan for 2 KM RLNG Line		Doc No.	
	Version: 00		Page	
			Dated	
KE-Gen-BQPS HSEQ-001-2020				
Page 21 of 32.				
13 th Jan 2020				

- A change in approved philosophy of operation, operating conditions, control systems, equipment, parameters, or limits of safe operation can introduce new hazards to the existing system. The change must be assessed for any hazards out of such modifications.
- A change or a modification may be classified according to nature, scope, and time for which the change is valid. The Change shall be classified as:
 - Permanent Change
 - Temporary Change
- Management shall develop, maintain, and implement a procedure to ensure that:
 - Every modification is evaluated with respect to legal requirements, prudent engineering and industry practices and available standards before approval.
 - A documented approval is available authorizing the modification.
 - All controls identified in the assessment have been implemented and are continuously in place.
 - All temporary changes are reverted or rolled back when the need is over, and system is restored to original condition.
 - Pre-startup checks after the modification have been carried out and information of modifications, changes, and temporary arrangements is disseminated to all concerned.
- Foot Note: A separate documented procedure shall be developed that details the procedure for identification of safety Hazards and their further evaluation for Risk Assessment.

18. HSEQ Training, Awareness & Orientations

- **Basic Philosophy.** Training, improvement in awareness and development in competence of human resource is recognized as being a vitally important function for implementing an effective HSE system. All employees must have the necessary understanding of their functions, responsibilities, and activities within the HSE.
- **Essential Features.** The Management shall ensure that personnel under its control involved in Plant operation & maintenance are competent in the basis of appropriate education, training or experience and shall maintain associated records.
- The Management shall provide a system for assessing the needs for HSE related training.
- The Management shall develop, implement, and maintain a procedure to make person working under its control aware of:
 - The OH&S consequences, actual or potential of their work activities, their behavior, and the OH&S benefits of improved personal performance.
 - Understanding the role and responsibility in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system.



K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex POA, Karachi

HSEQ Department - HSE Plan for 2 KM RLNG line

Doc No.

KE-Gen-BQPS HSEQ-001-2020

Page

Page 22 of 32

Date

18th Jan 2020

Version: 00

- o Knowledge of roles and responsibilities in emergency planning and for dealing with emergency situations (fuel spills, fire, chemical leaks etc.).
- o Knowledge of potential consequences of departures from specific operating procedures.
- o HSE department shall maintain the training record.

Foot Note: Separate HSEQ Training Plan and Training SOP shall be developed

19. HSEQ Communication, Consultation & Participation

- **Basic Philosophy.** Communications cover an extremely wide range of activities, from informal discussions through to board level meetings. It is therefore necessary to specify the key safety communication requirements of the company and to ensure that all these requirements are always followed. Management believes that success of the HSEQ system depends on the participation and internal motivation of the employees. Therefore, we need to provide initiatives and programs which should engage the employees and motivate to them to raise the level of HSE performance on continual basis.
- **Essential Features**
- **Communication.** The safety communications procedure provides a listing of the key channels for internal and external transfer of information. This may be required by employees, regulators and other interested parties on a regular basis or other communications which may be tailored to specific requests as and when required. Various forms of communication shall include:
 - o **Safety Meetings:** Safety Meetings like HSEQ Committee meeting, Safety Talks and toolbox talks shall provide opportunity for communication between management and employees.
 - o **Special Safety meetings** can be called by the management as and when required.
 - o **Notice boards:** Controlled use of notice board shall serve as opportunity for communicating new policies, notices, and information from management.
 - o **Safety Suggestion Boxes:** Safety suggestion boxes shall be provided at various locations within the plant. This will enable employees to provide valuable feedback and suggestions to the management. These Suggestion Boxes will be managed by HSE Department.
 - o **Newsletters:** Project team shall contribute regularly in Company's newsletter with articles narrating efforts on HSEQ. This will serve as a motivation for employees and show visible commitment of management towards HSE.
 - o **Reports:** Periodic reports to management such as Audit Reports, non-conformance notes, minutes from review meetings and similar flows of information.



K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi

HSEQ Department - HSE Plan for 2 KM RLNG Line

Version: 00

Doc No.

KE-Gen-BQPS HSEQ-001-2020

Page

Page 29 of 32

Dated

15th Jan 2020

- **Employee Participation & Motivation.** Management believes that success of the HSE system depends on the participation and internal motivation of the employees. Therefore, we need to provide initiatives and programs which should engage the employees and motivate them to raise the level of HSE performance on continual basis. Some initiatives may be:
 - **Safety Star of the Month:** An employee will be declared Employee of the Month. The criteria for nomination and procedure for selection shall be clearly communicated to all. The criteria may be reviewed from time to time based on changing KPI and areas of focus.
 - **Safety Walks:** This shall be a periodic event where a group of employees will observe a section of plant, highlight and address safety concerns. A record of such safety walks shall be maintained.
 - **Housekeeping Day:** A day shall be designated as Housekeeping Day, when employees shall attend to work areas of the plant with respect to housekeeping. This shall be a routine program.

(20) Documentation

- Following documentation management mechanism shall be established at KE- Generation – BQPS Power Complex LNG Pipeline Project, Level One: Safety Policy & HSEQ manual, System Management Notifications/ Approvals, Level Two: System Operating Procedures, Level Three: Safety Monitoring, Audits Records, Training Records, Legal requirements such as permits, authorizations and related documents which specify legal requirements, Equipment testing & Maintenance record (e.g. fire extinguisher inspection report). Documents including records required by the Organization for planning and operation controls. The Documentation is needed to ensure planning, operation and control of processes that relate to the management of its HSE risks and maintained through by both Hard and Soft media.
- **Control of Documents**
 - **Basic Philosophy.** The mandatory HSEQ documents required by the standards shall be controlled. HSEQ department has the responsibility to control all Occupational health & safety related documents.
 - **Essential Features.** To meet the requirements with respect to Control of Documents, the Management shall develop, implement, and maintain a procedure to.
 - ❖ Approve and ensure adequacy of information before issue of document.
 - ❖ Continual review, revision, and re-issuance of documents.
 - ❖ Ensure that changes and current revision are identified and available at point of use.
 - ❖ Ensure the documents remain legible, in good condition, and readily identifiable.
 - ❖ Prevent the unintended use of obsolete documents by removal from point of use or through suitable identification.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 24 of 27
		Dated	15 th Jan 2020

- ❖ If required, obsolete documents are retained for special purposes like legal and for knowledge preservation and they are positively identified.

(21) Operational Control

- **Basic Philosophy.** Clear, accurate and detailed operations and maintenance procedures are required for operating the plant within the safe operating limits and maintaining it during its useful life. Management shall provide the necessary resources and training to staff for maintaining and adhering to these procedures.
- **Essential Features.** Following shall be the general requirements for the procedures:
 - The procedures shall be consistent with OEM supplied procedures, recommendation, routine updates & notifications as well risk assessments carried out by site personnel.
 - Procedures shall be updated and approved prior to implementing any change to chemicals, technology, or facilities.
 - Approving authorities for procedures of each section shall also be defined. The procedures must be reviewed and updated as needed or at a regular frequency.
 - Usually 1-year review cycle or as per requirement. In case of urgency an addendum shall be circulated to all stake holders. The management shall ensure at the time of release of documents that current revision is available with the department.
 - Previous and old version shall be lifted at the time when new procedure handed over to department.
 - In case any need of old document at workplace is required for any reference it shall be documented.
 - The format and contents of these procedures shall be oriented towards accurate and relevant information for the employees associated with the work to be done. Procedures must be easily understood by the users, i.e. process operators. Written procedures should follow human factor principles to reduce the potential for error. Some examples of these principles are:
 - ❖ Use of a columnar format instead of a narrative one.
 - ❖ Use of a simple numbering system.
 - ❖ Each step should "stand by itself".
 - ❖ Piping and equipment sketches
 - ❖ Test it for "how easy it is to be followed?"
 - ❖ Include precautions and notes
 - ❖ Checklists
 - ❖ Log-sheets

K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi			
 HSEQ Department – HSE Plan for 2 KM BLNG Line Version: 00	Doc No.	KE-Gen-BQPS HSEQ-001-2020	
	Page	Page 25 of 32	
	Dated	13 th Jan 2020	

- ❖ Provision for ample pictures, sketches, and diagrams. The management shall ensure that operating procedures are current and accurate.

(22) HSEQ Procedures

- A Work Authorizing Procedure describing authorization for working at plant, process for safe handling over of equipment and isolation from sources of energy when maintenance is required, training and evaluation needs for personnel.
- Procedures for special activities like working at heights, in confined spaces or with radioactive sources (during NDT when required).
- Procedures for Hazardous chemical handling, loss of containment (major leaks) and response in case personnel are exposed.
- Procedures for any unique and one-time activity.
- Any other documents which are mandatory for HSEQ Implementation.

(23) Maintenance Procedures

- Maintenance Procedures shall be primarily driven by OEM and Vendor supplied procedures and routine updates. Improvements can be made based on site experience and periodic risk assessments. However, any deviation from OEM recommended shall be allowed only after thorough review and approval.
- The procedures shall be maintained in form of bound manuals as supplied by the Vendor. Job plans and procedures attached in SAP PM Module shall form part of these procedures.
- Preventive Maintenance records shall be maintained (preferably in SAP otherwise in print) by the Maintenance Department.
- The adherence to Preventive Maintenance plans shall be semiannually audited by the Management.

(24) **Contractor HSEQ Management.** At KE BQPS Power Complex LNG Pipeline Project we strongly feel that contractors and their workers working for us are part of us especially when they are working on our premises and for our benefit. It shall be our moral responsibility to keep them aligned and updated with our HSEQ requirement right from the Initiations of contracts and till their completion. To comply with these requirements, we shall issue a detailed and separated procedure.

(26) **Emergency Preparedness & Response.** Management shall conduct our business with professionalism and deluge, once so that the facility is operated within design and safe considerations. However, the risk of an untoward incident remains. A system shall be in place to:

- Provide a prompt and coordinated response during an unexpected event that will ensure the protection of the staff, the plant, the public and the environment.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RENG Line	Doc No.	KEL-Gen.BQPd HSEQ-001-2020
	Version: 00	Page	Page 26 of 32
		Dated	19 th Jan 2020

- List the foreseeable hazards and emergencies that could arise and provide procedures to be adhered to and outline the responsibilities and actions to be taken by designated company staff.
- Ensure an effective mode of communications between company staff on and off site, and the relevant authorities for the co-ordination and management of the response to an emergency.
- Maintain a level of preparedness in the form of emergency response drill, inspections and testing of emergency handling equipment.
- A written emergency plan shall be developed taking in to account the outcome of consequence and Hazard Analysis.
- The written procedure shall provide clear responsibilities and role statements of responsible personnel. The plan shall encompass elements like
 - Information of incident
 - annunciation of emergency
 - Responsibilities and role statements of all individuals, especially those with emergency response duties
 - evacuation of personnel and safe shutdown of plant,
 - communication to all concerned agencies,
 - personnel accounting and
 - rescue operation including medical emergencies
- A written emergency action plan shall be created to terminate any (small or large) release of hazardous material and to bring under control any resulting fires. Such a plan shall address the following subject area:
 - Emergency shutdown procedures, including isolation, venting, or purging as appropriate.
 - Activation of emergency systems such as water sprays or deluge systems.
 - Acceptable emergency repair procedures and/or service.
 - Activation of site emergency squad or notification of local / surrounding emergency response organizations.
 - Shutdown of adjacent facilities as appropriate.
 - Barricading of affected facilities.
 -
- Site personnel shall be trained in the prompt and efficient implementation of the above emergency plans, to include the following:
 - Conducting emergency drills at appropriate frequencies.
 - Involvement and participation of local emergency response organizations in site drills at appropriate frequencies.

K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi			
	HSEQ Department - HSE Plan for 2 KM ALUNG Line		Doc No. K6-Gen-BQPS HSEQ-001-2020
	Version: 00		Page 27 of 32
			Dated 15 th Jan 2020

- These should involve all aspects of the emergency management organization, with designated observers and key role players, including a formal documented critique identifying areas for improvements and follow-up responsibility.
- Minimum training requirements should be defined and training programs commensurate with the duties and functions that these groups perform should be provided including the contractor employees.
- Facilities should be designed and properly equipped to facilitate the effective management of any emergency.
- A system should be in place for documenting and tracking recommendations and for effectively communicating them to the appropriate level within the organization.
- There should be periodic stewardship of the emergency preparedness programs to responsible management, in which performance and concerns can be objectively reviewed and evaluated.

(27) Plant HSEQ Performance Measurement

- **Basic Philosophy.** Management shall establish, implement & maintain a procedure to monitor and measure the HSEQ performance and ensure compliance of the legal requirements on regular intervals.
- **Essential Features.** Plant Management will employ various means for recording of quantitative measures and indicators to monitor performance of HSEQ system.
 - Days since Last Time Injury,
 - Total Recordable Incident Rate,
 - Statistics of Injuries (first aid cases, medical treatment case, lost Time Injuries and Fatalities)
 - Near miss and unsafe acts
- **Recording of qualitative measurements like:**
 - Quality & Safety Audits identifying Non-Conformances to Procedures, unsafe conditions, and unsafe acts (use of PPE etc., attitude, position of people while working etc.)
 - housekeeping audits (with pictorial reports),
 - work permit audits
 - Data is analyzed and used for taking proactive measures for improving performance.
 - If equipment is used to monitor or measure performance, the procedure shall ensure calibration.
 - Periodic evaluation of compliance to legal requirements. The records of such evaluation shall be maintained.

(28) HSEQ Incident Investigation & Management System

119

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex POA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-POA HSEQ-001-2020
	Version: 00	Page	Page 28 of 32
		Dated	15 th Apr 2020

- **Basic Philosophy.** Management believes that reporting and analysis of incidents provides valuable opportunity to learn about the break downs or deficiencies in our safety management system. Serious incidents and near misses recur unless key factors are identified and corrected. Thorough and persistent investigation of all such incidents, coupled with actions directed at prevention of recurrence, continually improve safety. We shall ensure that all safety, health & environment incidents and untoward events taking place during operation are investigated and reported irrespective of their severity, in compliance with relevant HSEQ standards, so that corrective and remedial measures can be taken to prevent recurrence of such incidents in future.
- **Essential Features.** A Procedure shall be in place to encourage employees to report all incidents openly, having actual or potential safety / environmental consequences. Essential feature of the procedure shall be:
 - Incident investigations shall be initiated as promptly as possible as but no later than 48 hours following the incident.
 - Responsibility for filing of incident reports within the organization and communication with governmental agencies should be clearly assigned.
 - Investigations should seek to determine the root cause as well as the immediate cause for the failure of management system. Corrective action must address both areas. Attention should be paid to identify relevant risk assessment procedures or elements that were not correctly followed, and action taken to eliminate similar incidents in future.
 - A detailed incident investigation report shall be prepared for the all the incidents/incident selected for comprehensive investigations.
 - A follow-up system shall be established to ensure prompt follow-up and resolution of all incident investigation report recommendations.
 - Resolution and corrective actions shall be documented and maintained along with the incident report files.
 - The incident reporting system should provide for closure and stewardship of follow-up actions.
 - Incident reports shall be retained for five years.
- **Incident reports shall be shared with appropriate personnel.** Incident performance shall be analyzed for trends on an ongoing basis. The focus shall be on:
 - Prompt detection of significant changes and
 - Prevention of recurring incidents.

	K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 19 of 32
		Dated	15 th Jan 2020

- Personnel who will conduct Incident Investigations and analyses must be given training in techniques of investigation with emphasis on determining root causes in relation to safety management systems.
- The detailed procedure shall be developed for record, investigate, and analyze incidents and identify opportunities for preventive action and their continual improvement.

(29) Non-Conformity, Corrective Action & Preventive Action

- **Basic Philosophy.** Management is committed to continual improvement of our HSE System. In this regard, we will continuously monitor our performance and the system for any weaknesses. The detection and communication of an obvious non-conformance will provide us the opportunity to make necessary and timely corrections to achieve the company's safety objectives.
- **Essential Features** The essential features of the procedure shall be.
 - Identifying and correcting nonconformity and taking actions to mitigate their OH&S consequences.
 - Investigating Nonconformity, determining their causes and taking actions to avoid their reoccurrence.
 - Preventive and corrective actions are undertaking where it has been found that safety procedures and controls are not adequate to maintain the required level of safety performance as defined in safety policy.
 - Controls are applied and implemented by all the departmental heads to ensure that Corrective Actions are taken and that they are effective and prevent recurrence.
 - Corrective and Preventive Action is constantly followed by concerned in charge Plant or Departmental Head and monitored by HSE department.
 - HSE Department shall be responsible for maintaining a record of all Corrective Action Request forms and reports and communicate to concerns.
 - The status of all open and pending Corrective Actions Forms shall be reviewed in HSE Committee meetings and status will be reported to Corporate HSE Department.

(31) Internal Audits - HSEQ

- **Basic Philosophy.** Audits provide a structured, documented, and acceptable approach for review of performance. Internal Audits shall be used:
 - To encourage continual improvement.
 - To give management feedback on the effectiveness of their system.
 - To help employees understand the company's goal and procedures.
 - To monitor progress against objectives and targets.

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department - HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
	Version: 00	Page	Page 30 of 32
		Dated	15 th Jan 2020

- To ensure compliance against company's policies and procedures related to EMS, QMS & ISO
- **Essential Features.** Management shall establish and maintain documented procedures for conducting internal audits. The Procedure shall address:
 - The responsibilities, competencies, and requirements for planning and conducting audits, reporting results, and retaining associated records; and
 - The determination of audit criteria, scope, frequency, and methods
- The HSEQ department shall be responsible for planning and implementing Internal Audits to establish:
 - Compliance with the requirements of this HSEQ System
 - Effective implementation of requirements set by HSEQ System
 - Effectiveness in compliance to Safety Policy and Objectives
- Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.
- Results of Internal Audits shall be discussed in management review meeting and submitted to Top Management.
- The detail of audit procedure shall also be established

(32) Management Review

- **Basic Philosophy.** Top Management shall review the OHS Management System at planned intervals to ensure its continuing suitability, adequacy, and effectiveness.
- **Essential Features.** Inputs to management review shall include:
 - Results of Internal audits
 - Results of Participation & consultation
 - Relevant communications
 - HSE performance
 - Objective achievement status
 - Status of incident investigations
 - Follow up of previous review actions
 - Review of changes
 - Recommendation for improvement
- The Top Management shall provide timely and necessary decisions and actions for required changes to:
 - HSE performance
 - HSE policy & Objectives
 - Resources



K-Electric - Generation - Bin Qasim 2270 MW Power Generation Complex POA, Karachi

HSEQ Department - HSE Plan for 2 KM RLNG Line

Version: 00

Doc No.

KE-Gen-BQPS HSEQ-001-2020

Page

Page 33 of 32

Dated

15th Jan 2020

- Output from management review shall be communicated to all stakeholders.

(33) Environmental Compliance Requirement.

- Environmental compliance requirements are identified in Legal Compliance Register (KESC-SP-07) for reviewing the applicability of provincial and federal laws and regulations affecting KESC business operations and facilities.
- As regulations are subject to change over time, and as new regulations are promulgated by regulatory agencies, periodic review of regulations to stay current on compliance requirements are conducted as necessary through (KESC-SP-07) procedure.
- At the conception of all new projects, preliminary environmental impact assessment studies form the priority of the company. Based on this policy of giving due regard to environmental conservation in all areas of its operations, Environmental Management/Monitoring Procedure is (KESC-SP-015) followed to minimize environmental consequences of construction activities of new projects.
- Environmental emissions pertaining to our Generation operations are monitored as per Environmental Emission Procedure (KESC-SP-016) and regular compliance reports generated for onward submission to the regulatory bodies, lender institutions and other external stakeholders.
- A comprehensive Waste Management procedure is in place at KE that provides guidelines for the storage, tagging and generation of waste (KE-SP-12). This procedure is designed to minimize the possibility of a threat to human health or the environment caused by fire, or any unplanned release of hazardous waste materials into the air, soil, or surface water.
- BU / Divisions generating waste shall cooperate with Corporate Health Safety & Environment Department to ensure the safe and proper identification, collection, accumulation, packaging, and disposal of wastes.
- BU / Divisions who generate waste are encouraged to participate in Waste Management training program offered by Corporate Health Safety & Environment department.
- Spill Prevention Procedure (KESC-SP-017) has also been prepared for those facilities that require spill control management. These control techniques assist KESC personnel in responding to hazardous material spills at facilities. Personnel having responsibilities under this procedure are provided with the necessary training to ensure they are competent to fulfill the roles established in this procedure (KESC-SP-017).
- Facilities have been supplied with emergency spill equipment for use in emergency response. The Safety officer / Coordinators regularly inspect KESC facilities to ensure that adequate spill supplies are available, and information contained in the procedure is

	K-Electric - Generation – Bin Qasim 2270 MW Power Generation Complex PQA, Karachi		
	HSEQ Department – HSE Plan for 2 KM RLNG Line	Doc No.	KE-Gen-BQPS HSEQ-001-2020
		Page	Page 32 of 32
		Dated	15 th Jan 2020
Version: 00			

current. Inspections generally confirm the following for those facilities that maintain hazardous waste/material storage areas:

- Accessible wireless/telephone/Cellular or two-way communication.
- Telephone number of the emergency coordinator or response plan head.
- Telephone number of local fire and police stations.
- Easily accessible and portable fire extinguisher.
- Easily and accessible spill clean-up equipment.
- Readily available water supply.
- Documentation that employees have been instructed in emergency response procedures.

[34] HSEQ Preventive Maintenance on SAP. HSEQ Team at BQPS Power Complex RLNG Pipeline Project will also carry out routine preventive Maintenance checks to ensure that HSEQ Accident Prevention Plan through various engineering provisions remains healthy and intact during all the time. For this reason alone, various HSEQ Activities shall be incorporated in SAP to keep good management of these activities. These Activities or Preventive Maintenance Checks Include,

S/N	Title
1	Fire Tender Arrangements
2	Windsock inspection
3	Line Markers Integrity and availability
4	Fire alarm Panels inspection at RLNG Inlet area
5	Fire Drill Mock Drills
6	Inspection of Safety Signs
7	Noise Survey
8	PPE's Inspection
9	Line Condition Monitoring
10	Anti-Corrosion and environmental audit
11	Inspection of Valves and Couplers
12	Inspection from the point of view of security

35. Conclusion. This Plan will serve as umbrella and preliminary document for BQPS Power Complex RLNG Pipeline Project HSEQ Concerns and shall be augmented with Activity specific safety instructions, System based SOPs, OEM prescribed guidelines and management orders to ensure overall good compliance and management of HSEQ Management before design while drafting various plans and contracts, during execution phase of the project and after the commissioning of the line at the time of operations and then as and when maintenance is done.

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	Revision	0
	Date	08-04-2020
	Total Pages (incl front cover)	14



K-ELECTRIC LIMITED

SPUR PIPELINE FOR SUPPLY OF RLNG TO 900MW CCPP

DESIGN BASIS REPORT

ISSUED FOR
TENDER

01	08-04-2020	Issued for Tender	MW	AH	MM
Rev.	Date	Description	Prepared By	Checked By	Approved By

TABLE OF CONTENTS

<u>S.NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1.0	INTRODUCTION	3
2.0	BASIC DESIGN PARAMETERS	3
3.0	HYDRAULIC ANALYSIS	5
4.0	LINE PIPE	6
5.0	COATING SYSTEM	7
6.0	CATHODIC PROTECTION SYSTEM	7
7.0	CIVIL/STRUCTURAL DESIGN BASIS	8
8.0	CONCRETE DESIGN SPECIFICATION	12
9.0	INSTRUMENTATION & CONTROL DESIGN BASIS	14

1.0 INTRODUCTION

K-Electric Limited intends to construct a Spur Pipeline for supply of RLNG to 900 MW CCPP and also to fulfill the requirements of the KE Bin Qasim Power Complex. The Spur Pipeline will be laid for supply of 250 MMSCFD RLNG at 85bar from a suitable point at the RLNG Supplier's main pipeline which is connecting the existing Gasport RLNG terminal with the SSGC's Custody Transfer Station situated at approximately 2 km from BQPS. This spur pipeline shall connect the delivery point situated at KE's Bin Qasim Power Complex with the main pipeline through a T-off connection immediately prior to the main pipeline entering into CTS.

2.0 BASIC DESIGN PARAMETERS

2.1 Site and Environment Data

The system shall be designed taking into account the following extreme climate conditions.

Table 1: Site and Environment Data

Description	Minimum	Maximum
Relative humidity	30	95
Temperature (°C)	3	50
Wind velocity (Km/hr)	180	
Elevation (m.a.s.l)	5.5	

2.2 Noise

The unit will target a maximum specified noise limit of 85 dB(A) at 1 meter from radiating surfaces in locations accessible to personnel, measured at 1.5M above ground in a free field environment.

2.3 Wind Load

Wind load shall be designed in accordance with UBC-1997 and ASCE-7. Design wind speed to be used shall be 100 mile/hr.

2.4 RLNG Composition and Properties

Components		RLNG Composition (Mole%)	
		Reference # 2	Reference # 1
Methane	CH ₄	99.700	81.60
Ethane	C ₂ H ₆	0.100	13.40
Propane	C ₃ H ₈	0.000	3.700
Iso-Butane	i-C ₄ H ₁₀	0.000	0.700
N-Butane	n-C ₄ H ₁₀	0.000	0.000
Iso-Pentane	i-C ₅ H ₁₂	0.000	0.000
N-Pentane	n-C ₅ H ₁₂	0.000	0.000
N-Hexane	n-C ₆ H ₁₄	0.000	0.000
Heptane	C ₇ +	0.000	0.000
Octane	C ₈ +	0.000	0.000
Nonc	C ₉ +	0.000	0.000
Decane	C ₁₀ +	0.000	0.000
Udencane	C ₁₁ +	0.000	0.000
Nitrogen	N ₂	0.200	0.700
Oxygen	O ₂	0.000	0.000
Carbon Dioxide	CO ₂	0.000	0.000
Total		100	100
Estimated Specifications			
Higher Heating Value (Btu-SCF)		1001	1168
Lower Heating Value (Btu-SCF)		908	1065
Wobbe Index (Btu/SCF)		1358	1444
Modified Wobbe Index @ Temp 5 °C		54.597	58.387
Modified Wobbe Index @ Temp 5 °C		53.007	56.705
Modified Wobbe Index @ Temp 5 °C		52.031	55.662
Specific Gravity		0.555	0.667
Methane Number		99.7	66.6

2.5 Pipeline Operating Conditions

Flow Rate	:	250 MMSCFD
Inlet Pressure	:	85 Barg
Inlet Temperature	:	5 - 32 °C

3.0 HYDRAULIC ANALYSIS

Hydraulic analysis of the pipeline has been performed on computer software ASPEN HYSYS. Details of basis of hydraulic analysis and results are as follows:

3.1 Basis of Analysis

Following are the basis of hydraulic analysis:

▪ RLNG Flow Rate	:	250 MMSCFD
▪ RLNG Composition & Properties	:	Refer section 2.4 above
▪ Equivalent Length	:	2,400 m

3.2 Analysis Result

Hydraulic Analysis has been conducted and the result is tabulated below:

HYDRAULIC ANALYSIS				
Line Size (Inch)	Inlet Pressure (Barg)	Pressure at KE battery limit (Barg)	Velocity (m/s)	Pressure Drop (Bar)
12	85	77.90	12.80	7.1
14	85	81.95	8.88	3.05
16	85	83.51	6.63	1.49

Above table indicate that RLNG velocities in 12", 14" & 16" are in within the acceptable range. The pressure drop in 12" pipeline is much higher, however, Pressure drop in 14" and 16" line is within the limits. Therefore, 14" line has been selected.

4.0 LINE PIPE

The line pipe grade proposed for the 14" pipeline system is API 5L Gr. X-65. The pipe wall thicknesses have been calculated accordingly. The thicknesses for the pipeline have been evaluated for the following design conditions:

- Design pressure as defined in ASME B 31.8
- Location classes as per ASME B 31.8
- Traffic loads at road crossings as per API 1102

Considering the building population of the areas forming the pipeline route, Location Class 3 has been selected for pipeline design. A Design Factor of 0.5 has, therefore, been used for the computation of allowable stresses, as per Location Class 3 of ASME B31.8.

The pipe thickness has been calculated as per the Steel Pipe Design Formula of ASME B 31.8, Para 841.11, based on design pressure.

Sample calculation for 14" pipe is given below:

Using the formula $P = \frac{2 S_t F E T}{D}$

Where,	D	=	Pipe outside diameter	=	14 in.
	S	=	Specified min. yield strength	=	65,000 psi
	E	=	Longitudinal Joint Factor	=	1.0
	T	=	Temperature Derating Factor	=	1.0
	F	=	Design Factor	=	0.5
	P	=	Design Pressure	=	1450 psig
			Calculated line pipe thickness, t	=	7.933 mm

With the addition of corrosion allowance of 1.6 mm, the required wall thickness becomes 9.533 mm. The selected wall thickness based on available API thicknesses for 14" line pipe size is 10.312 mm.

Road/ Highway crossing design calculations shall be undertaken according to API 1102. The minimum depth of cover at crossings is 1200 mm as recommended by API 1102. Use of Set-On Saddle Bags (Echo Bags or equivalent) is being proposed for water locked area, to provide protection against buoyancy.

4.1 Conclusion and Recommendation

Following is being proposed for the pipeline system:

- The line pipe recommended is 14" NPS, Wall Thickness - 10.312 mm, API 5L Grade X-65, SAWL for main line and crossings.
- Flange rating is ANSI/ASME 600 #.

5.0 COATING SYSTEM

A 3-Layer Polyethylene (3 LPE) corrosion protection coating is proposed for the steel pipeline system.

The minimum coating thickness shall not be less than 3200 microns (3.2 mm) consisting of:

- 300 microns Fusion Bonded Epoxy (FBE)
- 300 microns Copolymer Adhesive
- 2600 microns High Density Polyethylene (HDPE)

6.0 CATHODIC PROTECTION SYSTEM

Sacrificial galvanic anode based CP system is proposed for K-Electrics 2 KM, 14" dia RLNG spur pipeline.

6.1 Design Parameters

Design Life:	30 years
Coating:	3 Layer Polyethylene (3LPE) – Pipeline 3-layer tape of polyethylene material – Terminal piping
Soil resistivity:	As per actual measurements, to be conducted by Contractor
Isolation:	All buried pipes/pipelines to be isolated from the above ground portions using Insulation flanges
Plant Grounding:	To be isolated from the buried portions of the pipes

The evaluation of the current demand necessary for the CP shall be carried out from the design input data.

The current CP requirement shall be estimated by Contractor as per the coating status and applicable coating breakdown factors specified in the relevant codes. Following is only a preliminary baseline minimum requirement

Current Density: 20mA/m² (Bare Steel)
 1mA/m² (Coated buried piping)

7.0 CIVIL/STRUCTURAL DESIGN BASIS

STEEL STRUCTURES DESIGN SPECIFICATION

7.1 Applicable Codes and Regulations, Project Specifications and Standards

The following code and standards shall be applied wholly or in part thereof in combination with this document, to the detailed design of all steel structures:

- ASTM: American Society for Testing and Materials
- ASCE-7: American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
- AISC – ASD 89 – American Institute of Steel Construction
- AWS D1.1 American Welding Society Structural Welding Codes-Steel
- UBC -97: Uniform Building Code
- IBC 09: International Building Code

7.2 Design Tools and Softwares

- Staad Pro V8i (Select 3 Series or latest version)
- Ram Connection
- AutoCAD

7.3 Material Strength

7.3.1 Steel Structure

All structure steel shall be as per ASTM A36 or equivalent, with minimum yield strength of 36000 psi.

7.3.2 Connections Bolts

All bolts used for structure steel connections shall be high strength bolts as per ASTM A325 ($f_y = 558 \text{ Mpa}$, $F_t = 724 \text{ Mpa}$) or equivalent. All bolts shall be hot dip galvanized as per BS729 or equivalent Standard.

7.4 Design Loading

The Structure shall be designed for following Loadings:

7.4.1 Self Weight

Self Weight is the dead load of structure members and shall be calculated as per the material densities.

▪ P.C.C	:	22 KN/m ³
▪ R.C.C	:	24.5 KN/ m ³
▪ Brick Masonry	:	18 KN/ m ³
▪ Steel	:	76.98 KN/ m ³

7.4.2 Dead Load

Dead loads are the weight of equipment and all materials permanently fastened thereto or supported thereby, including piping attached to equipment, fire proofing, electrical conduit and insulation.

7.4.3 Live Load

Live loads shall be defined as the weight of all movable loads such as personnel, tools, miscellaneous equipment, and stored material.

Live loads shall be uniformly distributed over the areas. Live Load recommended for different areas shall be as follows:

▪ Access Walkways	:	5.00 kN/m ²
▪ Operating Platforms	:	5.00 kN/m ²
▪ Stairways & Landings	:	4.00 kN/m ²

7.4.4 Wind Load

Wind load on structure and equipment shall be determined in accordance with ASCE 07/UBC-97. Basic parameters for calculating wind load shall be as follows:

- Basic wind Speed : 45 m/s.
- Importance factor : 1.15
- Exposure : Category C

7.4.5 Seismic Load

Seismic forces due to self weight of structure and on equipments shall be determined in accordance with the Uniform Building Code 1997/IBC 09. Basic parameters for calculating seismic load shall be as follows:

- Zone category : Zone 2B. ($z = 0.2$)
- Importance factor : $I = 1.25$
- Soil Profile Type : As per Geotechnical investigation report

7.4.6 Empty Load

Dead load of equipment, without any product.

7.4.7 Operating Load

Operating loads are the dead load of equipment plus the weight of any liquid or solids present within the vessels, pits, sumps, equipment or piping during normal operation.

7.4.8 Test Load

Vessels or tanks, for which the hydrostatic tests shall be carried out, shall be identified in the loading data.

Piping load on sleepers or on pipe supports, subject to the hydrostatic tests shall be considered in the design.

Equipment mounted structures or Pipe rack that hold more than one vessel or more than one piping shall be assumed to take a hydrostatic test for one vessel or one piping if hydrostatic test is required.

7.4.9 Piping Load

The effects of loads due to piping including insulations/covering/fireproofing etc. gases/liquids flowing through pipes shall be taken into account. Actual loads to be taken directly from piping plan and details.

Piping loads (including self weight of piping) shall be considered as live loads, unless specifically approved otherwise.

Maximum piping load shall include the weight of all pipes, valves, fittings, insulation, etc., and the weight of contents.

7.4.10 Piping Anchor Load

For pipe racks, sleepers and pipe supports, the pipe anchor force shall be calculated on the basis of the thermal stress analysis of the piping system.

7.5 Load Combinations

Load Combinations shall be as per applicable codes

7.6 Design Method

The design and details of steel structures shall be in accordance with AISC " Manual of Steel Construction, Allowable Stress Design, Ninth Edition", 1989. Allowable stress can be increased 33 % for load combinations of short-term.

7.6.1 Allowable Deflection Limit

Vertical deflection and Horizontal displacement shall not exceed the following:

Vertical Deflection:

▪ Beam Supporting floor/Pipe	:	L/240
▪ Beams Supporting Pipe	:	L/240
▪ All Other beams	:	L/200
▪ Beam Supporting Equipment	:	L/500
▪ Cantilever Beam	:	L/180

Horizontal Displacement:

- Frames : H/300
- Cantilever Column : H/200

7.6.2 Slenderness ratio

The slenderness ratio of compression/tension members shall not exceed the following values:

- Primary members in compression : 180
- Secondary members in compression : 250
- For tension bracing with L/r shall be less than 300.

7.6.3 Clearances**Overhead Clearances:**

- Platforms, Walkways and Work Areas : 2,140 mm
If personnel require access beneath
- Pipe Racks : 2,750 mm
- Over Pumps, Turbines etc : Manufacturer's requirements
- Over primary roads : 6,000 mm
- Over Maintenance roads : 4,800 mm

8.0 CONCRETE DESIGN SPECIFICATION**8.1 Applicable Codes and Regulations, Project Specifications and Standards**

The following documents shall be applied wholly or in part thereof in combination with this document, to the detailed design of foundations and structures:

- ASTM: American Society for Testing and Materials
- ASCE-7: American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
- ACI 318/318R/318M-08: Building Code for Requirements for Reinforced Concrete
- UBC -97: Uniform Building Code
- IBC 09: International Building Code

8.2 Material Strength

8.2.1 Concrete

All concrete shall be as per ASTM and shall have 28 days cylinder strength not less than the follows:

- Substructure/ Superstructure $f_c' = 4000$ psi (28 Mpa)
- Lean $f_c' = 1500$ psi (10 Mpa)

8.2.2 Steel Reinforcement

All Steel reinforcement shall be hot rolled deform bars conforming to ASTM A-615, with minimum yield strength of 60000 psi (416 Mpa).

8.2.3 Anchor Bolts

All anchor bolts shall be as per ASTM A307 ($f_y = 248$ Mpa, $F_t = 400$ Mpa) or A325 ($f_y = 558$ Mpa, $F_t = 724$ Mpa) or equivalent and shall be hot dip galvanized as per BS729 or equivalent Standard.

8.3 Load Combinations

Load Combinations shall be as per applicable codes

8.4 Foundation Design

8.4.1 Serviceability Factors

a) Bearing Capacity:

Allowable soil bearing capacity shall be taken as per the recommendation of Geotechnical Investigation report.

b) Safety Factor for Stability of Foundations:

Minimum factor of safety against sliding & overturning shall be as listed below:

Factor of Safety Against Overturning		Factor of Safety Against Sliding	
Erection	Operating case	Erection	Operating case
1.5	2.0	1.5	1.75

9.0 INSTRUMENTATION & CONTROL DESIGN BASIS

ESDV-001 and ESDV-003 shall be provided at downstream of RLNG supplier's tie in point. These ESDVs shall be closed on activation of high and low pressure switches. PSHH-001, PSHH-003, PSLL-001 and PSLL-002 shall be used for activation of these ESDVs.

ESDV-001 and ESDV-003 shall be located inside RLNG supplier's premises. Instrument air for these valves will be made available from existing IA system available at the facility. Tie-in from existing IA header up to these instruments will be included in Contractor's scope. In case of unavailability of IA from RLNG supplier's facility, EPC Contractor shall consider Slam Shut Valve in place of ESDV-001 and ESDV-003.

ESDV-002 shall be provided at the inlet of KE facility. This ESDV will be closed on activation of PSHH-002.

Instrument Air (IA) for ESDV-002 shall be supplied from existing IA System. Tie-in from existing air header up to these instruments will be included in Contractor's scope.

Shutdown valve ESDV-002 and its respective pressure switch will be connected to KE's existing control system, whereas, ESDV-001 and ESDV-003 with its respective pressure switches shall be connected to RLNG supplier's control system.

140

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	Revision	A
	Date	03-03-2020
	Total Pages (inc front cover)	12



K-ELECTRIC LIMITED

SPUR PIPELINE FOR SUPPLY OF RLNG TO 900MW CCPP

SPECIFICATION FOR SAW LINE PIPE

ISSUED FOR
REVIEW

A	03-03-2020	Issued for Review	MR	AK	AH
Rev.	Date	Description	Prepared By	Checked By	Approved By

TABLE OF CONTENTS

<u>S. NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1.0	INTRODUCTION	3
2.0	BASIC SPECIFICATION REQUIREMENTS	4
3.0	PROCESS OF MANUFACTURE	4
4.0	MATERIAL REQUIREMENTS	5
5.0	HYDROSTATIC TESTS	7
6.0	DIMENSIONS, WEIGHTS, AND LENGTHS	7
7.0	NON DESTRUCTIVE INSPECTION	7
8.0	WORKMANSHIP, VISUAL INSPECTION, REPAIR OF DEFECTS	8
9.0	MARKING AND TRACEABILITY	9
10.0	SHIPPING	9
11.0	WARRANTY	9
	APPENDIX - A	10

142

1.0 INTRODUCTION

1.1 General

K-Electric Limited (KE) aims to develop a Spur Pipeline to fulfill the gas requirement of the 900 MW RLNG Combined Cycle Power Plant (900MW CCPP).

KE intends to engage an EPC Contractor for laying the Pipeline for supply of 250 MMSCFD RLNG at 85 bar from a suitable point at the RLNG Supplier's main pipeline which is connecting the Bin Qasim Power Station with the Custody Transfer Station, situated at 2 KM approximately. This spur pipeline shall connect the Delivery Point situated at KE's Bin Qasim Power Complex with the Main Pipeline through a tee-off connection as designated by RLNG Supplier in its facility.

This specification gives the minimum requirements for SAW line pipe for K-Electric RLNG Pipeline Project for K-Electric Bin Qasim Power Station.

Pipes manufactured and supplied according to this specification shall comply with API specification 5L (44th Ed. or Latest), "Specification for Line Pipe", as supplemented / amended in this specification.

This specification gives the amendments and supplements to API Specification 5L. The amendments and additional requirements are specified below:

1.2 Definition of Terms

Refer to the Contract Agreement.

1.3 Error or omission

1.3.1 The review and comment by the COMPANY of any drawings, procedures or documents referred to in this Specification shall only indicate acceptance of general requirements and shall not relieve the MANUFACTURER of its obligations to comply with the requirements of the contract.

1.3.2 Any errors or omissions noted by the MANUFACTURER in this Specification shall be immediately brought to the attention of the COMPANY.

1.4 Deviation

All deviations to this Specification and other specifications or attachments listed in the Purchase Order shall be made in writing and shall require the written approval of the COMPANY prior to executing the work.

2.0 BASIC SPECIFICATION REQUIREMENTS

This specification supplements API specification 5L, 44th Edition or Latest, and covers all sizes of API 5L 44th Ed. or Latest PSL 2 welded line pipe in grades B through X-80 inclusive. It is intended as the base line requirements and may be supplemented by OWNER or its representatives.

Pipe shall be manufactured in accordance with the requirements of the API 5L 44th Edition or Latest approved edition of API Spec 5L 44th Edition or Latest PSL 2 requirements, and as supplemented by this specification, including the requisitions, appendices, and the purchase order. This specification shall constitute the OWNER's request for special agreements where they exceed API Spec 5L 44th Edition or Latest PSL 2 requirements. The VENDOR's quotation in conformance with this specification and any supplements shall constitute their agreement to meet all of the requirements in the specification.

The quotation shall state if the order will be distributed between more than one MANUFACTURER, or more than one location of a MANUFACTURER. If a MANUFACTURER has more than one mill in a given location, the quote shall specify which one(s) will be used for this order.

Appendix A of this specification references paragraph 7 of API 5L 44th Edition or Latest and lists OWNER's requirements for the MANUFACTURER/purchaser agreement clauses in paragraph 7.

Test Certificates of pipe shall be furnished and shall conform to paragraph 10.1 of API 5L, 44th Edition or Latest.

Inspection frequency of PSL 2 pipe shall be as per Table 18, API 5L, 44th edition or Latest, unless otherwise specified in this specification.

3.0 PROCESS OF MANUFACTURE

The MANUFACTURER shall provide a controlled copy of the Manufacturing Procedure Specification (MPS) and a Manufacturing Quality Plan (MQP) that is customized to meet the requirements of the purchase order and this specification.

The MANUFACTURER's quotation shall state whether pipe supplied is suitable for induction bending. Detailed requirements shall be specified in the MPS and QCP at the time of quotation.

All steel shall be fully killed, fine grain and treated for inclusion shape control. Quenched and tempered pipe is not permitted.

3.1 Submerged Arc Welded Pipe

A qualification test is required at the start of production. A minimum of four joints from four different heats consisting of at least one from each welding line shall be subjected to all of the mechanical tests, chemistry requirements, and non-destructive examinations in this specification.

4.0 MATERIAL REQUIREMENTS

4.1 Chemical Properties

The product chemical composition shall meet the requirements of Table 5, API 5L 44th Edition or Latest except for the following:

Carbon (C)	0.17% max.
Manganese (Mn)	1.70% max*
Silicon (Si)	0.45% max.
Sulphur (S)	0.015% max
Phosphorous	0.025% max
Carbon Equivalent (ICW)	0.40% max. (0.43% specified)
Carbon Equivalent (Pcm)	0.22% max. (0.25% specified)
*The maximum allowable manganese content is that listed in API 5L 44 th Ed. or Latest, Table 5. Manganese content increases based on carbon content are not permitted.	

4.2 Tensile Testing

One tensile test specimen shall be taken in the longitudinal direction at the same frequency as in API 5L 44th Ed. or Latest PSL 2 control tests and shall meet the requirements of API 5L 44th Ed. or Latest PSL 2 except that longitudinal tensile strength may be 5% less than the required values in the transverse direction.

The maximum yield/tensile strength ratio shall be 0.93 on transverse tensile specimens and 0.93 on longitudinal tensile specimens. Both ratios must be met.

4.3 Charpy Impact Tests

Charpy impact tests shall be performed in accordance with API 5L 44th Ed. or Latest, Para 9.8. The test temperature shall be 0°C (32°F).

The average and minimum shear values shall be according to API 5L, with test temperature 0°C (32°F).

4.4 SAW Welded Pipe

The weld metal, and the heat affected zone shall also be tested. The manufacturer shall have a procedure referenced in the information requested in Section 3.0 for removing and notching the specimens at the weld line.

A drop weight tear test shall be performed in accordance with API 5L 9.9 and Table 18 at a temperature of 0°C (32°F).

4.5 Hardness Tests

The hardness test requirement shall be over and above para 10.2.5.3 of API 5L, 44th edition or Latest.

The qualification test procedures referred to in Section 3.0 shall include hardness tests on the weld seam, heat affected zone and the pipe body. Hardness readings shall be 275 HV10 max.

Figure 1A shows the locations and number of hardness indentations for SAW pipe

Base metal hardness tests shall be performed on the tensile test coupons for production pipe at the same frequency of the tensile tests. Hardness shall not exceed 260 BHN or equivalent. If a failure occurs, two additional pipes from that

heat shall be tested and both shall pass the test. If both pass the entire heat may be accepted. Except for the joint which failed the test, if either re-test fails, the heat shall be rejected, the cause of failure shall be investigated and the notified to the Company.

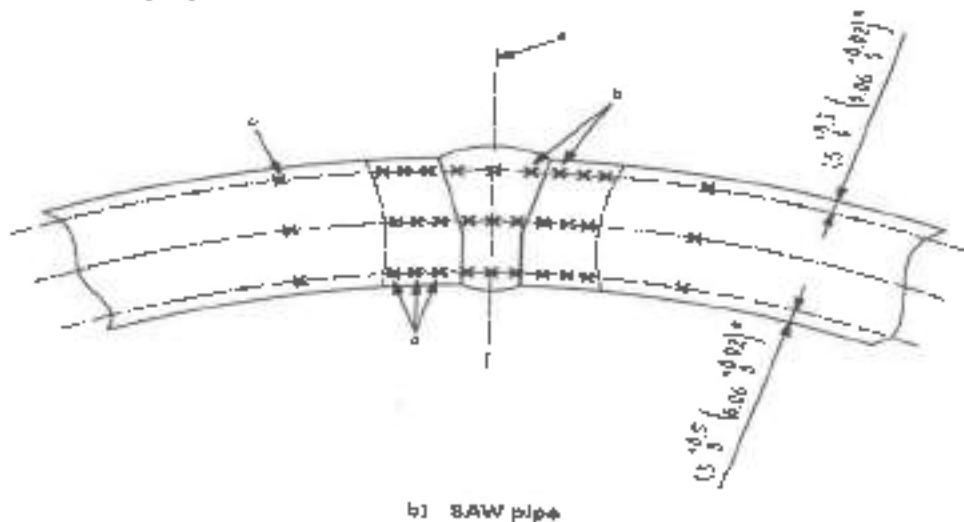


Figure 1A

5.0 HYDROSTATIC TESTS

The hydro test pressure shall be held for a minimum duration of 10 seconds as per Para. 10.2.6.1, API 5L 44th Edition or Latest.

6.0 DIMENSIONS, WEIGHTS, AND LENGTHS

Diameter tapes are prohibited in measuring the diameter of pipe ends for sizes less than 20 inch. Calipers shall be used for measurement of pipe diameters and at least three readings shall be taken on separate planes around the pipe circumference and averaged to provide a value. The frequency in API 5L 44th Ed. or Latest, Para 10.2.8, Table 18 shall apply.

The maximum ovality shall be 1.5% for pipe sizes up to 24 and 1% for sizes greater than 24.

Pipes shall be furnished with ends beveled to an angle of 30 degrees (+ 5 degrees, -0 degrees) and with a root face of 1/16 in, + 1/32 in, -0 in.

7.0 NON DESTRUCTIVE INSPECTION

The MANUFACTURER shall provide their inspection procedures for Owner's approval.

A lamination check shall be made over the whole circumference on each end of each pipe for manufacture for a distance of 25.4 mm (1 in) from the end using a calibrated compression wave ultrasonic procedure. This procedure shall meet the requirements of ASTM E114 and shall be approved by Owner's. The calibration frequency shall be as described in the following paragraphs.

7.1 Submerged Arc Welded Pipe

Nondestructive testing for final acceptance shall be performed on the SAW weld seam after hydrotest and cold expansion per the requirements of API 5L para. E 3.2.

A radiological inspection using the X-ray method for a minimum distance of 8 inches from each pipe end is required in accordance with API 5L para. E 3.2.2.

A full length ultrasonic inspection of the weld seam of each pipe is also required per API 5L E.5.

The NDT reference standard for ultrasonic testing shall be per API 5L E.5.2 except that it shall contain OD and ID longitudinal and transverse notches and a drilled hole. Unless otherwise specified NS notches and a 1.59 mm (1/16 in) diameter hole are required for the reference standard.

A dynamic calibration at production speed using the reference standard is required. Calibrations shall be done as a minimum at the start of each shift, at 4 hour $\pm$ 15 minute intervals and before the nondestructive unit is turned off. If the latter calibration check shows that the accuracy of the calibration has shifted outside of the acceptable range, all lengths of pipe inspected since the last good calibration shall be re-inspected using the same nondestructive method previously used.

If necessary to meet the full length (100%) inspection requirements noted in E.3.1.1 pipe ends shall be inspected by using hand held ultrasonic shear wave equipment or cut off. Calibration frequency shall be as noted above.

8.0 WORKMANSHIP, VISUAL INSPECTION, REPAIR OF DEFECTS

Where the depth of a surface imperfection is not readily apparent, suitable non-destructive examination methods and surface grinding shall be performed to assure that the depth of the imperfection is completely removed. When the surface is ground to remove a surface imperfection, complete removal shall be verified by magnetic particle examination and the