KE
Energy That Moves Life

3 March 2020

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

Subject: Submission of Power Acquisition Request in Relation to Power Acquisition from Lucky Cement Limited

Dear Sir,

We are pleased to enclose our Power Acquisition Request ("PAR") to the Authority under the Interim Power Procurement (Procedure & Standards) Regulations, 2005 ("IPPR 2005") for the determination of a power purchase tariff from the captive power units of Lucky Cement Limited ("LCL"). The power supply to be received from LCL shall be distributed to the DHA City Karachi ("DHCK"), a new residential and commercial project located in the suburb of Karachi.

Please find attached the following documents for your perusal:

1. K-Electric Limited Board Resolution approving acquisition of power from LCL
2. Power Acquisition Request of K-Electric Limited
3. Power Sale Proposal of Lucky Cement Limited

We look forward to an early admission of our PAR and determination of a tariff so that power may be acquired from LCL.

Thanking you.
Yours sincerely,

Adnan Rizvi
Director Commercial & Regulatory

Cc: Syed Mazhar Hassan Rizvi – GM LCL

REGISTRAR
Dy. No. 4443
Dated: 09-03-20

Certified True Copy (CTC) of Resolution
passed by KE Board of Directors at its Meeting No. 1214
held on Friday, 28 February 2020 at 1000 hours in KE's Board Room,
3RD Floor, KE House, 39-B, Sunset Boulevard, Phase-II, DHA, Karachi

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Re: **Lucky Cement Limited Project Brief – Captive Power 6 MW on Natural Gas**

Resolved That, based on understanding between K-Electric, Lucky Cement Limited (LCL) and DHA City Karachi (DCK), K-Electric be and is hereby authorized to file a Power Acquisition Request (PAR) with NEPRA for purchase of power from LCL up to 6 MW from LCL's 29.7 MW Captive Power Plant at M9 Motorway Karachi, and subject to approval of PAR by NEPRA, K-Electric is further authorized to enter into a Power Acquisition Contract (PAC) with LCL, for purchase of power as above, on mutually agreed terms and conditions and after completing all statutory requirements, legal review and obtaining all necessary approvals.

Resolved Further That 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 finalize and sign the PAR for filing with NEPRA and after approval of PAR by NEPRA and completing all legal requirements and obtaining requisite approvals, to finalize and sign, for and on behalf of the Company, PAC with LCL. 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 etc. incidental and related to the execution and implementation of the PAC for and on behalf of the Company and in relation to KE's PAR with NEPRA. 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 etc. incidental and related to PAC execution and PAR and appear before any authority including NEPRA and admit execution thereof for and on behalf of the Company.

Muhammad Rizwan Dalia
Chief People Officer & Company Secretary

POWER ACQUISITION REQUEST

Captive Power Producer:

Lucky Cement Limited (LCL)

Power Purchaser:

K-Electric Limited (KE)

Submitted for the Approval of:

National Electric Power Regulatory Authority (NEPRA)

CONTENTS

Chapter 1
Grounds Forming Power Acquisition Request

1.1 Preamble

K-Electric Limited ("KE") has a customer base of more than 2.8 million connections across residential, commercial, industrial and agricultural sectors. The actual beneficiaries of power supplied by KE are estimated to be well over 20 million people living in and around Karachi. This signifies the importance of generation capacity expansion by KE as well as tapping into available power supply sources including independent power producers and captive power producers in order to meet the growing demand of power consumers in the city.

Besides serving the existing customer base, KE continues to make efforts to cope with the power demands of emerging suburban areas around Karachi city. For this purpose, KE is engaged in planning, development and execution of new grid stations and distribution networks to be able to serve the power demands of emerging load centers.

1.2 Process Leading to Submission of Power Acquisition Request (PAR)

DHA City Karachi ("DHCK") is a new residential cum commercial project in the suburbs of Karachi. Located adjacent to Super Highway (M9), the project is 58 KM from Karachi and about 22 KM from toll plaza. The development of the project is underway and is planned to span over 20,000 acres.

DHCK falls within the KE licensed territory. However, the DHCK did not timely complete KE's new connection requirement in past and hence the required power infrastructure is not there. The nearest KE grid is currently at a distance of around 35 – 40 KM from DHCK. While, DHCK has now agreed to fulfil new connections requirement including construction of required power infrastructures, they have requested for immediate energization of DHCK. The same is only possible through laying a feeder from LCL generation facility which is around 5 KM away from DHCK. Accordingly, KE, DHCK and LCL have reached an understanding for purchase by KE of surplus power of up to 6 MW from LCL and delivery of such power to DHCK by connecting through an 11 kV network.

LCL has 29.7304 MW thermal power plant fired on gas which has a generation license from NEPRA and can supply from 1 to 6 MW power to KE for onward delivery to DHCK for consumption. The NEPRA vide its letter no. NEPRA/R/LAG-180/6031-37 dated 21 February 2020 approved LCL's licensee proposed modification request thereby allowing LCL to supply electric power to KEL for onward supply to DHCK on individual connection/metering basis.

Subject to the satisfaction of the applicable regulatory and legal approvals, LCL has agreed to sell power to KE and has provided its Power Sale Proposal ("PSP") which is attached herewith. The PSP contains details about the LCL and its proposed tariff for the review and approval by NEPRA.

1.3 Power Acquisition Request to NEPRA

KE hereby requests the NEPRA to approve:

1. this Power Acquisition Request ("PAR") so that KE may purchase power from LCL;
2. determine a power purchase tariff in relation to this PAR; and
3. provide approval of PAC between KE and LCL, which will be submitted by KE after NEPRA's tariff determination and PAR approval.

Chapter 2
Economic Justification of the Proposed Power Acquisition

2.1 Economic Rationale

DHCK is continuously developing project land which becomes gradually inhabited. Presently, the load requirement is low and is estimated to be between 1 – 2 MW.. KE and DHCK are currently engaged in planning of EHT transmission line and grid stations, however its planning and construction would take few years. The acquisition of Right of Way for the transmission line is also time consuming. A solution is therefore required to address the existing and growing demand during the intervening period before EHT network becomes available to DHCK.

The nearest KE grid stations are approximately 35 – 40 KM away from DHCK (e.g., Memon Goth and Gadap). Therefore, deploying an 11 kV distribution line for such long distance is not technically or commercially advisable as this will result in substantial line losses and significant drop in voltage. Compared to this, the LCL generation facility which has both surplus power and is located only 5 KM away from DHCK, offers a technically feasible option. The power from LCL facility can be delivered to DHCK through 11 kV lines. The demand from DHCK is estimated between 1 – 6 MW for the next few years and hence this PAR is being filed accordingly.

Chapter 3
Overview of Power Sale Proposal of LCL

LCL submitted its Power Sale Proposal ("PSP") dated 17 February 2020 to KE for supply of surplus power of up to 6 MW. The PSP is attached with this PAR as annexure II. Some of the key features of the PSP are provided below:

3.1 Generation Facility and Quantity of Supply

LCL had setup a power generation facility of 29.7304 MW under the New Captive Power Producers ("NCPP") policy. The plant consists of three (3) Rolls Royce engines of 7 MW each and one (1) Wartsila engine of 8.7 MW. This facility is being used to supply HESCO up to 20 MW. LCL has a valid generation license no. SGC/72/2011 issued by NEPRA for this facility which is valid up to 24 October 2031. LCL plans to supply KE up to 6 MW from the same facility. For this purpose, LCL filed a Licensee Proposed Modification ("LPM") with NEPRA on 20 July 2019 for inclusion of KE as a power purchaser. The details on generation facility and generation license are provided in the PSP.

The NEPRA vide its letter no. NEPRA/R/LAG-180/6031-37 dated 21 February 2020 approved LCL's licensee proposed modification request thereby allowing LCL to supply electric power to KEL for onward supply to DHCK on individual connection/metering basis.

3.2 Nature and Term of the PAC

Subject to the approval of NEPRA, the PAC shall be on a "Take and Pay" basis and the proposed term for the PAC is seven (7) years.

3.3 Fuel Used for Power Generation

LCL has a Gas Supply Agreement with the SSGC and also uses gas for generation and sale of surplus power to HESCO. LCL has applied to SSGC vide its letter dated 17 May 2019 for a No Objection Certificate ("NOC") in relation to supply of surplus power to KE.

3.4 Proposed Tariff

The PSP received from LCL proposes power sale tariff provided under the NCPP policy. The details of tariff structure and its components are provided in the Chapter 4 of the PSP. The proposed tariff has three components as follows:

- Fuel Cost Component: Rs. 12.38/kWh excluding GIDC
  - GIDC: Rs. 2.42/kWh
- Fixed Cost Component: Rs. 2.37/kWh
- Financial Cost Component: Rs. 1.28/kWh

The above is the NCPP tariff which has been updated by LCL to current price of gas for captive power producers, the applicable GID Cess rate, and the CPI for December 2019. The plant efficiency has been assumed by LCL as per the NCPP policy.

3.5 KE Comments on Proposed Tariff

In the discussions held prior to the filing of PSP, LCL informed KE that they had setup the generation facility of 29.7304 MW under the NCPP policy and that they have an agreement with HESCO for surplus power supply under the same policy. During KE's discussions with LCL with respect to proposed tariff, the latter maintained that in order to supply power to KE, anything less than the NCPP tariff is not feasible for them. Consequently, LCL included the NCPP policy tariff in the PSP submitted to KE for a tariff determination by NEPRA.

KE understands that for any pass through of power purchase costs to the consumer end tariff of KE, the same shall be determined by NEPRA. Therefore, KE requests NEPRA to admit the PAR and review the PSP of LCL to determine a generation tariff for the purchase of power from LCL in accordance with the Interim Power Procurement (Procedures and Standards) Regulations, 2005.

Submitted

Chief Generation & Transmission Officer

Chief Executive Officer

Annexure I

Information for Processing of Power Acquisition Request

Technical Details of Generation Facility

Model	B35:40V-16AG	B35:40V-16AG	B35:40V-16AG	20V 34SG
Engine #	GG. # 9	GG. # 10	GG. # 11	GG. #12
Manufacturer	ROLLS -ROYCE	ROLLS -ROYCE	ROLLS -ROYCE	WARTSILA
Fuel	GAS	GAS	GAS	GAS
Quantity	One	One	One	One
Speed (rpm)	750	750	750	750
Engine nominal output (KW)	7000	7000	7000	8350

Information about Generation Capacity Under Proposed Procurement Request	
Net Supply	1-6 MW
Technology	Gas Engines operating on simple cycle (Rolls Royce, Wartsilla)
Fuel	Natural Gas
Whether Forms part of least cost plan	No other economically feasible option is available
Availability of Power/Energy	92%
Year of Commissioning	2011-12
Expected Rate of Power to be Acquired	PKR 16.02 (without GIDC)
KE Demand in FY19 (Peak)	3530
Location	58 - KM, M9 Motorway, Karachi, Sindh
Proposed Scheme for interconnection	DHCK load shall be served through proposed power purchase request from LCL at 11KV due to non-availability of KE network in the vicinity.
Approximate Distance	5 KM
Augmentation Required in KE network	None
Augmentation Required in Transmission Network	None
Estimated Costs if Augmentation Required	None
Steps taken or required for transmission augmentation	None
Any other information	6.3KV/11KV Step-up transformer(s) and 11KV feeder(s) etc. shall be installed

Annexure II

Power Sale Proposal of

Lucky Cement Limited

Mr. Adnan Rizvi
Director Business Development
K Electric Limited
3rd Floor, KE House, 39-B, Sunset Boulevard
DHA II, Karachi

Dated: - February, 17-2020

Dear Sir,
Further to your email dated 21 January 2020 with regard to review of the Power Sale Proposal,
Please find enclosed the final Power Sale Proposal duly signed along with following Annexures for onward submission to NEPRA.

1. **Annexure - A (Board of Directors Resolution)**
2. **Annexure - B (Location Map)**
3. **Annexure - C (Generation License)**
4. **Annexure - D (NEPRA License Proposal Modification Application Submitted)**
5. **Annexure - E (SSGC Gas Supply Contract)**
6. **Annexure - F (NOC from SSGC is applied for and under SSGC review)**
7. **Annexure - G (Fuel Gas Specifications)**
8. **Annexure - H (Operations Team Organogram)**
9. **Annexure - I (Generators Maintenance Schedule)**

Thanking You,

Best Regards,
For Lucky Cement Limited

Syed Hassan Mazhar Rizvi
General Manager Power Generation
Karachi Plant

Power Sale Proposal

February, 2020

Submitted to: K ELECTRIC

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Chapter 01 Project Background

1.1 Background of Project Company Sponsors

Lucky Cement Limited

Founded in 1993, Lucky Cement Limited stands as the flagship company of Yunus Brother Group (YGB). Lucky Cement is one of the largest producers and leading exporters of quality cement in Pakistan and is listed on the Pakistan Stock Exchange (PSX). The Company has also issued Global Depository Receipts (GDRs), listed and traded on the Professional Securities Market of the London Stock Exchange and is the first Shariah Compliant Company of Pakistan certified by the SECP.

Over the years, the Company has grown substantially and is expanding its business operations with production facilities at strategic locations in Karachi to cater to the Southern regions and Pezu, Khyber Pakhtunkhwa to furnish the Northern areas of the Company. Lucky Cement is Pakistan's first Company to export sizeable quantities of loose cement being the only cement manufacturer to have its own loading and storage export terminal at Karachi Port.

Lucky Cement strives to remain an efficient and low cost producer and is one of the pioneers to introduce and install Waste Heat Recovery and Refuse Derived Fuel (RDF) and Tyre Derived Fuel (TDF) Plants in Pakistan. It also has self-sufficient Captive power generation facility of total 116 MW at its Karachi Plant. Out of this total capacity of 116MW, 29.7304 MW plant is set up under NCPP policy to support the National grid. Lucky Cement owns a fleet of Bulkers and Trailers, which gives added advantage in terms of logistics and efficient deliveries to all types of costumers spread across the length and breadth of the Country.

Lucky Cement Limited has invested in the following subsidiary Companies to diversify its business:

- LCL Holdings Limited
- Lucky Electric Power Company Limited
- Lucky Cement Holdings (Private) Limited
- ICI Pakistan Limited
- ICI Pakistan Powergen Limited
- KIA Lucky Motors Pakistan Limited
- LCL Investments Holdings Limited
- Lucky Al Shumookh Holdings Limited (LASHL)
- Al Mabrooka Cement Manufacturing Company Limited
- Al Shumookh Lucky Investments Limited
- Najmat Al-Samawa Company for Cement Industry
- Lucky Rawji Holdings limited
- Nyumba Ya Akiba S. A. (NYA)
- Lucky Holdings Limited

1.2 The Complex

Lucky Cement limited is the largest cement producer in country. Its Karachi Plant has been established in 2005 with capacity of 6600 MT per day and captive power plant of 44 MW. Over the period Cement plant capacity has increased to 13200 MT per day. The Captive power plant capacity increased to 116 MW out this 29.7304 MW new plant was establish under NCPP policy to supply power to National Grid. Currently we have power supply agreement of 20MW with HESCO.

1.2.1 Project Location

Lucky Cement Limited 29.7304 MW Thermal Power Plant is located at 58-KM, M9 Motorway, Goth Khadeji Jokhio More, District Karachi Sindh. Location Map enclosed Annexure "B".

1.3 Economic Rationale of the Project

DHA City is without electricity since 2011. There is no Grid Station or distribution system at or near DHCK.
With the access power available at Lucky Cement Limited generation facility, DHCK and LCL has approached the KE to sell access power of up to 6 MW.
Considering the non-availability of power to the residence of the DHCK, KE has expressed its willingness to procure power from LCL, on fast track basis at 11kV, to provide the electricity and address its customer's needs on Fast Track.
DHA City lies in the near vicinity of Lucky Cement (5 km), the impact of line losses of electricity supply would be negligible resulting in higher efficiency of the project with less environmental effect.
Subject to the satisfaction of the applicable regulatory and legal requirements, LCL intends to sell power to KE, whereby the latter is required to obtain the approval of NEPRA under a Power Acquisition Contract as may be mutually agreed and negotiated between the parties in the future.

1.4 Generation License

LCL warrants that it has a valid "Generation License" issued by NEPRA bearing no. SGC/72/2011 dated April 27, 2011 with a validity up till October 24, 2031, permitting LCL to sell the surplus power to HESCO in accordance with the terms and conditions of such license. Generation license copy is attached as Annexure "C".

LCL has filed a petition on 20 July 2019 before NEPRA for (LPM) License proposed modification to grant permission to sell power to K Electric Limited. The submitted copy of the LPM to NEPRA application is attached as Annexure "D".

The Plant Details are as following,

(i).	Plant Size Installed Capacity (Gross ISO)	29.7304 MW	
(ii).	Type of Technology	Gas Engines Operating on Simple Cycle	
(iii).	Number of Units/Size (MW)	Rolls Royce	3 x 7.0000 MW
		Wartsilla	1 x 8.7304 MW
(iv).	Unit Make & Model	Rolls Royce	B35:40V16AG
		Wartsilla	20V34SG

1.5 Gas Supply Agreement

LCL signed a Gas Supply Agreement (GSA) with SSGC on February, 2006 wherein 7.5 MMCFD of natural gas quota was approved and a further 7.0 MMCFD gas allocation was approved in September 2008, total 14.5 MMCFD for its power generation facility on "as and when available" basis from March to November every year, in accordance with the terms and conditions mentioned in the GSA. A copy of the GSA is attached as Annexure "E".

Furthermore, SSGC has issued a NOC allowing LCL to sell surplus power from approved gas allocation to HESCO. LCL has applied for the NOC to sell surplus power to K E and is under SSGC review. A copy of application is attached as Annexure "F"

Chapter 02 Technical Overview

2.1 Technical Overview of the Generating Facility

The plant comprises of the following key equipment:

- 03 B35:40V 16 AG Rolls-Royce Bergen Engine 7000 kW each.
- 01 WARTSILA 20V 34SG Gas 8350 kW.
- A large number of associated auxiliaries' machinery such as, Exhaust and oil fired Boilers, Pumps, R/O plant, Fire Fighting pumps & equipment's, Fuel and Lube Oil Treatment Plant and Separators, Air Compressors, Transformers. Fuel and water Storage Tanks, Radiators, Coolers, Tank Farm with Pumping and Handling Equipment's, etc.
- Instrument Air Compressor package air cooled oil injected rotary screw type, capable of supplying instrument air of 7 bars.
- Instrument Air Dryer Packages from Atlas Copco, adsorption type.
- Balance of Plant system includes Piping, valves, steel structure, SCADA, Fire System, CCTV System, PA system, MCC, Relays, Transformer, and Motors

2.2Further technical details of the Generation Facility are as under:

Model	B35:40V-16AG	B35:40V-16AG	B35:40V-16AG	20V 34SG
Engine #	GG. # 9	GG. # 10	GG. # 11	GG. #12
Manufacturer	ROLLS -ROYCE	ROLLS -ROYCE	ROLLS -ROYCE	WARTSILA
Fuel	GAS	GAS	GAS	GAS
Quantity	One	One	One	One
Speed (rpm)	750	750	750	750
Engine nominal output (KW)	7000	7000	7000	8350

2.2.1 Interconnection Facility

1- Step up transformer 6.3/11 kV
2- 1 x Incoming switchgear
3- 2 x Outgoing switchgear

2.3 Primary Fuel

The gas specifications mentioned in Annexure "G" are used to calculate the Reference Gas Price per MMBTU. Currently Natural Gas is the primary fuel for the power plant for which gas allocation from SSGC is available.

2.4 Expected Plant Performance Parameters

2.4.1 Annual Plant Availability

The guaranteed annual plant availability is 335 days or 92% per annum for dispatch of electrical energy to KE after accounting for the outages comprising of scheduled outage, forced outage and partial forced outage.

Operating Para meters	Quantity	Unit
Days per Annum	335.00	Days
Plant Availability	92 %	%
Operating Days	335	Days/Year
Operating Hours	8059	Hours/Year

Following are the expected performance parameters in terms of net output to be supplied to KE.

Plant Capacity	Quantity	Unit
Plant Capacity (Gross)	29.7304	MW
Auxiliary Load & Other Losses	0.8620	MW
Plant Capacity (Net) at mean site Conditions	27.8940	MW
Power for HESCO (Net)	20.00	MW
Propose Supply to KE	1 - 6	MW

2.4.2 Interconnection

The Power Purchaser may choose to dispatch the net Electrical Output at 11 kV and may elect to ask the LCL for the necessary step-up transformer(s) and switchyard. The cost of such equipment shall be borne by the Power Purchaser/ DHCK. If the power Purchaser do not chose to pay the LCL with necessary compensation at the time of COD or at a future date, as the case may be, LCL shall be entitled to recover the cost with reasonable return on equity in the fixed cost component.

If the actual plant load factor is different from the assumed plant load factor of 92%, then the adjustment will be made at the end of the year.

Chapter 03 Operational Overview

3.1 Human Resource

Details regarding engagement of full team along with members and designations is provided as Annexure "H".

3.2 Scope of Operation and Maintenance of the Plant

The Generation Facility is operated 24 hours with two shifts. Shift team is responsible for smooth running of the plant. Shifts team also monitors and trouble shoots any problem during plant operation safely and efficiently to avoid personnel, equipment and production loss.

While the Plant General Manager in general shift is responsible for overall Maintenance and operational activities of the plant, planning and Coordination of monthly activities and Routine maintenances, optimization of operational parameters, cost and efficiencies evaluation of whole Generation plant.
Maintenance team is responsible to provide support to the Power Generation plant operation i.e. routine, planned and unplanned maintenance.

3.3 Scope for Maintenance of the Plant over its lifetime

To attain maximum plant availability and equipment reliability and to reduce forced outages and routine maintenance, LCL has its own experienced and qualified maintenance team for planned & unplanned maintenance.

- Every 1000 Hours routine Maintenance. (Spark Plugs, Tappet adjustment etc.)
- Every 2000 Hours routine Maintenance. . (Spark Plugs Replacement, Tappet adjustment and Bridge adjustment etc.)
- Every 8000 Hours Bottom end Bearing Replacement.
- Every 16000 Hours Cylinder Heads Top Overhauling.
- Every 32000 Hours Top, Major & Piston Overhauling with main Bearings replacement.

Gas Generator Schedule Maintenance is as per the maker's recommendations refer to Annexure "I".

3.4 Interconnection Facility Maintenance

1- A general cleaning and inspection of all the MCCs shall be carried-out at every two years.
2. Relay testing to be carried out during plant overhaul, by vendor engineers, using the method of secondary injection. Trip settings of the protection relays will be verified and logged.
3. Testing of transformers is carried out by Maker/third party service provider , which includes transformer turns ration test, winding resistance and insulation resistance test. These tests are to be performed once every two years.

3.5 Variable O&M Cost

- Diesel, Oil & Lubricants
- Stores & Spares (Eng.# 9,10,11 & 12)
- Misc. expenses
- Salaries and wages
- Depreciation
- Insurance

Chapter 04 Tariff Structure & Components

4.1 Nature of Power Acquisition Contract

The sale and purchase of captive power of capacity 01 - 06 MW will be made on "Take and Pay" basis through bi-lateral agreement between power producer and KE for the term of 07 Years subject to approval of NEPRA. Due to "take and pay" nature of the contract, the tariff will not be two part tariff but a single tariff

4.2 Reference Tariff Assumptions

The following key parameters and cost components are being assumed while calculating the Reference Generation Tariff and changes in any of these assumptions will result in changes in the same.

- **Main Economic Assumptions include:**

PKR -USD Exchange Rate	155.35 PKR/USD (December 31ST, 2019 ; Source-NBP Rate Sheet)
Gas Price	Base Price is PKR 1,021/MMBtu on HHV basis plus Gas Infrastructure Development CESS (GIDC) PKR 200/MMBtu.
3 Months KIBOR	13.55% (December 31st, 2019). 03 Months offer side KIBOR notified by Reuters and published by State Bank of Pakistan or as amended from time to time.

- Cost Allocated for this tariff excluding HRSG and other non-related costs amount to Rs. 2,163 Million
- Estimated committed capacity for KE is 01 - 06 MW (net) at mean site conditions
- Plant efficiency as per NCPP policy

4.3 Tariff Components & Indexations

Tariff has been calculated using 06 MW (Net Capacity) as the basis, which cost has been spread on 01 - 06 MW

Fuel Cost Component ("FCC")

The cost of fuel is a pass through item and is variable with dispatch. The Fuel Cost Component ("FCC") is calculated using the following specifications

Gas Price per MMBtu

Rs.1, 021 per MMBtu on HHV basis plus Rs.200 per MMBtu of Gas Infrastructure Development CESS (GID) making total Gas Price of 1,221 per MMBtu.
The Reference Gas Cost Component is considered as Rs.2.89/KWh which is this same as allowed in NCPP policy 2009.

Fixed Cost Component

The Reference Gas Cost Component is considered as Rs.1.53/KWh which is this same as allowed in NCPP policy 2009.

Financial Cost Component ("Fin CC")

The Reference Gas Cost Component is considered as Rs.1.28/KWh which is this same as allowed in NCPP policy 2009.

4.4 Tariff Sheet (Rs. /KWh)

Reference Cost Components have been calculated by using the following formulae

Fuel Cost Component ("FCC")

Gas Cost Component (Revised)	=	Gas Price (Revised based on OGRA+GIDC) / Gas Price (Reference)	X	Reference Gas Cost Component
	=	1021 / 238.38	X	2.89

Gas Cost Component (Revised) w/o GIDC = 12.38

Fixed Cost Component ("FCC")

FCC (P)	=	FCC (Ref)	X	(CPI t)/CPI Ref)
FCC (Ref)	=	Reference Fixed Cost Component i.e.Rs.1.53/KWh		
CPI t	=	Consumer Price Index for Month before each bi annual period as stated above. We have considered the CPI for December'2019 for the bi-annual period beginning on January 1st, 2020.		
CPI Ref	=	Consumer Price Index at the end of the Month on Reference date i.e. COD. We have considered the CPI for June 2012 which is the COD of LCL for HESCO		

$$FCC\ (P) = 1.53 \times \frac{262.82}{169.99}$$

FCC (P) = 2.37

Financial Cost Component (Fin CC)

Financial Cost Component to the extent of foreign component only has been adjusted by HESCO, on basis of Actual Weighted Exchange rate applicable on, various drawdowns against the Letter of Credit (L/C) established by LCL against import of equipment. It is for this reason that, we have considered Reference Financial Cost of **Rs.1.28 /KWh**, subject to indexation (during period of operation with KEL) on basis of interest adjustment factor as shown in Tariff Indexation.

Tariff Sheet

Years	1	2	3	4	5	6	7
MW	1	2	3	4	5	6	6+
Fuel Cost (Natural Gas)	12.38	12.38	12.38	12.38	12.38	12.38	12.38
Fixed Cost	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Financial Cost	1.28	1.28	1.28	1.28	1.28	1.28	1.28
Total Tariff Exclusive of GIDC	**16.02**	**16.02**	**16.02**	**16.02**	**16.02**	**16.02**	**16.02**
GID CESS	2.42	2.42	2.42	2.42	2.42	2.42	2.42
Total Tariff Inclusive of GIDC	**18.45**	**18.45**	**18.45**	**18.45**	**18.45**	**18.45**	**18.45**

Chapter 05 Tariff Indexations

Through the power acquisition contract to be filed by KE before the regulator, NEPRA will be requested to allow following indexations for different Tariff Components, as already allowed in NCPP policy 2009 and also mentioned in Power Purchase Agreement dated March 22nd,2011 between Lucky Cement Limited (LCL) and HESCO.

Fuel Cost

Fuel Cost Component shall be adjusted on account of Fuel Price variation of fuel consumed during the period and other applicable levies/fee/charges as notified by the Government

It shall be indexed as per the following formula

Gas Cost Component (Revised)	=	Gas Price (Revised) / Gas Price (Reference)	X	Reference Gas Cost Component

Gas Price (Revised)	=	Gas price applicable for the billing cycle as notified by OGRA i.e.
Gas Price (Reference)	=	Reference Gas Cost allowed in NCPP Tariff i.e.Rs.238.38/MMBTU
Reference Gas Cost Component	=	Rs.2.89/KWh allowed in NCPP Tariff

Fixed Cost

Fixed Cost Component of the reference tariff will be subject to indexation for inflation with effect from the Reference date of Commencement of Operations and bi-annually (i.e. January 1st & July 1st) on each second anniversary (of COD), by using the most current inflation values determined on basis of Consumer Price Index (CPI General) on the last date of the previous six months. In case CPI is not available for that date, then average CPI (General) for the whole month i.e. June & December will be considered.

FCC (P)	=	FCC (Ref)	X	(CPI t)/CPI Ref)

FCC (Ref)	=	Reference Fixed Cost Component i.e.Rs.1.53/KWh
CPI t	=	Consumer Price Index for Month before each bi annual period as stated above. We have considered the CPI for December'2019 for the bi-annual period beginning on January 1st, 2020.
CPI Ref	=	Consumer Price Index at the end of the Month on Reference date i.e. COD. We have considered the CPI for June 2012 which is the COD of LCL for HESCO

Financial Cost Component

Financial Cost Component to the extent of foreign component only has been adjusted by HESCO, on basis of Actual Weighted Exchange rate applicable on, various drawdowns against the Letter of Credit (L/C) established by LCL against import of equipment. It is for this reason that, we have considered Reference Financial Cost of Rs.1.28 /KWh, subject to indexation (during period of operation with KEL) on basis of interest adjustment factor as given below.

Quarterly Indexation of Interest Charges

The Interest Adjustment Factor (IAF) of the Financial Cost Component will adjusted, due to variation in interest rate as a result of variation in quarterly KIBOR according to the following formula:

IAF	=	I	X	(KIBOR t + 3%) / KIBOR (Ref) + 3%

I	=	Interest for the relevant period
KIBOR t	=	KIBOR on the day prior to COD (with KEL) and thereafter the last date of the previous quarter (i.e. March 31st, June 30th, September 30th & December 31st)
KIBOR Ref	=	Reference KIBOR rate is 13%

LUCKY CEMENT

AUTHORIZATION

By virtue of the powers vested in me pursuant to clause (c) of the resolution passed by the Board of Directors of Lucky Cement Limited (LCL) on 09th October, 2018 and ratified by the Board of Directors in their meeting held on 29th October, 2018, I, Muhammad Ali Tabba s/o Abdul Razzak Tabba, Chief Executive of LCL, do hereby authorize and empower Syed Hassan Mazhar Rizvi, General Manger – Power Generation having CNIC # 42101-2452927-1 to Submit Power Sale Proposal of LCL to K Electric (K.E) for sale of excess power up to 6 MW and in this respect sign necessary documents / papers, as required, to do and cause to be done all acts, deed and things which may be necessary to give effect to this Authorization and to do all acts necessary for completion and processing of the Power Sale Proposal with K.E.

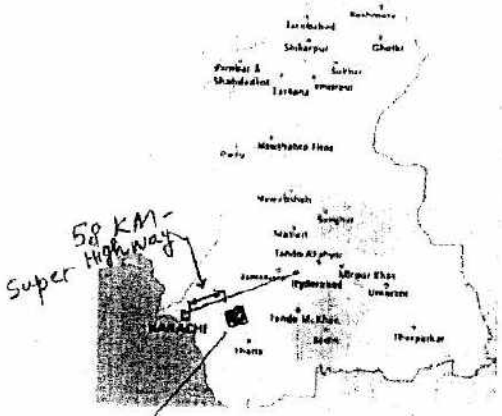
This authorization is executed on this 14th February, 2020.

For and on behalf of
LUCKY CEMENT LIMITED

MUHAMMAD ALI TABBA
Chief Executive

Lucky Cement Limited
6-A, Mohammad Ali Housing Society, A. Aziz Hashim Tabba Street, Karachi-75350.
U.A.N: 111-786-555 F: 34534302 E: info@lucky-cement.com
URL: www.lucky-cement.com

Generation Licence
Lucky Cement Limited
58 KM Main Super Highway
Goth Khadeji, Jokhio Mohal
District Karachi
Sindh

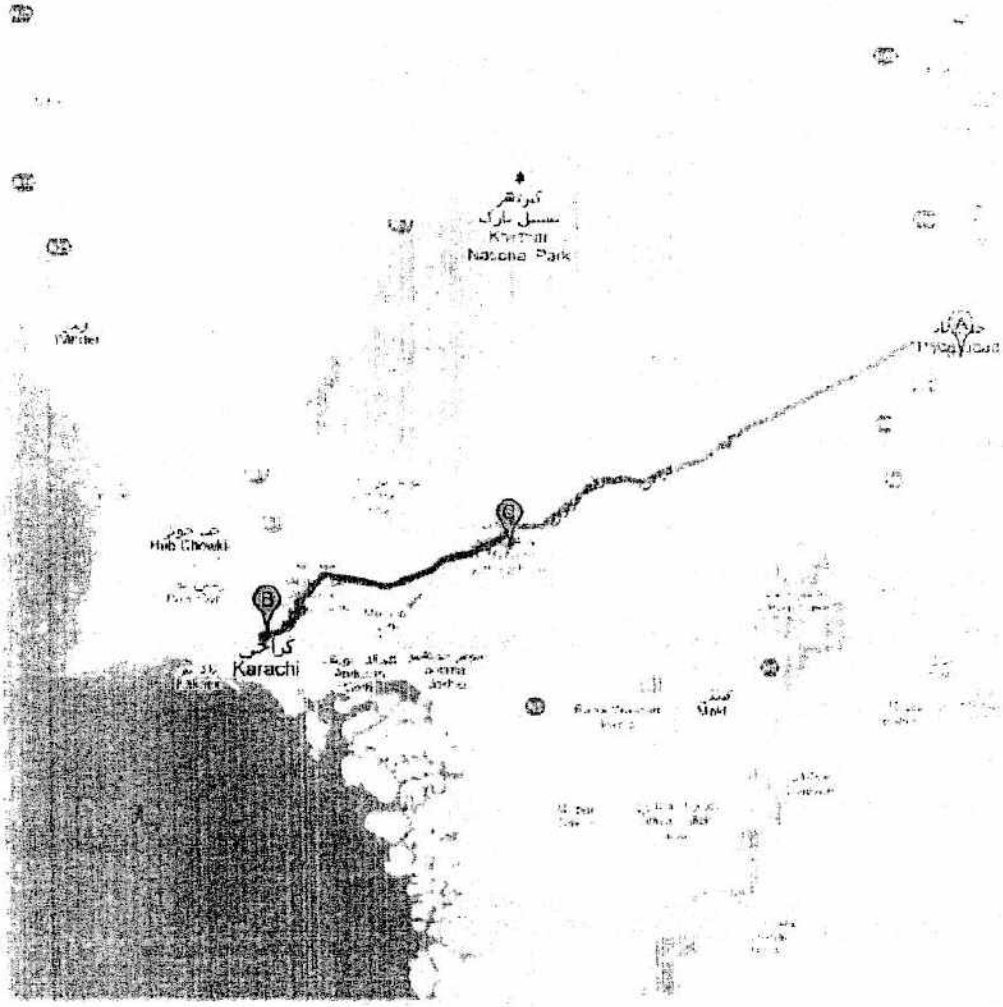


LUCKY CEMENT LIMITED

REGISTRAR

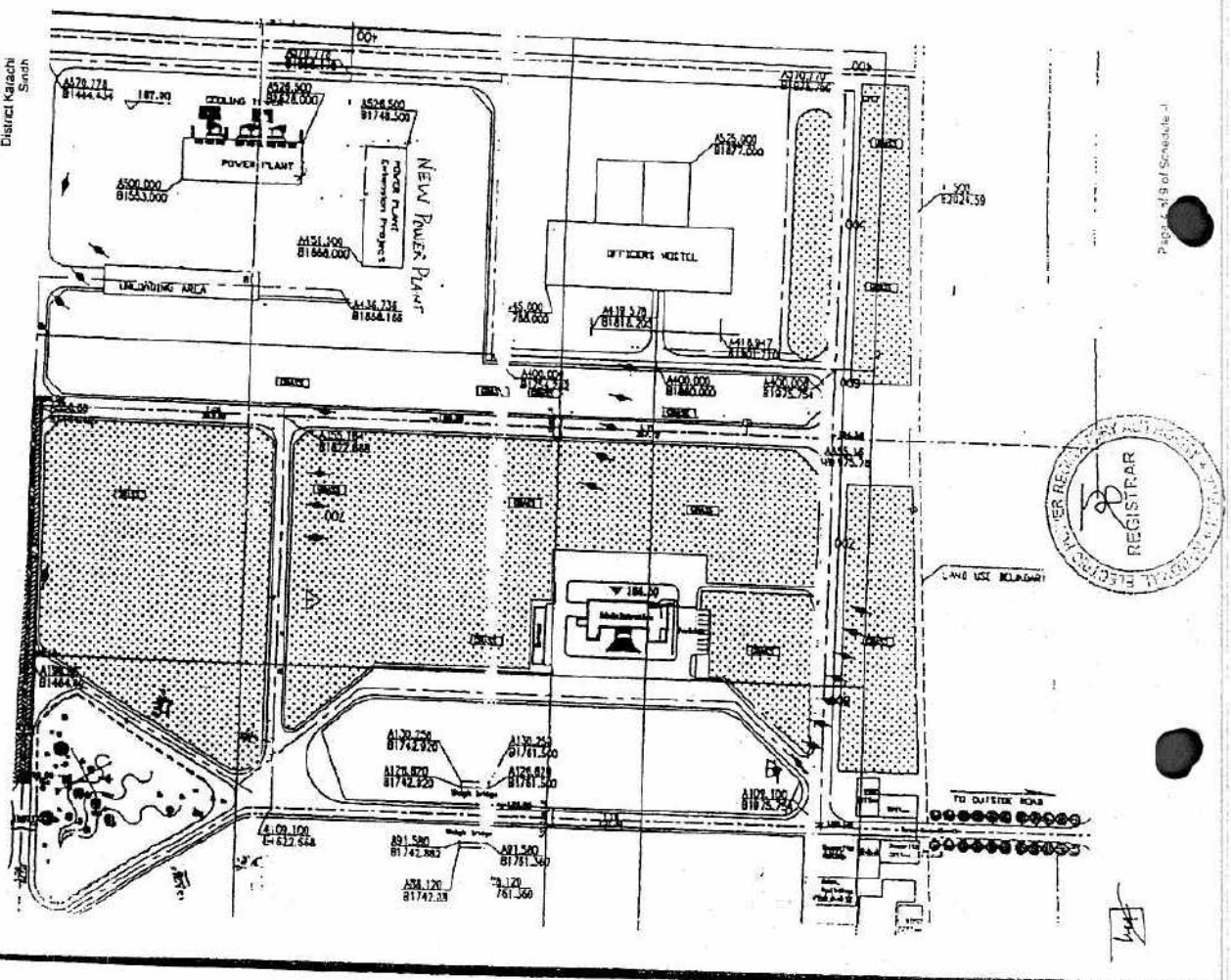
Page 2 of 11 of Schedule

A- Hyderabad
B- Karachi
C-Lucky Cement Limited at 58 KM stone on super highway from Karachi



NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Generation Licence
Lucky Cement Limited
58-KM Main Super High Way
Goth Khadeji, Jokhio Morre
District Karachi
Sindh



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

2nd Floor, OPF building, G-5/2, Islamabad
Ph: 9206500,9207200, Fax : 9210215
E-mail: registrar@nepra.org.pk

Registrar

No. NEPRA/R/LAG-180/3019-21

April 27, 2011

Mr. Intisar ul Haq Haqqi
Director Power Generation
Lucky Cement Limited
6-A, M. Ali Housing Society
A. Aziz Hashim Tabba Street,
Karachi-75350

Subject: **Generation Licence No. SGC/72/2011**
Licence Application No. LAG-180
Lucky Cement Limited

Reference: Your letter No. LCL/KP/PG 110117-A, dated January 17, 2011.

Enclosed please find herewith Generation Licence No. SGC/72/2011 granted by National Electric Power Regulatory Authority (NEPRA) to Lucky Cement Limited for its 29.7304 MW Thermal Power Plant located at 58-KM Main Super Highway, Goth Khadeji, Jokhio Morre, District Karachi, Sindh pursuant to Section 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997). Further, the determination of the Authority in the subject matter is also attached.

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

Enclosure: **Generation Licence [No. SGC/72/2011]**

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

(Syed Safeer Hussain)

Copy to:

1. Chief Executive Officer, Karachi Electric Supply Company Limited (KESCL), KESC House, Punjab Chowrangi, 39-B, Sunset Boulevard, Phase-II, Defence Housing Authority, Karachi.
2. Director General, Pakistan Environmental Protection Agency, House No. 311, Main Margalla Road, F-11/3, Islamabad.

National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan

GENERATION LICENCE

No. SGC/72/2011

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

LUCKY CEMENT LIMITED

Incorporated under the Companies Ordinance 1984
Under Certificate of Incorporation

No. I-01282, dated September 18, 1993

for its Thermal Power Plant located 58 KM Main Super High Way Goth Khadeji, Jokhio Morre, District Karachi, in the Province of Sindh

(Installed Capacity: 29.7304 MW Gross ISO)

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

Given under my hand this 27th day of April, Two Thousand & Eleven, and expires on 24th day of October, Two Thousand & Thirty One.

Registrar

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ★ NEPRA ★ REGISTRAR

Article-1
Definitions

1.1 In this Licence

(a) "Act" means the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997);

(b) "Authority" means the National Electric Power Regulatory Authority constituted under Section 3 of the Act;

(c) "Licensee" means Lucky Cement Limited;

(d) "Power Purchaser" means a distribution licensee purchasing electricity from the Licensee, pursuant to a power purchase agreement;

(e) "Rules" mean the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000.

1.2 Words and expressions used but not defined herein bear the meaning given thereto in the Act or in the Rules.

Article-2
Application of Rules

This Licence is issued subject to the provisions of the Rules, as amended from time to time.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Article-3
Generation Facilities

3.1 The location, size (capacity in MW), technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the power generation facilities of the Licensee are set out in Schedule-I to this Licence.

3.2 The net capacity of the generation facilities of the Licensee is set out in Schedule-II hereto.

3.3 The Licensee shall provide the final arrangement, technical and financial specifications and other details specific to generation facilities before commissioning of the generation facilities.

Article-4
Term of Licence

4.1 This Licence is granted for a term of twenty (20) years from the Commercial Operation Date (CoD) of the generation facility.

4.2 Unless suspended or revoked earlier, the Licensee may within ninety (90) days prior to the expiry of the term of the Licence, apply for renewal of the Licence under the Licensing (Application and Modification Procedures) Regulation, 1999 as amended or replaced from time to time.

Article-5
Licence Fee

After the grant of the Generation Licence, the Licensee shall pay to the Authority the Licence Fee, in the amount and manner and at the time set out in National Electric Power Regulatory Authority (Fees) Rules, 2002.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Article-6
Tariff

The Licensee is allowed to charge such tariff which is agreed between the Licensee and the Power Purchaser, pursuant to a power purchase agreement and approved, determined, adjusted or specified by the Authority.

Article-7
Competitive Trading Arrangement

7.1 The Licensee shall participate in such measure as may be directed by the Authority from time to time for development of a Competitive Trading Arrangement. The Licensee shall in good faith work towards implementation and operation of the aforesaid Competitive Trading Arrangement in the manner and time period specified by the Authority. Provided that any such participation shall be subject to any contract entered into between the Licensee and another party with the approval of the Authority.

7.2 Any variation or modification in the above-mentioned contracts for allowing the parties thereto to participate wholly or partially in the Competitive Trading Arrangement shall be subject to mutual agreement of the parties thereto and such terms and conditions as may be approved by the Authority.

Article-8
Maintenance of Records

For the purpose of sub-rule (1) of Rule 19 of the Rules, copies of records and data shall be retained in standard and electronic form and all such records and data shall, subject to just claims of confidentiality, be accessible by authorized officers of the Authority.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Article-9
Compliance with Performance Standards

The Licensee shall comply with the relevant provisions of NEPRA rules on Performance Standards as may be prescribed by the Authority from time to time.

Article-10
Compliance with Environmental Standards

The Licensee shall comply with the environmental standards as may be prescribed by the relevant competent authority from time to time.

Article-11
Provision of Information

11 1 The obligation of the Licensee to provide information to the Authority shall be in accordance with Section 44 of the Act.

11.2 The Licensee shall be subject to such penalties as may be specified in the relevant rules made by the Authority for failure to furnish such information as may be required from time to time by the Authority and which is or ought to be or has been in the control or possession of the Licensee.

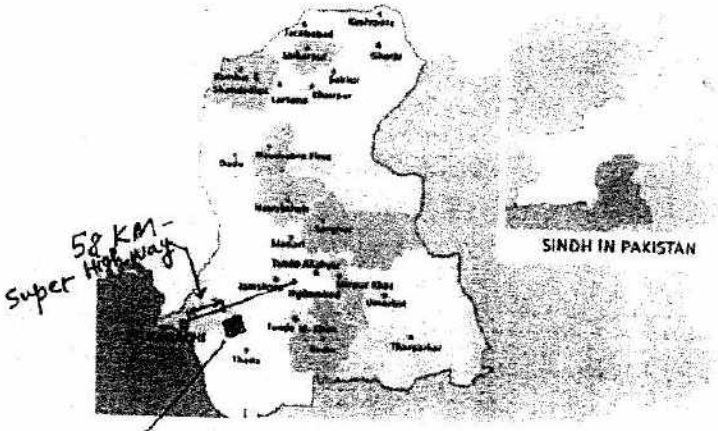
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

SCHEDULE-I

The location, size (capacity in MW) technology, interconnection arrangements, technical limits, technical functional specifications and other details specific to the Generation Facilities of the Licensee.

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Generation License
Lucky Cement Limited
58-KM Main Super High Way
Goth Khadeji Jokhio More
District Karachi
Sindh

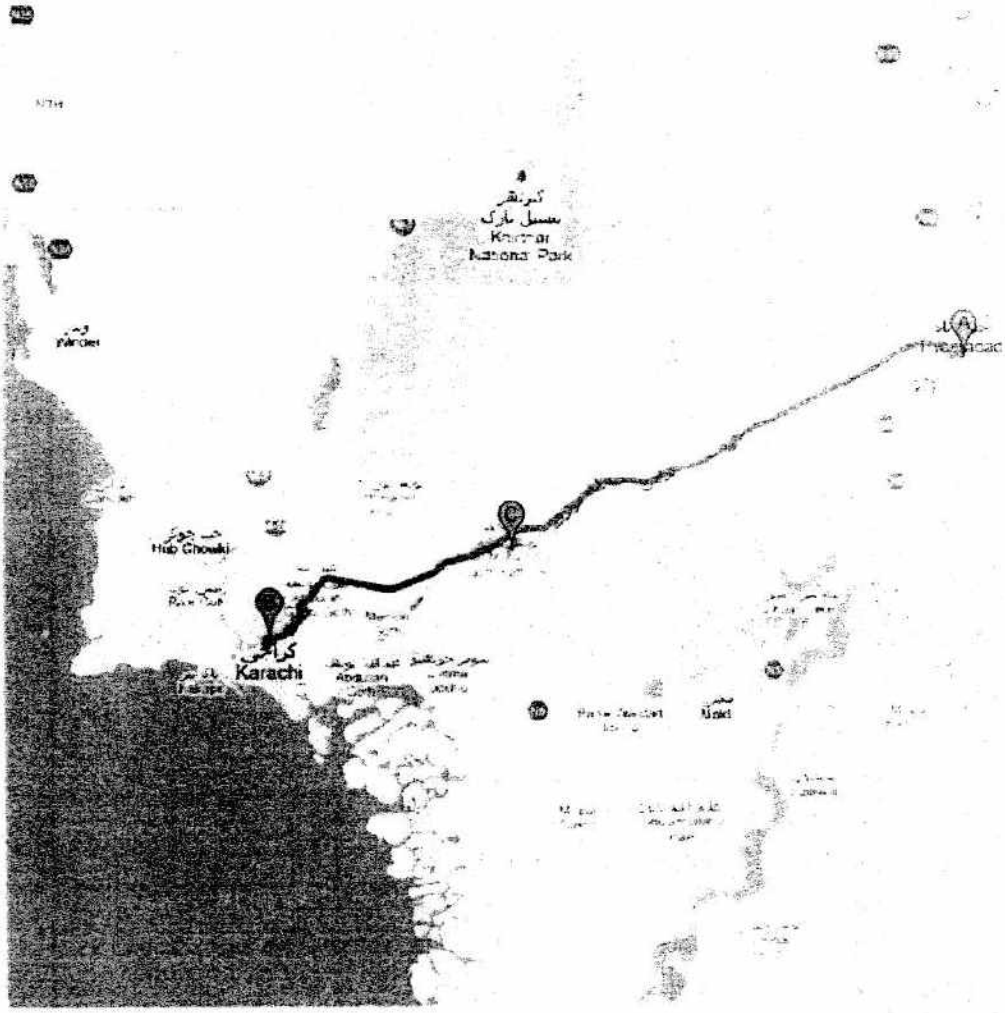


LUCKY CEMENT LIMITED

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR
NEPRA

Generation Licence
Lucky Cement Limited
58-KM Main Super Highway
Goth Khaddeji Jokhio Morio
District Kohistan
Sindh

A- Hyderabad
B- Karachi
C-Lucky Cement Limited at 58 KM stone on super highway from Karachi



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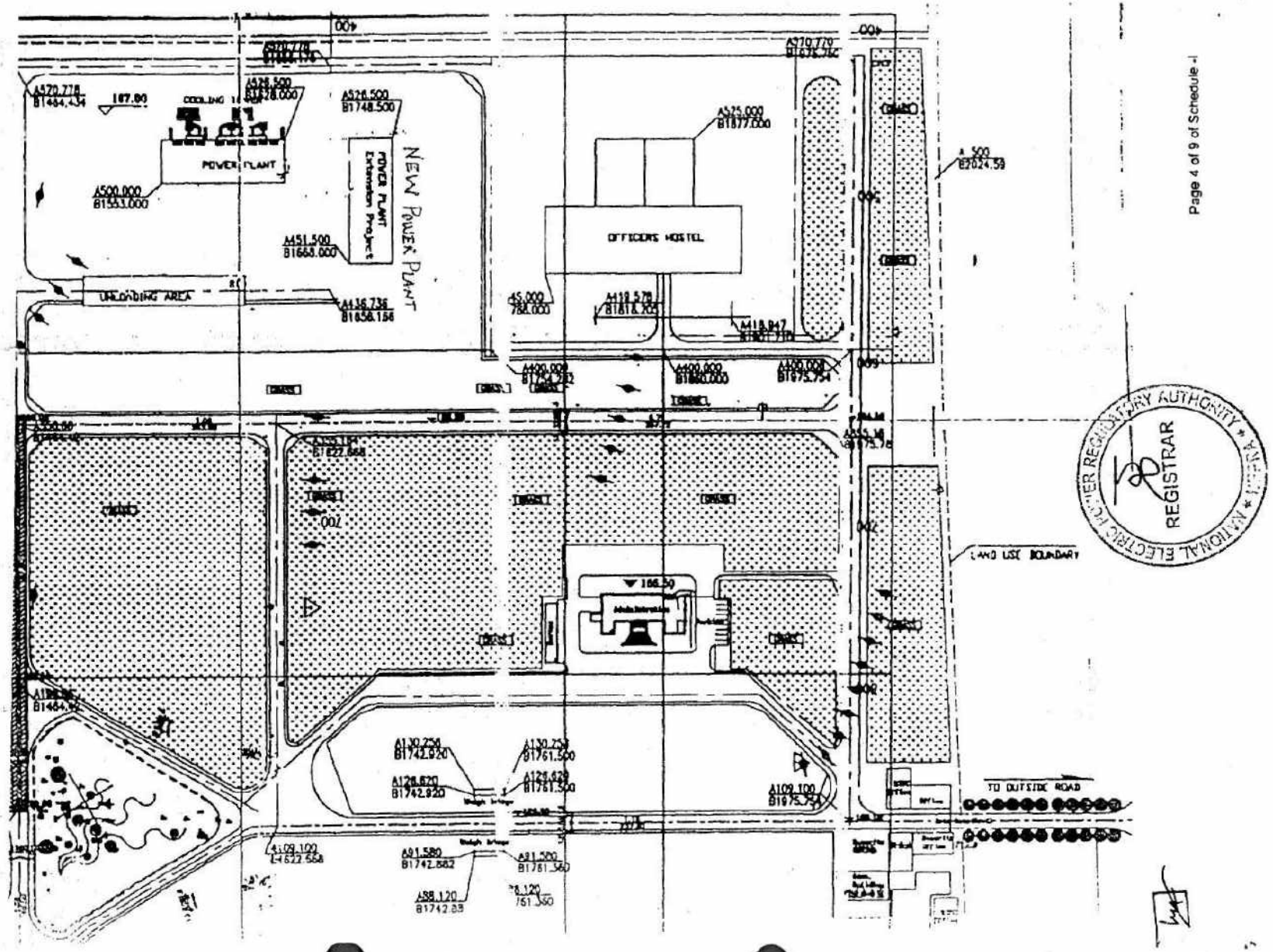
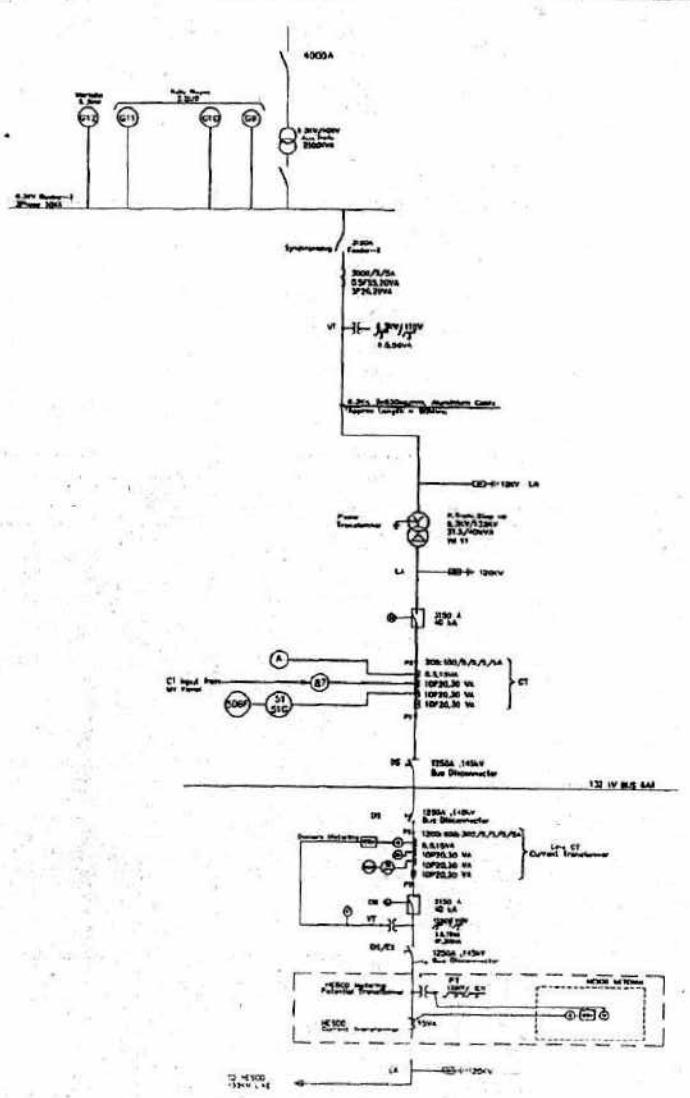




LEGEND	
SYMBOLS	DESCRIPTION
	CURRENT TRANSFORMER
	CAPACITIVE VOLTAGE TRANSFORMER
	CIRCUIT BREAKER
	DISCONNECTOR
	POWER TRANSFORMER
	SURGE ARRESTER
	EARTHING SWITCH

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
REGISTRAR

REV	DATE	DESCRIPTION OF REVISION	DRAWN	CHECKED	VIEW BY	APPD

28.75MW POWER PLANT AT NOORIABAD
132KV AIS GRID STATION

LUCKY CEMENT,NOORIABAD

AREVA T&D Pakistan (Private) Limited

PROPOSED 132 KV AIS GRID STATION
SINGLE LINE DIAGRAM

INTERCONNECTION/TRANSMISSION ARRANGEMENT FOR THE DISPERSAL OF POWER FROM THE POWER PLANT

The Power generated by Lucky Cement Limited (LCL) from its proposed Natural Gas operated Thermal Power Generation facility shall be dispersed to the Load Center of Hyderabad Electric Supply Company Limited (HESCO).

The Interconnection/Transmission Arrangement for the above mentioned facilities will be at 132 KV voltage; connecting the generation facility of LCL to 132- KV Kalu Kohar Grid Station of HESCO through 132 KV Single Circuit (S/C) Transmission Line (T/L) on ACSR Lynx Conductor.

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

REGISTRAR

Plant Details*

(A). General Information

(i).	Name of Applicant	Lucky Cement Limited
(ii).	Registered /Business Office	6-A, M. Ali Housing Society ,Karachi - 75350
(iii).	Plant Location	58-KM Main Super High Way, Goth Khadeji, Jokhio Morre, District Karachi, Sindh
(iv).	Type of Generation Facility	Thermal Power Plant

(B). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	29.7304 MW	
(ii).	Type of Technology	Gas Engines Operating on Simple Cycle	
(iii).	Number of Units/Size (MW)	Rolls Royce	3 x 7.0000 MW
		Wartsilla	1 x 8.7304 MW
(iv).	Unit Make & Model	Rolls Royce	B35:40V16AG
		Wartsilla	20V34SG
(v).	Commissioning/ Commercial Operation Date (COD)	October 25,2011 (anticipated)	
(vi).	Expected Life of the Facility from Commissioning/ COD	30 Years	

* As provided by the Licensee

REGISTRAR

(C). Fuel Details

(i).	Primary Fuel	Natural Gas
(ii).	Alternate Fuel	None
(iii)	Start-Up Fuel	Natural Gas
(iv).	Fuel Source (Imported/Indigenous)	Indigenous
(v).	Fuel Supplier	Sui Southern Gas Company Limited
(vi).	Supply Arrangement	Through Pipeline

(D). Emission Values

(i).	SO_x (mg/Nm^3)	NIL
(ii).	NO_x (mg/Nm^3)	140~ 210
(iii).	CO_2 (mg/Nm^3)	430 ~490
(iv).	PM_{10}	Less Then 10

(E). Cooling System

(i).	Cooling Water Source/Cycle	Reverse Osmosis water from well/Closed Circuit Air Cooled Cooling System

REGISTRAR

(F). Plant Characteristics

(i).	Generation Voltage	6300 V
(ii).	Frequency	50 Hz
(iii).	Power Factor	0.8 lagging
(iv).	Automatic Generation Control (AGC)	Yes
(v).	Ramping Rate	10kW/ Second
(vi).	Time required to Synchronize to Grid and loading the complex to full load.	Minimum 1 hour after receiving dispatch notice.

REGISTRAR

SCHEDULE-II

The Installed, De-Rated, Auxiliary and Net Capacity of the Licensee's Generation Facilities

REGISTRAR

SCHEDULE-II

1.	Installed Capacity Gross ISO (3 x 7.00 MW + 1 x 8.7304 MW)	29.7304 MW
2.	De-rated Capacity at Mean Site Conditions (3 x 6.802 MW + 1 x 8.35 MW)	28.7560 MW
3.	Auxiliary Consumption (3 x 0.204 MW + 1 x 0.250 MW)	00.8620 MW
4.	Net Capacity at Mean Site Conditions	27.8940 MW

Note

All the above figures are indicative as provided by the Licensee. The Net Capacity available to HESCO for dispatch will be determined through procedure(s) contained in the Bi-lateral Agreement(s), Grid Code or any other applicable document(s).

as provided by the Licensee

REGISTRAR

LUCKY CEMENT

Ref: LCL/KP/NEPRA/201907

Dated: 20.07.2019

To,

The Registrar,

National Electric Power Regulatory Authority.

Sub: LPM for Lucky Cement Limited

We hold a Generation License No. SGC/72/2011, dated, 27th April-2011 for our generation facilities located at Lucky Cement Limited 58 km main super highway Goth Khadeji Jokhio more district Karachi. The said generation facility is currently being utilized for supplying surplus power to the concerned utility i.e. HESCO. We plan submitting a Licensee Proposed Modification (LPM) to the said generation License in terms of Regulation 10 (2) of NEPRA Licensing (Application and Modification Procedure) Regulations 1999 (the Regulations). In this regard the requirements of the said Regulations are attached as annexure. Further to the said, a demand draft No. 01647283 dated 19-07-2019 amounting to PRs. 342,720/- drawn at Habib Metropolitan Bank Limited Islamabad as processing fee is also attached. We hereby certify that the documents in-support attached with this LPM are prepared and submitted in conformity with the provisions of the above mentioned Regulations and undertake to abide by the terms and provisions of the same. We further undertake and confirm that the information provided in the documents-in-support is true and correct to the best of our knowledge and belief.

1. The text of the proposed modification;
   a. The licensee plans to supply surplus power to any DISCO/DHA City as bulk consumer, requiring a modification in the existing generation License.

2. A statement of reasons in support of the modifications;
   a. The existing generation License No. SGC/72/2011 dated, 27th April-2011 allows supplying of surplus power to HESCO only whereas some surplus power is available with us.
   b. Due to non-existence of distribution system in the near vicinity, DHA City, is without electricity since 2011.

LUCKY CEMENT

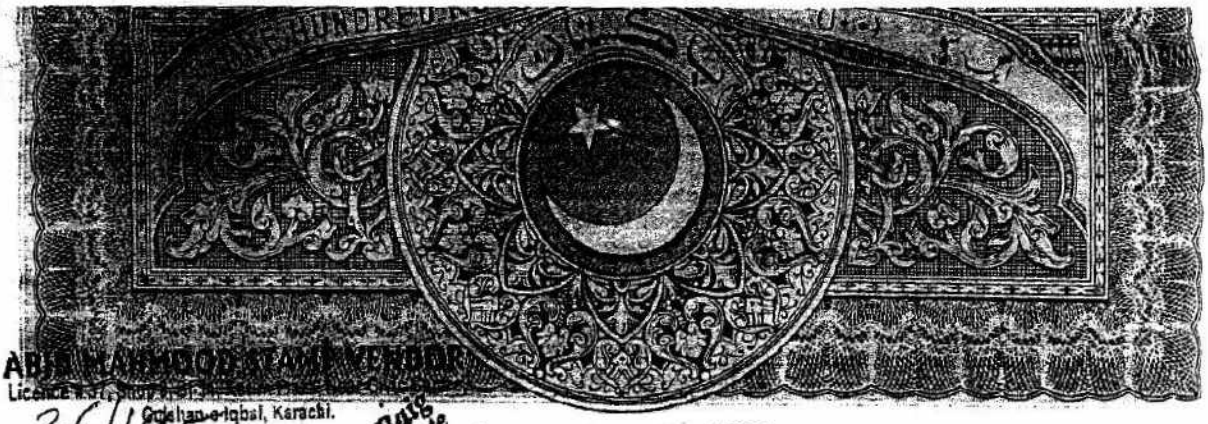
c. Since DHA City lies in the near vicinity of Lucky Cement (5 Km), the impact of line losses of electricity supply would be negligible resulting in higher efficiency of the project with less environmental effect.

3. The electricity supply tariff in between both the parties shall be finalized and agreed with the consideration and consent of rules and regulation of Nepra.
Quality of service and the performance of the licensee of its obligations under the exiting generation license.

Regards,

Syed Hassan Mazhar Rizvi
General Manager (Power Generation)
Lucky Cement Limited

Enclosed; 1. BOD Resolution
2. Copy of Generation License
3. Demand Draft Amounting 342,720/--



ABDUL MAJEED STAMP VENDOR
License # ...
Gulshan-e-Iqbal, Karachi.
S. No 26485 Date 20 FEB 2006
Issued to With Address
Through With Address
Purpose
Value Rs. 100/- Attached
Stamp Vendor's Signature
Mirza Shahid Baig
Advocate

93438414

SUI SOUTHERN GAS COMPANY LIMITED
CONTRACT FOR THE SUPPLY OF GAS FOR POWER GENERATION

BY THIS CONTRACT made between Sui Southern Gas Company Limited (hereinafter referred to as "Company") and M/s. **Lucky Cement Limited Power Generation** (hereinafter called the **"Consumer").** The Consumer agrees to purchase from the Company and the Company agrees to supply to the Consumer natural Gas at Main Super High Way 58 km, Goth Khadeji, Jokhio Morre, District Karachi for Power Generation for his own use on the said plots on terms and conditions hereafter set forth:

TERMS AND CONDITIONS:

1. Gas supply will be provided by the Company on "as and when available" basis only during the period March to November each year. The Consumer will make duel firing arrangements to avoid loss of production as and when gas is not available during March to November and also during December to February when the Company will keep the Consumer's Gas supply disconnected at his cost, each year.

2. The Company shall supply Gas for power generation against unconditional UNDERTAKING by the Consumer that power so generated will be used only at the above mentioned premises of the Consumer will be for his own industrial activity and will not be to any other party. In the event of violation of this condition Gas supply will be disconnected without notice and entirely at the risk and cost of the Consumer.

3.01 Immediately before execution of this agreement by the Consumer the Consumer shall pay to the company the sum of Rs. 93,438,414 as Gas supply deposit or shall furnish a schedule Bank's continuing guarantee in lieu thereof to be drawn in accordance with the draft to be provided by the Company for due performance of his obligations hereunder.

3.02 If subsequent to the execution of this agreement by the consumer and the company.

3.02.01 The consumption of Gas and/or connected load increases for any reason whatsoever beyond the limit of the above Gas supply deposit or Gas consumption otherwise increased beyond the normal consumption of the existing equipment.

3.02.02 Or the price of Gas or rent for meter shall be increased in accordance with the terms of this agreement.

3.02.03 Or any new tax or charge shall be levied on Gas by any Government or local or other authority or any such tax or charge already levied on Gas shall be increased then in addition to the sum mentioned in sub-clauses 3.01 above, the Company shall have a right to demand from the consumer and the consumer shall on such demand pay to the Company such amount in cash or furnish additional continuing Bank Guarantee in lieu thereof according to the draft to be provided by the Company within one month of Company's demand.

Provided the total amount of Gas supply deposit or bank guarantee in lieu thereof required to be provided by the Consumer under sub-clauses 3.01 and 3.02 of this agreement shall not exceed the amount which, according to the estimate that the Company may from time to time make the Consumer may have to pay to the Company on account of estimated consumption of Gas in three months together with taxes and charges payable thereon and three months rent for the meter.

3.02.04 The Company may utilize such Gas supply deposit received from the Consumer for the purpose of the business of the Company, subject to condition that such Gas supply deposit shall be reimbursed to the Consumer upon disconnection of Gas supply under the terms and conditions of the Gas supply Contract.

4.01 Subject to the provisions hereinafter made the Consumer shall pay to the Company price for Gas supplied to the Consumer at the rate of fixed by the Ministry of Petroleum and Natural Resources, Government of Pakistan in due course, pending which Power Tariff as notified by the Government from time to time will be applicable on ad-hoc basis subject to retrospective adjustment after final decision.

4.02 The Consumer shall also pay to the Company rent of the meter at the rate prescribed by the Company from time to time from the date on which the meter is fixed up to the date when the same shall be removed provided that if the quantity of Gas consumption necessitates replacement of meter by a meter of different size. The Consumer shall pay rent of the new meter at the rate prescribed by the Company for such meter.

4.03 In addition to the price of Gas the consumer shall also pay to the company all taxes or charges levied on natural Gas by the government or local or other authority.

4.04 The register of the meter shall be prima facie evidence of the quantity of Gas consumed by the Consumer but should the accuracy of the meter be disputed and the meter be officially tested by the Company and be found to register erroneously, the register of the meter shall be rectified according to the degree of inaccuracy on such testing for the period meter has registered inaccurately. If such period is know or ascertainable and if such period is not known or ascertainable then the period of adjustment in the register of the meter and or Gas bills shall be from the date when the meter reading was last obtained.

4.05 In case the meter shall for any cause whatsoever, case or omit to register regularly the quantity of gas used, the Consumer shall pay to the Company for the gas supplied to him during the period the meter so remained out of order on the basis of average monthly consumption of gas by the consumer during the two months immediately preceding or following the month in which the meter so remained out of order whichever is more.

4.06 In case the meter cannot be read due to any reason the Company shall submit provisional bill based on the average of past two months consumption or any other reasonable basis as the Company may deem fit and the Consumer shall make payment against that bill within due date. The Company shall adjust the estimated consumption against actual reading obtained subsequently and bill the consumer for the difference. Consumer shall make payment against such bill within due date.

5.01 Where the metering pressure exeeds 8 inches water column above atmospheric pressure, the unit of volumetric measurement shall be one on cubic foot of Gas at an absolute pressure of 14.65 pounds per square inch and a temperature of 60 degrees Fahrenheit without application of adjustment for water vapor content and correction factors such as for pressure, temperature, specific gravity deviation from Boyle's Law expansion and Reynolds number. The value of atmospheric pressure for calculating the pressure factor shall be 14.65 pounds per square inch and value to acceleration due to gravity shall be 32.17 feet per second. The gas delivered hereunder shall be measured in accordance with methods in use in the industry generally and recommended by the Gas Measurement Committee of the Natural Gas Department of the American Gas Association applied in practical manner subject to the approval of the Government of Pakistan.

5.02 Where the metering pressure does not exceed 8 inches water column above atmospheric pressure the unit of volumetric measurement shall be one cubic foot of Gas at metering pressure and temperature without adjustment for water vapor content.

6.01 The bill will be sent periodically. This period may be one month to three months depending on the current policy of the Company in this respect. Any change in this policy will be at the sole discretion of the company but the consumer will be duly notified at least 15 days in advance. Dispatch of bills by the company by ordinary post at the address given hereinabove shall be considered sufficient evidence of delivery of the bills to the consumer by the company intimating the Consumer's liability to pay for the gas consumed.

After the bills have been sent and /or paid if the company at any time discovers any errors, omission or discrepancy in any such bill owing to any reason whatsoever, the Company shall be entitled to bring such discrepancy to the notice of the Consumer and send correct bills, which the Consumer undertake to pay within 15 days of the date of issue shown on the bills.

6.02 Any mistake in or dispute about the bill or meter reading shall not entitle Consumer to withhold payment of the bills in time, provided however, if the company finds any mistake in the bill sent to the Consumer then irrespective of the fact whether payment has been made or not, the Company shall, upon having discovered the mistake at any time be entitled to send a correct bill and consumer shall be liable to pay the same.

PAYMENT

7.01 All bills pertaining to gas consumption and or other charges are payable within 15 days of the date of issue hereinafter referred to as "due date" as shown on the bills. The bills are to be paid at the authorized banks within the due date. The Consumer will not be entitled to extension in due date irrespective of the date of receipt of the bills by the consumer.

7.02 The responsibility for making payment is that the Consumer. If the first bill is not received by the consumer within 45 days of commissioning of gas supply and thereafter if any bill is not received by the Consumer within 25 days after the due date of the previous bill the Consumer shall communicate with the company and arrange for settlement of the dues. If the Consumer fails to pay any of the bills by the due date given hereon late payment surcharge at the rate prescribed by the Company for the time being shall become payable and shall continue to accrue at monthly rates until payment by the Consumer in full. The rate presently is 2% per month or part thereof. In addition to this surcharge, the Company shall also be entitled to terminate this contract and to disconnect the supply of Gas and to remove its Gas meter and other equipment without any notice.

8. Payment shall be made within the due date either by Cash or through a Bank Draft in favour of Sui Southern Gas Co. Ltd. At the authorized banks. Payment by cheque will not be considered payment unless it is realized. Failure of any cheque to be realized within 3 days from the date of deposit in the bank by the Company shall render the supply of Gas liable to disconnection without any notice.

9. Payment must be made on or before the due date failing which the supply of gas is liable to be terminated without notice at the risk of the Consumer. Notwithstanding such disconnection / termination of Gas supply the Consumer shall pay the company the full amount of Gas bills upto and including the date of disconnection together with all charges, taxes and incidental expenses accrued to or incurred by the Company.

GENERAL:

10. All pipes and fittings from the Gas man to the inlet of the meter station shall be land and fixed by the Company.

The meter station shall be located close to the Boundary wall within the consumer's premises described hereinbefore and at a place nearest to the Company service connection. All pipes and fittings on and beyond the outlet o the meter station shall be installed by the Company at the expenses of the Consumer. The Company shall not be responsible for leakage of Gas from nor for repairs to such pipes of fittings under any circumstances.

The gas meter regulator service valve and the inlet pipe of meter forming parts of the meter station shall be installed and kept in repair by the company.

The consumer shall be responsible for the safety and protection of the meter station and the said property of the Company and shall be liable for any damage caused thereto by fire or other accidents or due to carelessness of any one whomsoever not in the Company's employment. For this purpose if a meter room is constructed the Consumer shall be responsible for keeping it in good Condition.

11. The Company shall retain the title to and ownership of all regulators, meters, pipes and devices and other property installed by it upon the said premises and may remove or replace the same at any time before or after the termination of the Contract without prior intimation to the Consumer.

12. The Company shall have the right to provide further connection to other parties or premises from the outlet of the regulator installed for the purpose of supplying gas to the consumer's premises described above. In that case the cost of any alteration in or addition to the pipes and fittings, incidental thereto shall be borne by the Company.

13. No meter shall be connected to or disconnected from the Gas pipes except by the authorized personnel of the Company. The meter shall be inspected periodically, the Company's personnel shall have free access at all reasonable times to Gas installations at the said premises of the Consumer.

14. Alterations in or additions to Gas installations will be made only by the Company but the Company may in exceptional cases exercise its discretion to permit the Consumer to undertake alterations in or additions to the Gas installations. Such permission must be obtained in writing from the Company in advance.

15. The Consumer shall not make maintain nay connection with the fuel / Gas pipe of any other person or corporation during the subsistence of this contract without the written consent of the Company.

16. As the production of gas from wells and the conveyance of it are subject to accidents, interruptions and failures and the lines and equipment to malfunctioning, breaking, freezing failures and closing which cannot be foreseen or prevented by any reasonable care or expenditure and as the supply of gas and transportation facilities are limited Company does not by this Contract undertake to furnish to the Consumer a full and uninterrupted supply of gas but only to furnish such supply and for such length of time as it is reasonably can, and it is expressly agreed to by the Consumer that the Company shall not be liable for any loss, or damage, or injury that may result either directly or indirectly from shortage or interruptions in the supply of Gas or from discontinuance thereof due to the said reasons or as result of labour strikes, lockouts, riots, civil commotions, hostilities, wars, epidemics, calamities, natural disasters or causes beyond the ordinary reasonable control of the company.

17. The company shall have right to close or interrupt gas supply to Consumer's premises for short periods after giving at least 24 hours notice in advance for carrying out necessary extension repair and /or alteration work in the Company's pipe lines, equipment and devices.

18. The company shall have the right to curtail and/or to discontinue deliveries of Gas to the Consumer consuming gas in excess of 3000 cu.ft. per hour whenever and to the extent necessary in its sale judgment for operational reasons.

19. The consumer knowing its inflammable character shall take all precautions in the use of Gas and maintenance of gas installation on his premises and shall be solely responsible for any loss, damages, injury or accident resulting directly or indirectly and for any reason whatsoever from gas installation. The consumer shall indemnify the Company against all demands and claims for any such loss, damage, injury or accident.

20. The contract shall not be binding or in force until approved and signed by proper office of the company duly authorized in this behalf and no promise or agreement or representation made by any agent or employee in soliciting the same or otherwise shall bind the company except to the extent herein provided.

21. Without prejudice to any other right that the Company may have and in addition to such right. The Company shall be entitled to rescind the Contract at any time for following reasons.

21.01 Neglected or default of the consumer to pay the bills rendered by the Company for any months supply of Gas or other dues payable by the Consumer within the period specified in clause 7.01 hereof and/or to meet the company's demand for additional Gas supply deposit made under clause 3.02.03.

21.02 Any action by the Municipal Authorities, Improvement Trust, Local Bodies, or any Government Authorities or any Legal Proceeding against the Company by any party interfering with the Company's right to supply Gas or collect dues payable to the company hereunder.

21.03 Any action by the Consumer to secure Gas through the meter for purpose other than that mentioned hereinabove or for another party without written consent of the company.

21.04 Any action by the Consumer tending to secure more Gas than the meter registers or to secure Gas through the said meter at a higher pressure than that at which the regulators are set by the Company or any interference by the Consumer with the meters or regulators tending to prevent the same from properly operating and correctly registering.

21.05 Any action of the Consumer to break the seals or to tamper with the Gas installation in any way whatsoever in order to secure unauthorized supply of Gas and or to indulge in unsafe of Gas.

21.06 Any alteration, addition or extension to the existing Gas installation carried out by the Consumer without obtaining prior approval of the Company in writing.

21.07 Violation of or default in compliance with any of the terms and conditions of this contract.

22. Either of the parties hereto may, at his/her/their absolute will determine this Contract by one month notice of his/her/their intention to do so to be given in writing to the other party and this Contract shall remain in force until so determined. In the case of determination of this Contract under this clause no party shall be entitled to any damages or compensation for any loss or injury arising from such determination of this Contract.

23. In case the premises of consumer mentioned above or the property thereon shall be attached or threatened with attachment in execution or in case of assignment, bankruptcy or any act of insolvency on the part of the consumer the Contract shall at the option of the Company become null and void and the company shall have the right to remove any or all of its property from the premises of the Consumer.

24. In case of cancellation or termination of the Contract for any cause whatsoever, all claims for Gas supplied and or services rendered by the Company upto the date of disconnection of Gas supply shall become forthwith due and payable without notice from the Company and Consumer shall pay the same on demand. In case of default late payment surcharge shall be payable by the Consumer as provide in clause 7.02 above.

25. The price of gas and or charges payable by the Consumer under this Contract shall also be subject to such charges as may be notified by the Government from time to time and the rates so notified by the Government shall take effect from the date fixed by the Government irrespective of the whether the same have been intimated or not, to the Consumer by the Company.

26. In the even of disconnection at the request of the Consumer or due to any default on his/her/their part a sum of Rs.1,000/- subject to increase/decrease by the Government in this behalf as reconnection fee shall have to be paid by the Consumer before the Gas supply is restored by the Company. Restoration of Gas supply shall in any case be subject to the availability of meter and to other necessary equipment.

27. All the above mentioned terms and conditions contained in this Contract have been read and understood by the Consumer and a copy of terms and conditions have been received by the Consumer and the consumer undertakes and agrees to abide by all such terms and conditions in token whereof the Consumer has affixed his/her/their signature and seal hereunder.

Signed for and on behalf of
SUI SOUTHERN GAS COMPANY LTD.

For MANAGING DIRECTOR

Signed by the Customer
Dated:
M/s. Lucky Cement Limited
Power Generation
CHIEF EXECUTIVE
Telephone:
Fax:

LUCKY CEMENT

Ref # LCL/PG/SSGC-NOC/051729

Dated: 17th May 2019

To,
Managing Director
Sui Southern Gas Company Limited.
SSGC House,
Karachi

Subject: **NOC Permission to Sell Surplus Power to HESCO from approved Gas load of 7.5 MMCFD for Captive Power Generation**

Customer Nos. 0846951000 / 1846951000.

Reference to letter no. Sales/NOC-PG-594/11 dated 04th February 2011, we were granted permission for sale of surplus power to HESCO vide your letter under reference (copy attached)

K-Electric has recently approached us for sales of surplus power to them for further distribution in the licensed territory of K-Electric in Mouzang area. We understand that they do not have any power source nearby.

In view of above, it is requested that NOC for sale of surplus power already issued vide letter under reference may please be amended to sell surplus power to any distribution company instead of HESCO only. However, we assure you that we will remain within our allocated quota.

A favorable action is requested, please.

Regards,

S.Hassan Mazhar
General Manager
Power Generation
Lucky Cement Limited

C.C General Manager Sales SSGC
Executive Director LCL

Lucky Cement Limited

Kazarian Power Site Office

SSGC

Sui Southern Gas Company Limited

Ref: SAL/SSPC-594/08
17 September 2008

SS
Chm
CEO
TD
D(PL)
FD
178

Mr. M. Sohail Tabba
Director,
M/s. Dadex Cement (Pvt) Limited
6-A Muhammad Ali Housing Society
Al. Asif Hashmi Tabba Street
Karachi.

SUBJECT: 1. EXTENSION IN GAS CONNECTION FOR CAPTIVE POWER GENERATION

2. NEW GAS CONNECTION FOR NEW INDUSTRIAL PROCESS USE
At Main Superhighway 58 K.M. near Goth Khadeji, Jokhymore District Karachi.

We are pleased to inform you that your request for supply of natural gas for maximum daily off-take of additional gas load of 7 MMCFD for Captive Power Generation (for self-use only) and 6 MMCFD for new industrial process use has been approved subject to the following conditions:

1. Captive Power will be treated as an extension of gas load, and gas would be supplied as per prevalent policy of Government of Pakistan.
2. Gas would be supplied on "as and when available" basis and would be disconnected as and when SSGC faces shortfall in meeting the requirements of priority consumers.
3. Dual-firing arrangements will be made by you to avoid loss of production as and when gas is not available.
4. Extension of gas load for Captive Power Generation on the above plot would be approved on the basis of Co-Generation system to be installed by you in order to become energy efficient.
5. Price of gas used for power generation is determined by Oil & Gas Regulatory Authority in consultation with Ministry of Petroleum & Natural Resources Government of Pakistan.
6. If Government decides at any stage not to allow supply of gas to subject power units, the connections will be disconnected immediately.
7. Gas supply to your unit is subject to completion and commissioning of gas distribution main/ reinforcement of gas main, if required. Also cost of the same will be borne by you.

Assuring you of our best services, we remain,
Yours sincerely,

Zeeba Alvi

ZEEBA ALVI
GENERAL MANAGER (SALES)

Kind attn: Mr. Haqqi.

SSGC House, Sir Shah Suleman Road, Gulshan-e-Iqbal, P.O. Box 17000 Karachi-75300
PABX Telephone 9021000 Fax 92-21-9231621 Web site : www.ssgc.com.pk

PERAC RESEARCH & DEVELOPMENT FOUNDATION

Government of Pakistan, Ministry of Energy, Petroleum Division

TEST REPORT

Customer 's Name	M/s. Lucky Cement Limited	**Test Report No**	000667-001
Customer's Ref	E-mail - 18-10-19	**Reporting Date**	05-11-2019
Date	31-10-2019	**Sample Code**	19000661-01
Sample Description	Natural Gas Sample	**Receiving Date**	31-10-2019

TEST METHOD	PARAMETERS	TEST RESULTS
D-1945	COMPONENTS	
D-1945	Carbon Dioxide, Mole %	1.334
D-1945	Nitrogen, Mole %	3.941
D-1945	Methane, Mole %	86.606
D-1945	Ethane, Mole %	1.582
D-1945	Propane, Mole %	0.539
D-1945	Iso-Butane, Mole %	0.854
D-1945	n-Butane, Mole %	0.046
D-1945	Iso-Pentane, Mole %	0.034
D-1945	n-Pentane, Mole %	0.005
D-1945	Hexane Plus, Mole %	0.059
D-1945	Heptane plus, Mole %	Traces
D-3588	Calculated Gas gravity (Air 1.00)	0.6319
D-3588	Calc. GHV Btu/ft³ 14.696 PSI 60°F	950.00
D-3588	Calc. NHV Btu/ft³ 14.696 PSI 60°F	856.75
D-4599	Hydrogen Sulphide, ppm	Nil
D-4599	Moisture Content, mg/L	Nil
D-3588	Gas Density, Kg/M3	0.7740

Prepared By	Section Incharge (E)/(HC)/(ST)	Head R&ASD

The analysed based on Sample (s) provided to us by the Client. The interpretation or options expressed represent the best judgement (E. & O. E.). We have no responsibility and warranty or representation in connection with which such report is used.

Rev. No.0	Dated: 31-01-2008	F-10-05

ORGANOGRAM FOR OPERATIONS STAFF

Lucky Cement Limited (Power Generation)

GENERAL MANAGER

DGM (Operations)

Senior Manager (Operations)

Manager (Operations)

Team-A	
Duty Manager (Operations)	
Shift Engineer (Mechanical)	Shift Engineer (Electrical)
Engine Room Operator 1	Control Room Operator
Engine Room Operator 2	Electrician
Mechanical Engineer	Grid Operator
Assistant Mechanic	

Team-B	
Duty Manager (Operations)	
Shift Engineer (Mechanical)	Shift Engineer (Electrical)
Engine Room Operator 1	Control Room Operator
Engine Room Operator 2	Electrician
Mechanical Engineer	Grid Operator
Assistant Mechanic	

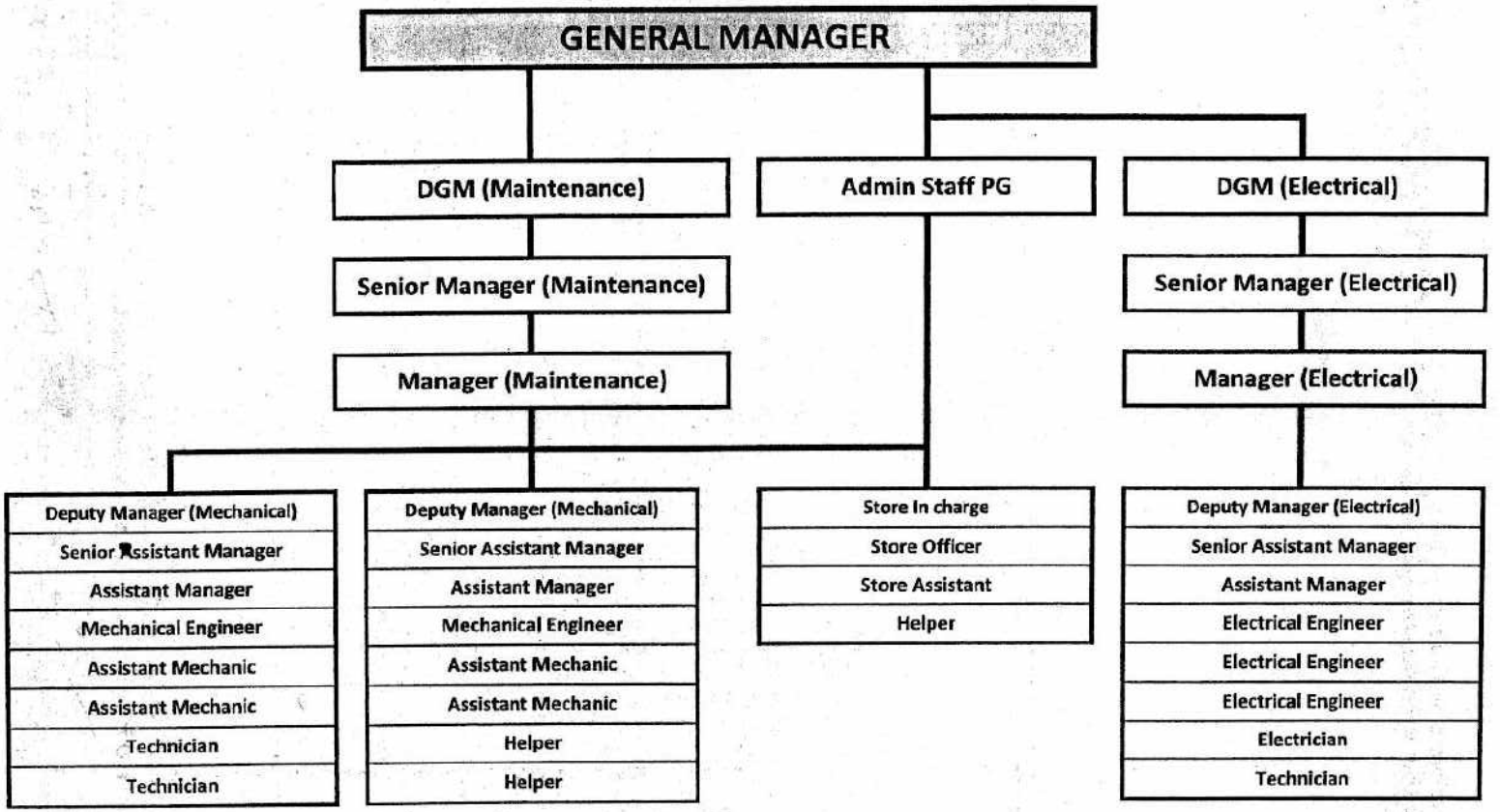
Team-C	
Duty Manager (Operations)	
Shift Engineer (Mechanical)	Shift Engineer (Electrical)
Engine Room Operator 1	Control Room Operator
Engine Room Operator 2	Electrician
Mechanical Engineer	Grid Operator
Assistant Mechanic	

Team-D	
Duty Manager (Operations)	
Shift Engineer (Mechanical)	Shift Engineer (Electrical)
Engine Room Operator 1	Control Room Operator
Engine Room Operator 2	Electrician
Mechanical Engineer	Grid Operator
Assistant Mechanic	

LUCKY CEMENT

ORGANOGRAM FOR MAINTENANCE STAFF

Lucky Cement Limited (Power Generation)



Rolls-Royce

Routine maintenance schedule 45.000

Valid for Bergen BV engine for natural gas operation with Turbocharger, stationary power plant application

Dr. 528/69

Instruction no: 1502
Doc.type BVG-G
Revision date: BV-G 1106

Control/Spot check ●
Clean/Adjust/Lubricate ○
Overhaul ▾
Overhaul/Change ▿

Intervals: 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 6000, 7000, 8000, 9000, 10000, 11000, 12000, 13000, 14000, 15000, 16000, 17000, 18000, 19000, 20000, 21000, 22000, 23000, 24000, 25000, 26000, 27000, 28000, 29000, 30000, 31000, 32000, 33000, 34000, 35000, 36000, 37000, 38000, 39000, 40000, 41000, 42000, 43000, 44000, 45000

Item No.	Instr No. a)	Description
1		CYLINDER HEADS
101	2406	Exhaust valve rotocaps
102	2406	Indicator valves
103		
104	1601	Valve clearance. Also approx 100h after refitting of cyl head
105		
106	2401	Rocker arm system for inlet- and exhaust valves
107	4301	Exhaust- and inlet valve drive mechanism/seals
108	7230	Prechamber nozzle
109	7220	Gas control valves
110	7225	Gas admission valves
111	7230	Prechamber check valve assembly (Ball valve assembly)
112	7240	Spark plugs
113	7240	High voltage cables and connectors. Resistorcheck
114	b)	Cylinder head: Pressure test and max firing pressure (ignition timing)
2		CYLINDER LINERS
201	2201	Remove liner/check water jacket/replace sealing
202	2301	Honing of cylinder liner
203	2201	Carbon cutting ring
3		PISTONS / CONNECTING RODS
301	3201	Piston
302	3201	Piston rings (replace after honing of cyl. liner)
303	3201	Gudgeon pin bushing
304	3201	Connecting rods. Ovality control
305	3202	Big end bearing
4		CRANKSHAFT
401	2201	Main bearings and thrust washers
402	4101	Gear wheel drive (Pump end)
403	3101	Torsional vibration damper: Fluid sample
404	3102	Crankshaft deflection
405	b)	Flexible coupling. Rubber elements and damper plates
5		CAMSHAFTS
501	4101	Inlet- and exhaust cams
502	4101	Camshaft bearings and thrust washers
503	4102	Camshaft drive with intermediate wheel
504		
505	5202	Governor drive
6		LUBRICATING OIL
601	8204	Main lubricating oil pump
602	8206	Lub oil filter, by-pass valves and filter elements (Change at pressure drop)
603	b)	Air suction oil bath filter (Clean at pressure drop)
604	8207	Centrifugal separation filter lubr. oil
605	b)	Lubr. oil analysis to lub. oil supplier
606		
607	8203	Lubricating oil priming pump (electrical)
7		TURBO CHARGERS
701	b)	Turbo charger: Rotor
702	b)	Turbo charger: Bearings
704	b)	Turbo charger: Air filters (Clean when dirty)
705	7104	Turbo charger: Water washing of compressor (Daily)
706	b)	Turbo charger: VTG parts (Variable Turbine Geometry)
8		COOLERS AND COOLING WATER
801	c)	Lubr. oil cooler (Clean when necessary)
802	c)	Jacket water cooler (Clean when necessary)
803	c)	Charge air cooler
804	c)	External cooling water system (Check quarterly)
805	c)	Cooling tower: Raw water quality (Check weekly)
806	c)	Cooling water quality (HT/LT jacket water) (Checked monthly)
807	9503	LT raw water pump with drive and HT/jacket water pump with drive
9		ALARM / CONTROL SYSTEM
901	5301-4	Governor with linkage and couplings (Check Weekly)
902		
903	b)	Oil mist detector (Change filter when necessary)
904	b)	Alarm and safety function Engine management system
905		
906		Pickups: flywheel and camshaft
10		MISCELLANEOUS
1001		Fuel gas supply module
1003	[illegible]	Exhaust pipe insulation
1004		Flexible [illegible] of engine [illegible]
1005		Flexible fuel gas connections

Preventive Mainanance Program of Lucky Power
generation at karachi Project.
Electrical side.

Sr No.	Description	Period	Remarks
1	Testing of Protection relays of alternators,feeders.	Yearly	
2	Cleaning of alternator,filter,juncation box, tightening of connections.	Two Monthly	Also periodically and availability.
3	Cleaning of motors and checking against heating	weekly	Phically and periodically
4	Cleaning of M.V Bus Bar	Yearly	availability
5	Cleaning /Checking of MV breakers	Three monthly	
6	Vibration Testing(contract given to SKF)	Monthly	Maintenance were carried out only after receiving recommendation From SKF
7	L.V Circuit breaker Cleaning	Monthly	
8	Connection tightening of all circuits	Monthly	
9	Megger Testing	six monthly	Normally plant is in continuous in process but perodically when machine available
10	Transformer	yearly	
11	Earthing equipment NGR	yearly	

Note:
As a daily routine an Power Plant round up of all engines were carried out
and apart from routine maintenance, an inspective
and timly maintenance were also carried out on daily basis.
This is essential to avoid any stoppage of system.

DATE:

1000 RHs SCHEDULED MAINTENANCE OF ENGINE NO _____

ENGINE RUNING HRS _____

1	ALTERNATOR FILTER CLEANING OR REPLACED.
2	ALTERNATOR WINDING CLEANING WITH AIR BLOWER OR VACCUME CLEANER.
3	ALTERNATOR TERMINAL BOX CLEANIG .
4	ALTERNATOR TERMINAL BOX CONNECTION TIGHNESS CHECKING .
5	ENGINE MOUNTED PANEL CLEANING.
6	ENGINE MOUNTED PANEL CONNECTION TIGHTNESS CHECKING.
7	FUEL ACTUATOR CLEANING /ACTUATOR MALE &FEMALE CONNECTOR CLEANING.
8	OMD UNIT CLEANING &REPLACED COIN FILTER IF DIRTY.
9	CHECK THE SUCTION PRESSURE OF OMD.
10	TURBO CHARGER (A&B)SPEED SENSOR PLUG CLEANING.
11	CHECK THE EMERGENCY STOP FROM ENGINE LDB AND CONTROL BOAD .
12	CHECK THE PHYSICAL CONDITION OF ROTATING DIODE AND VDR.
13	SPEED SENSOR FLY WHEEL MOUNTED PLUG CLEANIG.

REMARKS

DATE:

4000HRs SCHEDULED MAINTENANCE OF ENGINE NO ----------

RUNING HRS----------

1	ALTERNATOR FILTER CLEANING OR REPLACED
2	ALTERNATOR WINDING CLEANING WITH AIR BLOWER OR VACCUME CLEANER.
3	ALTERNATOR TERMINAL BOX CLEANIG .
4	ALTERNATOR TERMINAL BOX CONNECTION TIGHNESS CHECKING .
5	ENGINE MOUNTED PANEL CLEANING.
6	ENGINE MOUNTED PANEL CONNECTION TIGHTNESS CHECKING.
7	TURNING GEAR ENGAGED /DISENGAGED SWITCH FUNCTION TEST.
8	ENGINE MOUNTED MALE /FEMALE CONNECTOR CLEAINING WITH CONTACT CLEANER:
9	FUEL RECK POSITIONING SENSOR(10EL) CLEANING /CONNECTION TIGHTNESS.
10	FUEL ACTUATOR CLEANING /ACTUATOR MALE &FEMALE CONNECTOR CLEANING.
11	CHECK THE SPEED SENSOR(22EL) GAPE.
12	CHECK THE SPEED SENSOR(27EL) GAPE.
13	CHECK THE SPEED SENSOR(28EL) GAPE
14	CHECK THE SPEED SENSOR(29EL) GAPE.
15	OMD UNIT CLEANING &REPLACED COIN FILTER IF DIRTY.
16	CHECK THE SUCTION PRESSURE OF OMD.
17	CHECK TURBO CHARGER (A&B)SPEED SENSOR GAP / SENSOR PLUG CLEANING.
18	LUBE OIL LOW LEVEL SAFTY CHECKED AFTER ENGINE START.
19	CHECK THE LUBE OIL ENGINE TEMPRATURE HIGH SAFTY.
20	CHECK THE HT/CW ENGINE OUTLET TEMPRATURE HIGH SAFIT.
21	CHECK THE EMERGENCY STOP FROM ENGINE LDB AND CONTROL BOAD .
22	CHECK THE PHYSICAL CONDITION ALTERNATOR ROTATING DIODE AND VDR.

REMARKS

7500Hr Maintenance on Electrical carried out

Sr no.	Description of Maintenance	Description of Work done by LCL
1	Testing and calibration of all sensors	Testing and calibration carried on following sensors
	A) Pressure sensor.	a) Lube oil low pressure.
		b) Lube oil low pressure.
		c) H.T cooling water inlet low pressure
		d) H.T cooling water inlet low pressure
		e) Fuel oil pressure low in let.
		f) I.T cooling water inlet pressure low.
		g) Charge air pressure
	B)Temp Sensor.	a) Winding temp of alternator alarm and trip.
		b) NDE/DE bearing alarm and trip
		c) Exhaust temps alarm and trip.
		d)Charge air temp alarm and trip
		e)Fuel oil engine inlet alarm (high)
		f) H.T cooling water outlet alarm(high).
		g) Lube oil engine inlet
2	Alternator	a) cleaning of alternator windings.
		b) Cleaning and random testing of Diodes
		c)Torque tightening of terminal box.
		d)Cleaning of main terminals/Aux terminals of alternator windings and its control circuits.
3	Relay testing	Follwing relays testing were carried out.
		a) Over currient.
		b) Short Circuiting.
		c) Earth fault.
		d) Under Voltage
		e) Overvoltage.
		f)Over frequency.
		g)Loss of excitation.
		h) Differential Protection.
4	Oil Mist Detector	a) overhauling of Oil mist carried.