

# **KE** Presentation

April 2016







### **Pakistan Country Overview**





Nov-13

Nov-14

Dec-15

#### **Benchmarking Against Select Emerging Markets**

Oct-11

Sep-10

Aug-08

Sep-09

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Real GDP Growth (FY 15)	5.5%	(3.7%)	7.3	3.9
FX Change <sup>(3)</sup> (YoY)	(2.8)%	(10.1)%	(6.1)%	(9.3)%
Debt / GDP (FY 15)	57.2%	71.5%	51.2%	34.6%
Industrial Production Growth (FY 15)	4.2%	(6.0%)	5.5%	2.0%

Oct-12

#### **Significant Progress in Recent Months**

international commodity prices.





Government of Pakistan has restructured the sector through privatization and unbundling. 9 distribution companies and 4 generation companies are still in the privatization pipeline

#### **Key Highlights**

- Historically the power sector consisted of two vertically-integrated utilities, WAPDA and KE
  - KE privatized in November 2005
  - WAPDA unbundled into 10 DISCOs, 4 GENCOs, 1 transmission company and a hydroelectric utility
    - 4 GENCOs and 9 DISCOs are in the privatization pipeline
- NEPRA is responsible for:
  - Granting licenses
  - Determining tariffs and adjustments
  - Setting performance standards
  - Approving investment programs across the power industry
- Ministry of Water and Power ("MoWP") responsible for supervision of and coordination between national power organizations and power players as well as policy formulation

#### **Current Electricity Sector Overview**





Pakistan is a power deficit market which requires significant investment to meet growing demand.

#### An Acute Energy Shortage ...

Chronic underutilisation of capacity leading to energy deficit of more than 6GW



Due to the energy shortage, Pakistan has among the lowest consumption per capita



#### ... Fuelled by an Expensive Generation Mix ...

Pakistan's generation mix is heavily skewed towards imported residual fuel-oil (RFO); RFO based generation is relatively expensive and has strained FX reserves and fiscal balances over the years



#### ... Through Increasing Private Sector Investment

Private sector generation capacity has increased by c.30% since 2009

4%



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### **Pakistan Power Sector: Reform Underway**



Circular debt has historically clogged capacity and stifled liquidity in the power sector; given recent oil price decline, rate of circular debt is expected to decline significantly, which should help the economy. Moreover, government has also undertaken measures addressing structural issues

#### Challenges **Policy Goals / Measures Positive Outlook Sustainable Capacity** Increasing foreign investment; (agreements with Chinese and ME **Circular Debt Clogging Capacity** investors, multi-laterals etc.) – China Large infrastructure projects (Diamer-Basha, etc) to recently committed US\$46 billion ensure energy independence Shift power mix to low cost sources (coal, hydel, gas, etc) Low cost generation in pipeline Engage multilaterals **Unsustainable Fuel Mix Structural Changes** Overhaul of structural and regulatory aspects of NEPRA, OGRA and MoWP **Tariff Subsidies Straining Fiscal** Tariff subsidies phased out; to be completely eliminated **Reserves** for most consumers. Outsource collection to improve cash flows; independent auditors to ensure transparency companies **Capacity Deficit** Efficiency Allocation of gas to efficient generation sources

Introduction of technology (smart meters, etc)

Performance based contracts with DISCOs

Privatization or O&M based leasing of GENCOs

Minimize line losses through upgrading transmission

network

Weak Corporate Governance of ex-WAPDA Entities

**Reduction in power outages** 

Frequent tariff adjustment preventing build-up of receivables / easing fiscal pressure

Privatization of state owned

Positive reviews by IMF / ADB committed US\$1.5bn

#### Low Oil Price Environment

#### **KE Background**

- Incorporated in 1913, K-Electric ("KE" or "Company") (formerly known as Karachi Electric Supply Company) is a publicly listed fully integrated power utility involved in generation, transmission and distribution
- KE was privatized in 2005
- Abraaj acquired a controlling stake<sup>(1)</sup> in KES Power ("KESP"), currently the 66.4%<sup>(2)</sup> shareholder of KE, from Al Jomaih Group and National Industries Group through a commitment to inject equity into the Company
  - The transaction closed in April / May 2009
- International Finance Corporation ("IFC") and Asian Development Bank ("ADB") converted US\$50mn (US\$25mn each) of long-term loan into equity in December 2012 – Validating the investment case and success of the turnaround strategy
- KE's share price has grown by 178% over the past 5 years
- The stock's liquidity has also increased over the past few years (ADTV in March 2016 increased by c.8x compared to March 2013)



Note:

(1) Initial acquisition of 50.0% stake which was subsequently increased to 52.3%. (2) Initial shareholding of KES Power was 71.5% and gradually increased to 72.8% following multiple rights share issues over the last several years (a number of minority shareholders did not subscribe to the rights issue which KES Power underwrote). Upon IFC & ADB's conversion, the stake of KES Power decreased to 69.2%, which was then reduced to 66.4% following an accelerated equity offering in February 2015. (3) Total shareholding may not total to 100% due to rounding. (4) Minorities and Free Float represent c.7.4%%.

6







The city of Karachi is essential to Pakistan's economy and drives much of the country's economic growth. As the city's sole electricity provider, KE is of strategic importance to the municipality and the country

#### Karachi's Importance to Pakistan

- Karachi is the commercial hub and the gateway of Pakistan
- Home to Pakistan's largest stock exchange, making it the financial centre of Pakistan
- c. 90% of the head offices of the banks, financial institutions and multinationals operate from Karachi
- 40% of large scale manufacturing employment is in Karachi

#### Strategic Location



#### Karachi's Contribution to Pakistan's Economy







KE is the only remaining vertically integrated power utility in Pakistan with exclusive licensing rights for Karachi and a customer base of 2.5mn



A Diversified Customer Base...

**Customer Breakdown by Consumption (GWh)** 



#### ...With Strong Growth Prospects



**Revenue Breakdown** 

## **Overview of Generation Capacity**



#### Total installed capacity of over 2,247 MW with nearly 45% of KE's capacity being less than 6 years old

### **1** Bin Qasim Power Station 1 (BQPS 1)



Capacity	1,260 MW (6 units) <sup>(1)</sup>
GDC	920 MW (5 units) <sup>(2)</sup>
Year	1983 – 1997
Fuel	HFO / Gas <sup>(3)</sup>
Efficiency	32%

Supplier

Hitachi, Ansaldo - Steam Turbines

Major rehabilitation in the last 5 years – resulting in recovery of 50 MW and improvement in efficiency

"Largest & Most Efficient Combined Cycle Power Plant in Pakistan"

### **3** Bin Qasim Power Station 2 CCPP (BQPS 2)



**Supplier** 

	Capacity	560 MW (3 units)
JI	GDC	517 MW
	Year         2012           Fuel         Gas	2012
att		Gas
1	Efficiency	45%
General Ele	ctric – Frame 9E G	бТ

### 2 Korangi CCPP

Capacity	247 MW (4 units, 2ST)
GDC	215 MW
Year	2008-09
Fuel	Gas
Efficiency	45%

Supplier

Korangi

General Electric – LM 6000 GT

A case of a successful turnaround by the management – conversion to combined cycle has been completed

"Best Fast Track Project (Silver Award)" and "Best Plant in the Region" by Asian Power Magazine

#### **4** GE Jenbacher SITE & GE Jenbacher Korangi

Bin Qasim

L**1**3

	Capacity	180 MW (64 units)
	GDC	176 MW
	Year	2009
	Fuel	Gas
	Efficiency	36% <sup>(4)</sup>

Supplier

GE Jenbacher – Gas Engines

Notes: Data as of June 2015. Efficiencies are indicative and subject to variation. KE applied to NEPRA for the decommissioning of Korangi Thermal Power Station. Approval was received in Q1 2015.

(1) NEPRA has issued a generation license for the coal conversion project of two units at BQPS 1 (420 MW) to be leased out as an IPP on the effective COD date. (2) Unit IV is not currently functioning and will start operations upon completion of the coal conversion project, coal will be also be a source of fuel for the two units being converted in this phase. (4) To be enhanced upon completion of the conversion of 2 open cycle engine-plants to combined cycle in 2016.

### **3** Operational Outperformance – Generation



Installed generation capacity has been enhanced by over 1,000 MW and overall efficiency has improved from 30.4% in FY 09 to 37.3% in 1H16 – significantly contributing to the financial turnaround and outperformance

#### **Capacity Enhancement**

- c. 1,037 MW increase in installed generation capacity since 2009
- Capacity added through completion of 4 major projects
  - 247 MW CCPP Korangi
  - 180 MW GEJB Korangi and SITE
  - 50 MW BQPS-1 rehabilitation
  - 560 MW BQPS-2
- Upon completion of the current projects, capacity will increase by 20 MW and is expected to increase efficiency by an additional 2-3%

#### **Improvement in Fleet Efficiency**

- 22% efficiency gain between FY 09 and FY 15
  - Highest ever fleet efficiency of 40.3% achieved in February 2014 (FY 14)
- Major overhaul of three units and annual maintenance of BQPS
- Addition of modern plants has increased efficiency
  - 10% increase with the addition of GEJB and 220 MW CCPP in H1 2010 vs. H1 2008
  - Further 12% increase due to continuous operation of BQPS-2 in H1 2013

#### KE Capacity (MW)



#### Average Fleet Efficiency (%)



Note: KE's fiscal year ends on June 30. (1) NEPRA has issued a generation license for the coal conversion project of two units at BQPS 1 (420 MW) to be leased out as an IPP on the effective COD date.



Increased reliability in transmission network through the addition of 12 new grid stations and 63km of new EHT<sup>(1)</sup> lines, while also rehabilitating 189km of old EHT line, resulting in an increased transmission capacity of 768 MVA

#### **Power Transformers Reliability**

- 60% reduction in transformer tripping in FY 15 vs. FY 09
- 85% less transformer trips on 11 KV distribution network during FY 15 vs. FY 09
- Significant fault response improvement
- Significant transmission losses reduced by 2.6 percentage points coming down from over 4% in 2008 to c. 1.4% in June 2015
  - 189 kilometers of circuit length have been rehabilitated
  - 63 kilometers of new EHT lines have been installed

#### **Transmission Lines Reliability**

- 21% reduction in transmission line trips in FY 15 vs. FY 09
- 96% decrease in theft in FY 15 vs. FY 09
- 59% reduction in actual trips in FY 15 vs. FY 09

#### Transformer Trips



#### **EHT Line Trips**





#### FY 15 T&D losses stood at 23.7%, representing a c. 12.2 percentage point decline since 2009

Cey Initiatives	
Re-organization & Creation of IBCs	<ul> <li>Organization restructured to deliver business objectives</li> </ul>
	<ul> <li>Built modern customer services centres and offices</li> </ul>
	<ul> <li>Implemented a performance-based incentive program</li> </ul>
	<ul> <li>Load shed based on losses and recovery rates</li> </ul>
	<ul> <li>Preferential treatment given to industrial and strategic customers</li> </ul>
Implementation of New and	<ul> <li>State of the art billing and CRM system rolled out (SAP IS-U)</li> </ul>
	<ul> <li>Energy measurement system put in place for better network visibility</li> </ul>
Re-engineered	Enhanced call centres
Processes	<ul> <li>ISO Certification</li> </ul>
i i occisioni	<ul> <li>Mobile Meter Reading</li> </ul>
	<ul> <li>E-Bill Payment Automation</li> </ul>
	<ul> <li>Replacing electro-mechanical meters with electrostatic meters</li> </ul>
Caney	<ul> <li>Use of aerial bundled cables</li> </ul>
Capex Solutions	<ul> <li>Smart grid initiative</li> </ul>
	<ul> <li>BUSBAR execution on Multi Stories</li> </ul>
	<ul> <li>BOSBAR execution on Multi Stories</li> </ul>

#### &D Losses (%) – Rolling Average



FY 09 FY 10 FY 11 FY 12 FY 13

FY 14

FY 15

1H16

#### istribution Losses (%) by Segment – Rolling Average





Enhanced workforce effectiveness through creation of a performance-driven culture and workforce optimization (reduction of head count by approximately 7,000)

#### **KE Initiatives:**

#### Rightsizing

- Promotion of 3,500 Non-Management to Management cadre followed by regularization of 5,700 contractual staff
- System of excess overtime payments halted
- Voluntary Separation Scheme costing PKR 6.0 billion (US\$ 67 million) for 4,459 non-core staff
- Successful outsourcing of non-core positions despite resistance and violence faced

#### Accountability

- Implementation of disciplinary committee for the first time in January 2010
- 1,372 employees dismissed

   / terminated across all cadres due to corruption, theft and misconduct

#### **Management Change**

- Roll out of "AZM" Change Management Program sessions held for over 10,000 employees to bridge junior employee and senior management communication gap
- One of the largest organizational development initiatives carried out by a private sector organization in Pakistan
- Fresh Blood Infusion philosophy now taking shape through Graduate Trainee Program (GTP) and Technical Apprentice training programs – 35 resources staffed across mid-to-senior management levels and 284 staffed at lower management levels. As a result the average age of the lower management is now 27.8 years down from 46.1 years

#### **Performance Monitoring**

- Successfully completed seventh round of Annual Performance Appraisal through the Bell Curve evaluation system for management and staff; Appraisal processes now paper-less, with online submissions increasing system and time efficiency
- "Variable Yearly Performance Reward Matrix" implemented
- Results: Visibility on employee capability and contribution; Filtration of incompetent workforce; Appropriate career development and growth for high potential candidates

#### Learning and Organization Development

- Standardized and structural learning interventions through "AZM" Learning Institute and largest management trainee program in the country
- Induction and training of 927 management trainees, trainee engineers, trainee accountants since 2008
- Targeted training interventions launched catering to unique organizational needs – 'Handling Difficult Situations Program' designed for field employees who face mobs and violence; and exclusively designed Management Development Program for managers who are expected to deliver in KE's unique environment

## A Robust Financial Performance: Underpinned by a Multi Year Tariff Structure



The current MYT structure is a performance based / efficiency driven tariff whereby KE can increase its returns by beating inherent efficiency benchmarks incorporated into the tariff structure

#### **Background and Components of Current Tariff Structure**

- In preparation for privatization of KE in 2002-2003, the Company requested NEPRA to grant a MYT which will provide clarity, predictability and stability to the tariff regime necessary for private sector investment
- In consultation with the World Bank and other multilaterals, the MYT was established by NEPRA in September 2002 (and renewed in 2009 at the time of Abraaj investment)
- The performance based MYT established by NEPRA in September 2002 is essentially a "CPI-X" price cap on the internal costs of KE while external costs are considered on a pass through basis
- Under the current tariff structure, investors generate returns by beating the inherent efficiency benchmarks assumed within the base tariff

#### **Components of KE's Tariff**



### Robust Financial Performance



KE revenue increased at a CAGR of 9.6% between FY09 and FY15 on the back of decreasing T&D losses, increasing average revenue per unit billed and decreasing fuel price environment. KE achieved positive operating profitability in FY11 and net profitability in FY12





#### EBITDA (US\$mn)



#### Comments

- Strong revenue growth since FY 09 on the back of reduction in T&D losses
  - Re-organization & creation of IBCs
  - Implementation of new and re-engineered processes
  - Piloting capex solutions (smart grid, aerial bundled cables etc.)
- Return to operating profitability in FY 11 following KE turnaround
  - Introduction of modern and more efficient plants
- The effect to the bottom line has also been consistent with net income increasing 9.7x between FY 12 and FY 15
- In PKR terms the revenue decreased by (3.8%) over the last period (1H16 vs. 1H15). The (6.3%) decrease in US\$ revenues is on account of local currency depreciation to the dollar
  - The average exchange rate for the half-year ending December 2014 was PKR:US\$ 101.13; the average exchange rate for the half-year ending December 2015 was PKR:US\$ 103.88



Significant capital expenditures over the last 6 years have allowed KE to achieve its objective to increase generation capacity and improve T&D infrastructure. Return to profitability has accelerated KE's deleveraging pace

#### Total Capex (US\$mn)

NMF

FY 09

NMF

FY 10

NMF

FY 11





#### Comments

- Over US\$ 1 billion invested across the business since 2009
- Going forward, capex plan includes:
  - New generation projects
  - Transmission infrastructure enhancement
  - Distribution capex for network maintenance and expansion

#### Comments

- Strong balance sheet with the significant leverage capacity
- De-leveraging driven by increasing cash flow generation and return to operating profitability
- Sukok offering of US\$ 220 million used to pre-pay expensive foreign debt of US\$ 113 million and reducing the cost of debt through improved pricing, extended maturity profile and less stringent financial covenants
- OPIC financing of US\$ 250 million secured for new capex initiatives with focus on the transmission enhancement
- Today, the business plan is fully-funded with significant leverage potential and internal cash-flow generation capacity

FY 13

FY 14

FY 15

1H16

FY 12

## **5** Opportunity to Further Enhance Operational Efficiency



Kev	Transmission & Distribution Initiatives

1	1,000 MVA transmission enhancement (Phase 1)	<ul> <li>1,000 MVA transmission enhancement and rehabilitation project. Contracts finalized with Siemens Germany and Shanghai Electric, China. Estimated Cost of the project US\$ 400 million</li> <li>Eight new grid stations comprising 220kV and 132kV grid stations and addition of ten new 220 kV and 132 kV transmission lines</li> <li>Addition of 31 transformers and 400+ 11 KV Feeders to cater the grid growth</li> <li>Financing secured through ECA backed facilities from China and Germany, OPIC and local banks</li> </ul>
2	Distribution initiatives	<ul> <li>Smart Grid Project which will allow remote management of smart meters at customer premises and transformers</li> <li>Installation of Aerial Bundle Cable (ABC) on High Loss Transformers to control theft</li> <li>Transformer / feeder technical loss reduction project.</li> <li>Estimated investment in distribution infrastructure US\$ 350 million</li> </ul>
Кеу	Generation Initiatives In Place	
1	250 MW Dual Fuel Embedded Generation	<ul> <li>A dual fuel power plant at Kornagi Complex with c. 253 MW of gross capacity. The project is strategically being implemented in the north-west quadrant of the grid to provide stability to the 132 kV network</li> <li>Target financial close in H1 2017 with an 18 month construction period</li> <li>Efficiency for simple cycle is expected to be 42% with an additional 3% when converted to combined cycle</li> </ul>
2	700 MW IPP Coal Project	<ul> <li>China Datang Overseas Investment Company participating in this project through a Joint Development Agreement.</li> <li>KE has signed an accord with China Machinery Engineering Corporation (CMEC) for the project.</li> <li>Land required for the project has already been acquired</li> <li>Estimated cost of the project is US\$ 1 billion and expected COD is June 2020.</li> </ul>
3	420 MW Coal Conversion Project at BQPS-1	<ul> <li>Conversion of 420 MW of existing furnace oil units into coal-fired plants – estimated cost of the project is US\$ 400 million - Structured as an IPP</li> </ul>
4	LNG – 450 MW	450 MW LNG power plant with Engro, with expected COD Jul 2019
5	Conversion of Operational Open Cycle Plants	<ul> <li>Conversion of 2 existing open cycle plants (220 MW and 180 MW GE JB) to combined cycle adding additional 47 MW to be completed by April 2016 – US\$ 100 million</li> </ul>
6	Other IPPs	<ul> <li>KE is also planning to contract electricity from additional IPPs to boost external generation; potential IPPs include Nooriabad (104 MW) and Fauji (56 MW) expected COD 2016 / 2017</li> </ul>





#### Highly experienced team with deep industry knowledge and a strong track record







- Over 33 years of experience across operations, risk management and governance
- Serves on various management committees for The Abraaj Group

**Tayyab Tareen** Chief Executive Officer Exec. Director KE Board

**Muhammad Shoaib Baig** 

Chief People Officer

18 years of experience in

Previously Chief Human

Trained with INSEAD and

from University of Leeds

Resource Officer and Vice

President at Telenor Pakistan

Babson College; Engineering

international HR

- 22 years experience including CFO of Coca-Cola Pakistan, UAE and Oman
- KE CFO / CSO for 4 years ICAEW qualified accountant



**Dale Sinkler** Chief G&T Officer

- 25 years experience including and CEO of AES Lalpir and Co-Founder of O&M Solutions
- Associated since 2009



Syed Moonis A. Alvi **Chief Financial Officer** 

- Conglomerate lastly as Group Director Treasury
- With KE since 2008
- 8 years with KPMG & ICAP **Chartered Accountant**



#### Syed Fakhar Ahmed Chief Marketing & **Communication Officer**

- 18 years of diversified experience
- Previously Head of CSV & Special Project for Nestle in Greater China Region
- MBA in Marketing and MA in Political Science



Eram Hasan Chief Supply Chain Officer

- 23 years of international general management experience with Coca-Cola, Unilever & Alcoa USA
- In this role since 2010
- MBA (HBS) & MSc. (MIT)



#### Asif Saad **Chief Operating Officer** Distribution

- 28 years of diverse experience in chemical and manufacturing including, Dawood Hercules, Lotte Chemical and ICI Pakistan
- In this role since 2016



- Amir Zafar **Chief HSEQ & Special** 
  - 30 years of diversified experience
  - Previously Senior Vice President-Quality Assurance – Pakistan International Airlines

Projects

 Master's in Engineering Management













The GoP has set-forth an investor friendly policy to "build a power generation capacity that can meet Pakistan's energy needs in a sustainable manner"

Key Incentives to Invest in Pakistan's Power Sector





#### KE's transformational turnaround success has been recognized by local and international institutions



2016: Best Presented Annual Report Award 2014

by the South Asian Federation of Accountants (SAFA)

Certificate of Excellence Corporate Social Responsibility Awards 2015



2014: FT / IFC Transformational Business Award for Project Finance - Energy



**2014: CSR Corporate Social Responsibility** *Certificate of Excellence* 





#### **2012: Level 'A' Rating from Global Reporting** Initiative

*KE becomes the first organization in Pakistan to achieve such a rating for an integrated report* 

#### 2009-2013, 2015: Multiple Environmental and Fire Safety Awards



Fire Safety Award 2011, 2012, 2013



Environment Excellence Award 2009, 2010, 2011, 2012, 2013, 2015

#### 2012 & 2013: Harvard Business School Case Studies

Published 2 case studies highlighting KE's turnaround story

HARVARD BUSINE:	ss sснооl HARVARD Kennedy School
	HK\$712
	(1965.0)
	REV. AUGUST 6, 2012
JOSH LERNER	
ASIM IJAZ KHWAJA	
ANN LEAMON	
Abraai Canital an	d the Karachi Electric
Supply Company	
Suppry Company	
"A utility should be j	
"If everyone says, 'H	HARVARD BUSINESS SCHOOL
On a cool Decemb	\ <b>₩</b> /
Tabish Gauhar, the A	9-814-045 NOVEMBER 13, 2013
(KESC), sat on Abraa	NOVEMBER 13, 2013
investments and high	
happens next with KE	
In September 2008,	JOSH LERNER
KESC, the vertically	NATHANIEL BURBANK
intervening 28 months	
plagued the operation	Abraaj Capital and the Karachi Electric Supply
tariff structures that d	
to other agencies (cir	Company (B)
corrupt at worst. More	
as including the powe	As Tabish Gauhar, a partner at the Abraaj Group, boarded the two-hour flight from Dubai to
their own hands thre company's performan	Karachi, he reflected on the previous five years he had spent leading the Karachi Electric Supply
company's performan signed, which would	Company (KESC). Ever since Abraaj had taken management control of KESC in 2008, Gauhar had led
now occurred on a p	the investment firm's efforts to transform the formerly state-run electricity provider into a profitable
tariffs had been revis	and relatively "invisible" private utility. In 2013, many challenges remained, but there was a tangible
operations procedures	sense that Abraaj's deep commitment to the utility was beginning to pay off, and Gauhar was turning
a new meter installed	his attention to the possibility of an exit. "Pakistan is one of the most difficult zip codes in the world
	and we've already done the heavy lifting," said Gauhar. "Is this the right moment to sell?"
	When Abraaj took over KESC in 2008, the utility was losing \$15 million per month and had under-
Professors Josh Lerner and Asia	invested in its generation, transmission and distribution equipment for so long that it was severely
basis for class discussion. Case management.	dilapidated. The utility lacked contractual guarantees for sufficient supplies of natural gas and was
	forced to rely on furnace oil that was three times as expensive. Overall electricity demand
Copyright © 2012 President and write Harvard Business School 1	significantly outstripped the utility's total generative capacity. Karachi's 2.4 million electricity consumers, who were subjected to frequent and unpredictable blackouts, viewed the electricity
photocopied, or otherwise repro	provider as bureaucratic, inefficient, and unreliable.
P	By 2013, Abraaj's team had spent nearly a billion dollars on capital investments in the utility. The
1	improvements were funded by \$361 million of equity capital invested by Abraaj, \$123 million that
	had been matched by the Government of Pakistan, and more than \$400 million of long-term debt. The
	management team had opened four new gas-powered power plants that had added close to 1,000
	additional megawatts to the network, nearly doubling the total generative capacity of the utility. The
1	restructuring of the distribution business and a sustained focus on equipment maintenance had
	reduced transmission and distribution losses from close to 40% prior to the takeover to 27.8% in 2013,
1	an 18-year low. While increasing demand meant that rolling blackouts, also known as load shedding, were still a necessity, Gauhar's team had continued its efforts to minimize the economic impact of the
1	pre-scheduled suspensions of service. Industrial zones and key institutional customers such as
1	hospitals were excluded from the load shedding. KESC's program to reward bill-payment
	compliance with more reliable electricity service was showing signs of success: under the program,
	communities that had a bill collection rate of 95% or higher were also protected from the blackouts.
	By 2013, these communities accounted for two-thirds of the overall electricity demand in Karachi. "Today, 54% of Karachi has no load shedding at all," said Gauhar.

21



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