EGYPT’S GAS MARKET DEVELOPMENT

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Chairman, Egyptian Gas Association
Chairman, TAQA Arabia
In 2014, Natural Gas share in Egypt total Energy Consumption: 52.5%
Gas Value Chain in Egypt

Gas Delivery → Gas Grid → Local Distribution

Gas Usages
- Power
- Fertilizers
- Industry
- CNG
- Domestic
Accelerate Existing Gas Development

- Total Investment: $21.8 bn
- Total Production: 3,600 MMSCFD
- Total Condensate Production: 86.7 MBBL/D
East Med.: Major Fields
Gas Transmission Grid, reached 40,000 km in 2016
Total Length is 18000 Km with Capacity of 190 MM meter³/D in June 2012

Upper Egypt P/L 930 km, 1 Billion $
Secure LNG imports to bridge the short/medium term gap.

Clients Benefits:

- Through two FSRUs, one with a capacity of 3 BCMY, the other with capacity of 7 BCMY
- Both are located in Sokhna Port, Red Sea
Egypt’s Natural Gas Consumption Evolution

- Transport
- Residential & Commercial
- Energy Sector
- Industry
- Electricity

BCMY

- 1981
- 1982
- 1983
- 1984
- 1985
- 1986
- 1987
- 1988
- 1989
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
Gas to end users

Residential
- Apartments
- Houses
- Villas

Commercial
- Hospitals
- Schools and Universities
- Offices
- Restaurants
- Bakeries etc.

Industrial
- Factories
  - Medium
    - Chemical
    - Paint
    - Textile
    - Food
  - Heavy
    - Steel
    - Cement
    - Fertilizer

Fuels substitution & conversion

- Water heating
- Space heating
- Cooking
- Steam Generation
- Furnaces
- Manufacturing Process Heat
- Refrigeration
- Gas-fired Air-conditioning

Natural gas will replace:
- **Diesel** for water and central heating
- **LPG** for heating and cooking
- **Fuel oil and diesel** for industrial applications
- **Gasoline** in cars
Ensuring power generation security

Government power generation expansion plans and reserve margin

Generation capacity mix from 2014 to 2022

Source: Ministry of Electricity and Renewable Energy
Gas Midstream & Downstream Market Structure

EGAS

Local Distribution Companies

EPCs

GASCO

Manage, operate and maintain the Egyptian National Gas Grid

Agreement for: Gas Delivery & Metering

20-25Y Concession Agreement to:
Finance, design, execute, operate & maintain Gas Networks

Gov. guarantees 18% IRR for LDCs (+ O&M costs +5Y tax exemption)

Gas Supply Contract

Power Stations
Industrial Factories
Commercial Establishments
Households
Transportation Vehicles
### Gas Distribution – Deregulation Development

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<tbody>
<tr>
<td><strong>Pilot Project</strong></td>
<td><strong>National Project</strong></td>
<td><strong>Deregulation &amp; Expansion</strong></td>
<td></td>
<td></td>
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<tr>
<td>World Bank – EIB Government budget</td>
<td>World Bank – EIB Government budget</td>
<td>Gov.</td>
<td>40% Govt.</td>
<td>60% Customer</td>
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**Operation**

- **Monopoly State Owned Petrogas**
- **Foreign Contractor William Press**

**Construction**

- **Monopoly State Owned Egypt Gas**
- **Gas Contractor**

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The Main National Grid / Trunk line is constructed & Operated by GASCO (on behalf of EGAS)
Everything down stream of the Pressure Reduction Station is within the cost of the LDC connection rate. Payments made “per converted customer”
Gas Distribution – Market Players

LDC

Overseas Gas

Maya Gas

Gas Contractor
Development of the Egyptian Gas Distribution Sector

Natural Gas Residential Customers

- **5.53 million consumers**
- **1.043 million consumers**

<table>
<thead>
<tr>
<th>Period</th>
<th>Thousand Consumers</th>
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<tbody>
<tr>
<td>1981-1985</td>
<td>93</td>
</tr>
<tr>
<td>1986-1990</td>
<td>176</td>
</tr>
<tr>
<td>1991-1995</td>
<td>231</td>
</tr>
<tr>
<td>1996-2000</td>
<td>543</td>
</tr>
<tr>
<td>2001-2010</td>
<td>2,856</td>
</tr>
<tr>
<td>2010-2014</td>
<td>2,519</td>
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- Approx. 3.5 Million customers connected
- Over 1 bn $ of Foreign & Local investment
- 16 Egyptian Governorates covered by Gas networks
- 600 MM $ /Year Saved in subsidies
- Enhanced HSE Standards
- Introducing new technologies
- Attracting the Multi-Nationals
- Social Investment – Jobs/Employment - Environmental
- Provide a better quality of life for Egypt's citizens
Market based Incentives: CNG Smart Card

Egypt’s Natural Gas Vehicles Sector

Egypt’s CNG Consumption in Transport

No. of Vehicles Converted

CNG Fuelling Stations
Conversion centres
Total Converted Vehicles

EGA
TAQA
Gas CNG Mobile
Gas District Cooling

Scope:
• Using absorption chillers / heater units
• BOO District cooling projects
• 250 000 Ton

Clients Benefits:
• Saving of 30-40% of operating cost compared to electricity driven chillers
• Less building Capex & Opex
• Less Power
• Less maintenance & staffing
• Economical operating costs
• No chillers noise & vibration
• Space saving in the buildings

District cooling consists of 3 main parts:
Synthetic Natural Gas (LPG+Air) Distribution Network

SNG = LPG + Air
Gas Regulatory Affairs

April 2016
The Law will:

- Regulate downstream gas activities.
- Introduce Third Party Access principle (TPA).
- Gradually open up the gas market and introduce competition.
- Establish a Gas Regulator to monitor the functioning of the new gas market.
Shippers: (EGPC/EGAS, Shipper A, B, …)

Suppliers: (EGPC/EGAS, Supplier A, B, …)

Transmission System Operator “TSO”

Distribution Network Operators

Consumers
Establishment of Gas Reg (1/2)

Activities

- Issuing of licenses
- Approval of Codes
- Setting Tariff Methodology
- Monitoring Gas Market
- Disputes Settlement

Establishment of GasReg

Characteristics

- Neutral & transparent
- Independent
- Implementing Authority

Gas Regulator Affairs, Consultation Event_27 Jan 2016
TAQA Corporate Overview
TAQA Arabia Group

Facts & Figures

- Approximately **EGP 2.3 bn investments**
- **23 companies** acquired and incorporated
- **3,400 employees**
- Selling **5.4 BCM of distributed gas**
- Supplies gas to around **600K customers**
- **Gas EPC** works for **1 MM customers**
- Manages **gas concessions in 11 Egyptian governorates**
- **580 MW of contracted distribution and generation capacity** in addition to **376 MW distribution O&M capacity**
- **37 Oil & CNG fuel stations**
- Operations and previous experience in **7 MENA region countries**.

Shareholding Structure

**Paid-in capital is EGP 676 MM**

62.5% 37.5%

Regional / Gulf Funds & Co-investors

Gas Distribution  EPC  Power Generation & Distribution  Fuel Marketing
TAQA provide a full spectrum of energy

Concessions, technical operations and maintenance

- 4 City Gas Concessions
- 11 Government
- 5.4 billion m³ of gas annually
- 6 billion m³ expected by 2016
- 600K residential/industrial customers
- To reach up to 1.2 million customers

Construction sector

- Residential/Commercial/Industrial
- Design Division
- Multi-utility
- Full range of construction services
- Engineering, generation and distribution services
- TAQA Power
- TAQA Arabia

Engineering, generation and distribution services

- Global Energy / TAQA Industrial Zones
- Renewable Energy
- TAQA Power
- Contracted capacity
- 1000 MW
- Residential & commercial
- 400 MW
- Touristic
- 250 MW
- Oil and gas
- 50 MW
- Industrial Zones
- Industrial

TAQA Arabia has acquired and incorporated 23 companies, many of which had more than 18 years of market experience.
TAQA Arabia Group’s success hinges on a unique and highly defensive business model with a leading market position in Egypt with significant growth potential regionally...

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**TAQA’s Regional Presence**

- Egypt
- Qatar
- Kurdistan, Iraq
- Sudan*
- Libya*
- UAE*
- Jordan*

**Pursuing Opportunities**

- Mozambique
- Kenya
- Tanzania
- Rwanda
- Zambia
- Uganda
- Ghana

* No current operations but have previous experience

**TAQA’s Regional Gas Projects**

**EPC (NG, LPG & SNG)**

- Reem Island – SNG, Abu Dhabi
- Reem Island – NG Network
- Laguna Dubai
- Yas Island PRMS
- Raceday Hotel
- Al-Reem Conair, Abu Dhabi
- Centro Rotana Hotel
- New Plaster Board
- Porcelain Factory
- Hafilat Bus Factory
- Yas Island Race Track
- Crown Plaza Hotel
- Marina Hotel, Dubai
- Dubai Marina Mall
- Oasis Residence, Dubai
- Al Jaber Tower, Fujairah
- Global Chemical Factory, Abu Dhabi
- Dubai Business Park
- Royal Cassels Suits, Dubai
- Mansoory Steel Factory, Abu Dhabi
- Al-Raha Gardens, Abu Dhabi
- Etihad Towers - SNG, Abu Dhabi
- Royal Miramar Resort, Fujairah
- Park Rotana Hotel, Abu Dhabi
- Rawdet Abu Dhabi
- Najmet Abu Dhabi
- Ferrari World Yas Island, Abu Dhabi
- New Doha Int. Airport - LPG
- LUSAIL sub-developers plots, Doha
- Doha industrial area - NG network
- Green Land Resort, Kurdistan

**Engineering**

- Engineering & Supervision for Arab Gas Pipeline, Tractabel Engineering
- Libya Gas Master Plan Study
- Engineering for 3 gas transmission pipelines in Libya
- Engineering for gas networks to 500,000 customers in Libya
- Gas Distribution Advisory Contract in Turkey
Vision

- To be the preferred regional energy services and solutions provider, and to become the key player in the sustainable development and economical progress of MENA, Gulf and Africa.

Mission

- To provide high quality services and products to meet the growing energy demands of the region through our ethical practices and professional team in a way that would guarantee the highest value for our customers and secure our growth and success and the highest return for our shareholders.
Gas Sector Overview
Damietta 130,000
El-Sharqueyia 144,000
Kafr El-Sheikh 75,000
Fayoum 65,000
El-Menya 86,000
Beni-Suef 85,000
Assiut 114,000
Hurghada 51,000
Ras Ghareb 4,500
Suez 150,000
Beni-Suef 85,000

PRMS 156

Pipelines (meters) 2,950,000

Connected Appliances 1,000,000

Small PRS 382

External Installations Pipelines (meters) 3,852,000

Water Heaters 317,000

Internal Installations Pipelines (meters) 3,855,000

Cookers 650,000
TAQA Gas – O & M Services

- **Operation & Maintenance:**
  - HP Transmission Pipelines
  - MP/LP Distribution Networks
  - Tank System

- **24/7 Emergency**

- **Customers Invoices & Billing System**

- **Customer Service**

- **Gas Marketing**

- **Technical Assistance for Industry and touristic developments**
TAQA Gas - Natural Gas Commercial Applications

Offered Applications:
- Central Heating
- Pool water Heating
- Steam Generation for Laundry
- Conventional water Heaters & Cookers

TAQA executed boilers & water heaters works for more than 1,500 customers, including residential, commercial & touristic developments.
- Four Seasons Hotel – Cairo
- Radisson SAS Taba Hotel
- Modern English school
- New AUC
- Katameya Heights Resort
- Mirage City Resort
- Arabella Resort
- Beverly Hills Resort
- Al Nada Resort
- Al Karma Resort
- October Hills Resort
- Dream Land Resort
TAQA Gas – QHSE

TAQA adopts a people, process and system approach to quality management. Our Quality Management and Occupational Health and Safety Management Systems have been independently audited. TAQA construction and Gas activities are an ISO 9001, 14001 & OHSAS 18001 certified companies.
THANK YOU