TAQA Arabia

TAQA Potential Energy Projects

June 2011

INTERNATIONAL TRADE ADMINISTRATION

American Chamber of Commerce in Egypt

A World OF ENERGY

Newsday
Mubarak out
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What's next
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The New York Times
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EGYPT IS HEARD
Mubarak heeds demand that he go
18-day revolution ends a 30-year reign and shakes the Arab wo
Star Tribune
Mubarak steps down: His career, the uprising that ended it A9
Cheers and chants: Egyptians and the world celebrate D3
Why we should care: Revolution embodies American values A7
A NEW START FOR EGYPT
Revolution reverberates through Mideast
SENATE PASSES A TAX BREAK FOR MEGA DATA CENTERS
NEW EGYPT ARIS
Military takes power as President Mubarak quits 30-year
U.S. faces challenges to retain strong ally, promote democracy.
In Arab world, see hope for ch leaders try to app
THE TIMES
CHILDREN GET TASTE OF COLLEGE LIFE
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HOPE FOR A NEW EGYPT
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World waits for Egypt's next steps
The Detroit News
Recent cases shooting intru if a life is in dan
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Worker injured in shooting at Highland bar
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Start Earning Tickets Now
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Exultation in Egypt, and a question: What's next?
In a stunning turnabout, Mubarak abruptly resigns and leaves Cairo
Military commanders take control, promising to meet protesters' demands
Local outpouring of joy over 'gentle revolution'
In the news
Romney upbraids Obama, but avoids hot-button health care
Snow days put school break at risk
Gov gives Reno work green light
State ed board asks for waiver
Contender touts drive, experience
the memo, quits
Cairo erupt
Mubarak res
DON'T LET THE WEATHER GET YOU DOWN... WIN A SANDALS CARIBBEAN VACATION PAGE 12

HARMONY JUSTICE RESPECT

PERSECUTE DISHONEST CORRUPT
INSIDIOUS IMMORAL HEARTLESS
VILE FRADULENT INSENSITIVE ABUSIVE
MUDEROUS UNETHICAL BRUTAL
BIGOTRY POWER SHADY BULLY
BARBARIC DESPICABLE OVERWHELMING
IMPOSING
DICTATORSHIP VIOLATE
EVIL CENSORSHIP
INTIMIDATE OPPRESSION
SINISTER RUTHLESS SUBJUGATE
TYRANNICAL ATTACK
POLICE BRUTALITY INHUMANE
TORTURE TORMENT MASSACRE
EXILE AGGRESSIVE WICKED
MERCILESS STIFILING MENACING
MISTREATMENT ATROCIOUS

TAHRIR

TRANQUILITY
LOVE
EQUALITY
COMPASSION
MORALITY
PEACE

LIBERATION FREEDOM UNITY

THINK OUTSIDE THE BOX.

Corporate Overview

TAQA Arabia Group

Overview

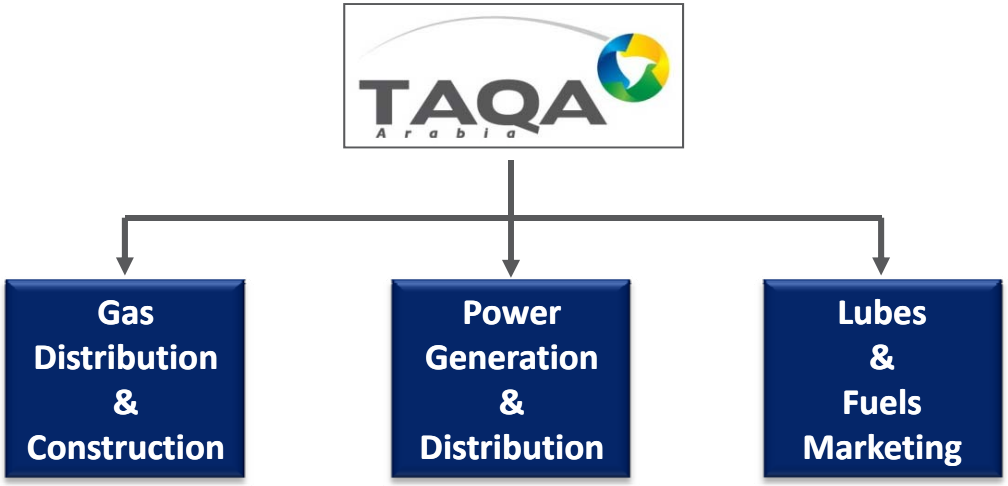
- TAQA Arabia was established in March 2006 as an Egyptian shareholding company and has since grown to become Egypt's leading integrated energy solutions provider group, with a strong regional presence.
- TAQA Arabia is specialized in:

  i) downstream gas distribution,

  ii) power generation and distribution as well as

  iii) oil products marketing.
- Since its inception TAQA Arabia has been pursuing an aggressive consolidation and organic growth strategy allowing it to grow its balance sheet and its net income steadily since 2006.
- TAQA Arabia's current paid in capital is 676 M EGP.

Corporate Structure



TAQA Arabia Overview

Fact Sheet

TAQA Arabia Group's success hinges on a unique and highly defensive business model that commands a leading market position and offers significant growth potential locally and regionally

- Approximately EGP 1 billion in investments
- 23 companies established and incorporated
- 3,400 employees
- Selling 4.7 BCM of distributed gas
- Supplies natural gas to more than 288,653 customers
- Manages gas concessions in 11 Egyptian governorates
- More than 850 MW contracted & installed capacity for generation & distribution
- 21 Oil & CNG fuel stations
- Operations in 6 countries in the MENA region

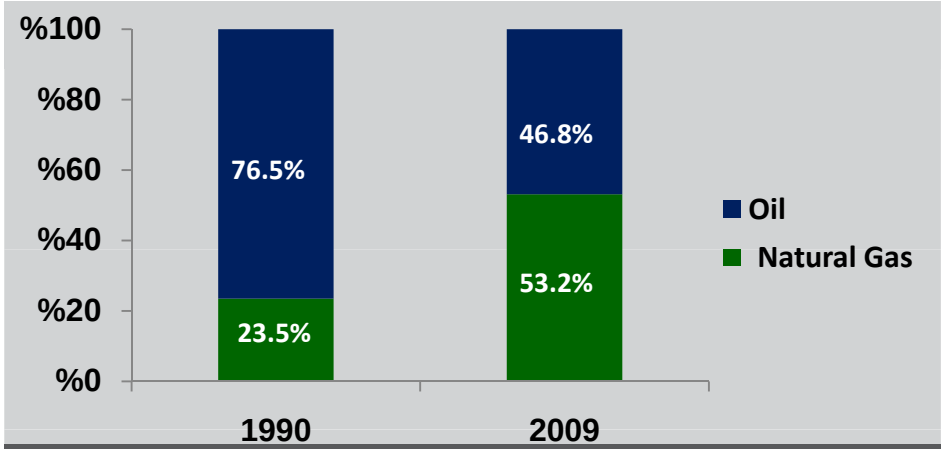
Current Footprint

Building on its success and its leading market position in Egypt, TAQA embarked on a regional expansion strategy with operations currently covering 6 countries in the MENA region: Egypt, Qatar, UAE, Libya, Sudan & Yemen

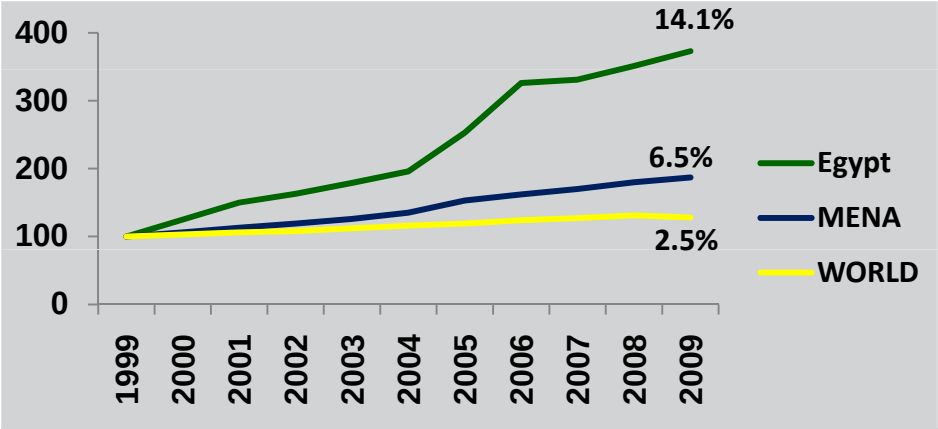
Gas Arm

Gas Sector

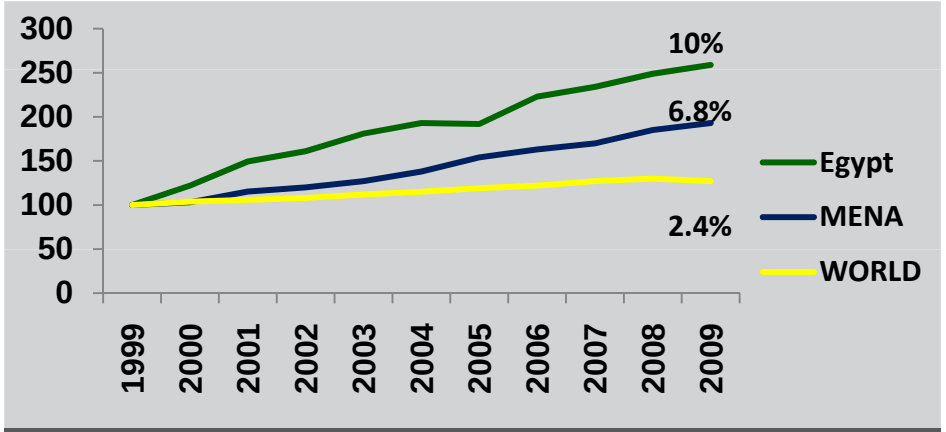
- With depleting oil reserves and low natural coal resources, the government is driving to substitute refined oil production with natural gas
- Over the past two decades, Egypt experienced a structural shift from oil to natural gas
- Egypt's natural gas production & consumption growth rates are the highest compared to the region and the world growth rates



Egypt Primary Energy



NG Production-CAGR

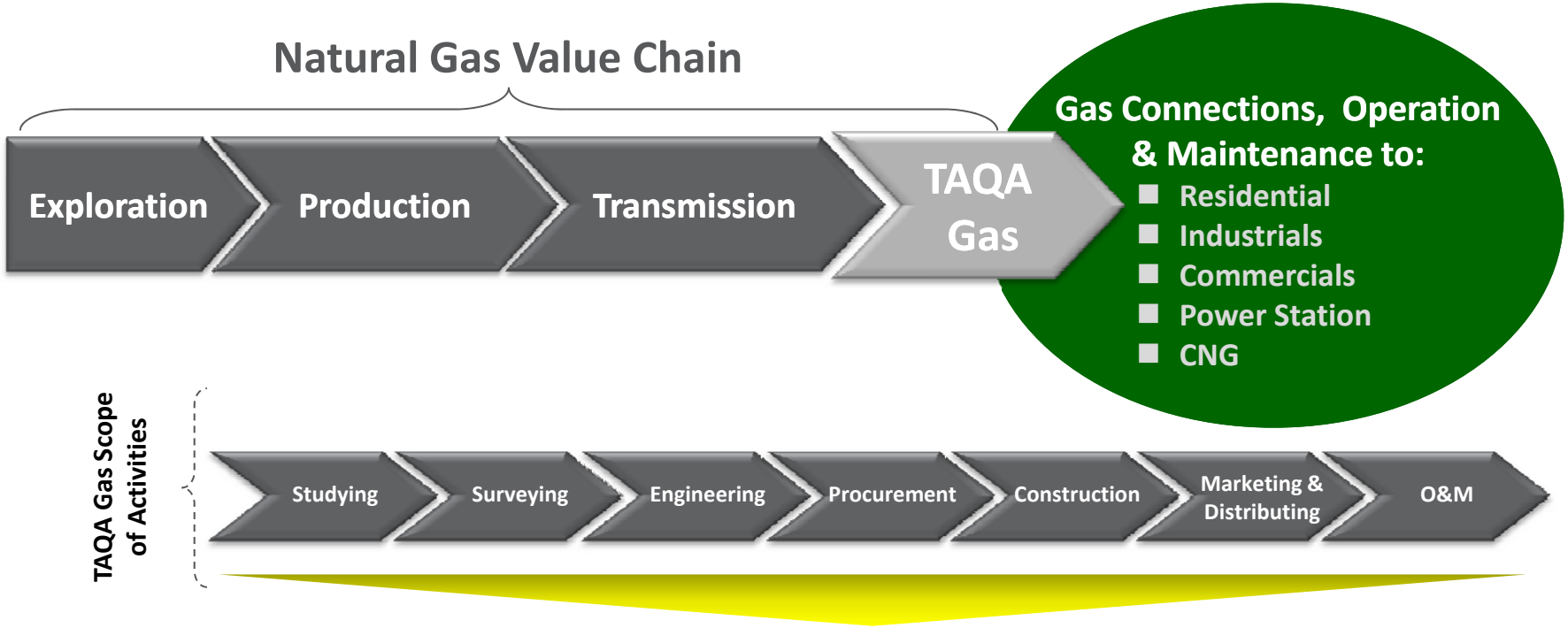


NG Consumption-CAGR

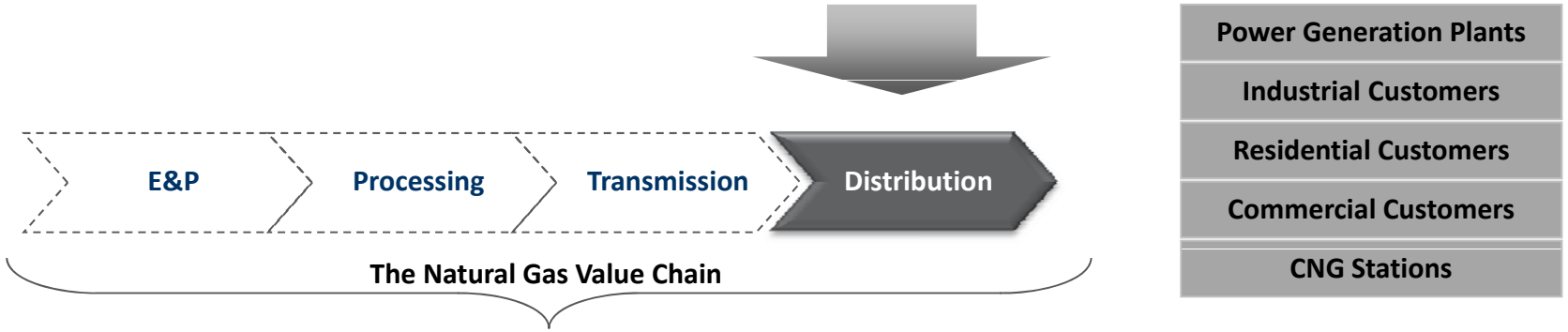
- LPG is one of the heavily subsidized oil products, with a budgeted subsidy in 2010/2011 of LE 13.2 billion, further pressuring the government to promote natural gas consumption.
- The government's plan is to convert 3.2 million customers in the coming five years, bringing the total up to 6 million customers

Operations Overview

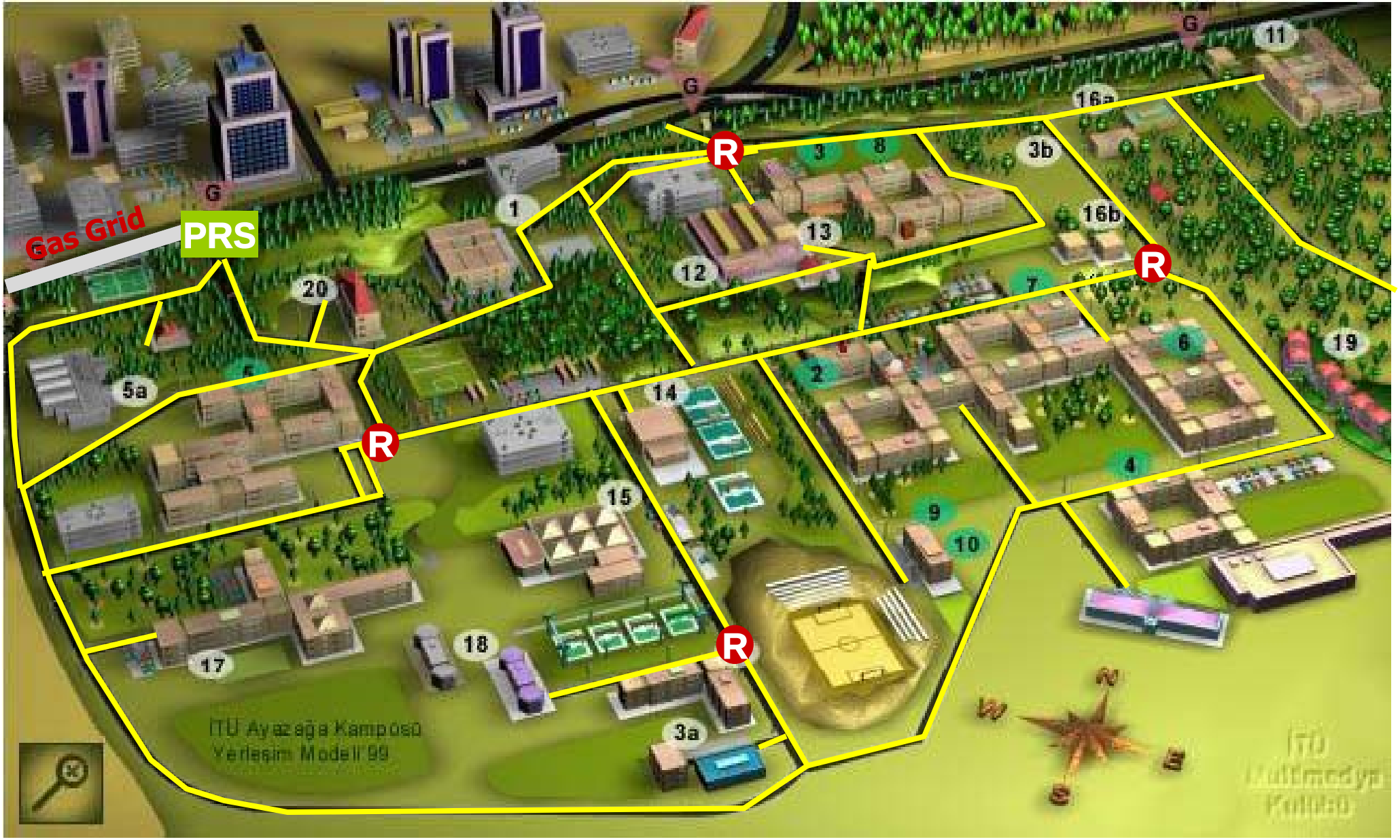
A Leading Regional Player in the Downstream Gas Value Chain



Egypt's Leading Private Sector, Fully Integrated Downstream Gas Platform with a Fast Growing Regional Presence



Natural Gas Distribution Network



TAQA Arabia Natural Gas Distribution Concessions

- TAQA Arabia owns **4 concession** licenses for natural gas distribution covering **11 Egyptian Governorates**: Suez, Red sea (City Gas), Damietta (Repco Gas), Kafr El-Sheikh (TransGas), & Upper Egypt from Beni-Suef up to Asswan & Toshkey (Nile Valley Gas).
- All concessions were established with the objective of acting as a developer and operator of natural gas.
- The four concessions currently distribute approximately **4.77** billion cubic meter per year (BCM/Y).
- **Currently operating and providing maintenance to:**
  - 288,653 Residential
  - 94 Industrial
  - 7 CNGs
- **Signed with EGAS:**
  - +333,500 Residential
  - +62 Industrials

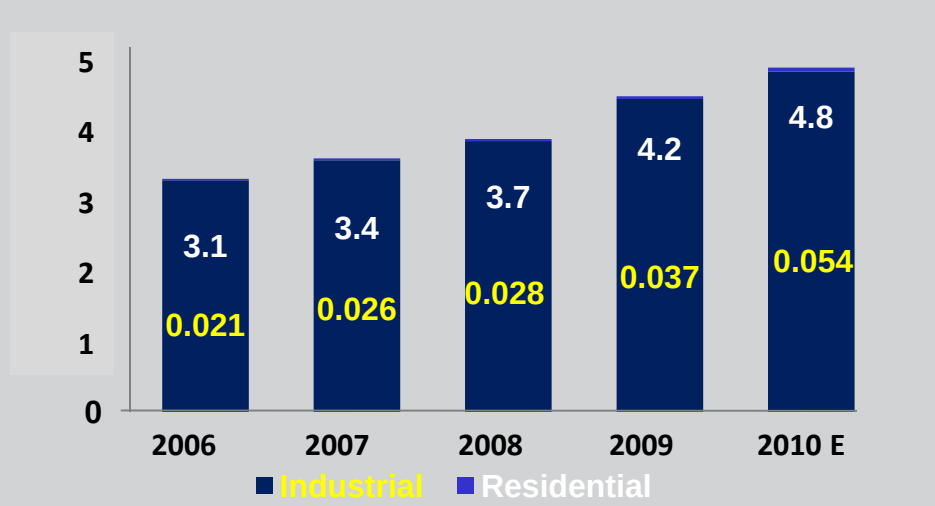
EPC – An Overview

- EPC comprises of the construction division, group procurement, plus engineering & design.
- Together these play a key role in the group's business model and sustainable competitive positioning strategy.
- The gas construction company (House Gas) was the first private sector company to operate in the contracting segment of the natural gas industry in Egypt.
- The group's construction arm also serves as a sub-contractor providing skilled resources for the group's Qatari and Abu Dhabi operations.
- The construction arm's main clients are the LDCs including the four TAQA concessions as well as the third party LDCs, additionally, The Engineering "Construction Division" also plays a large role in the external/internal connection of industrial zones, industrial units, resorts and hotels etc.

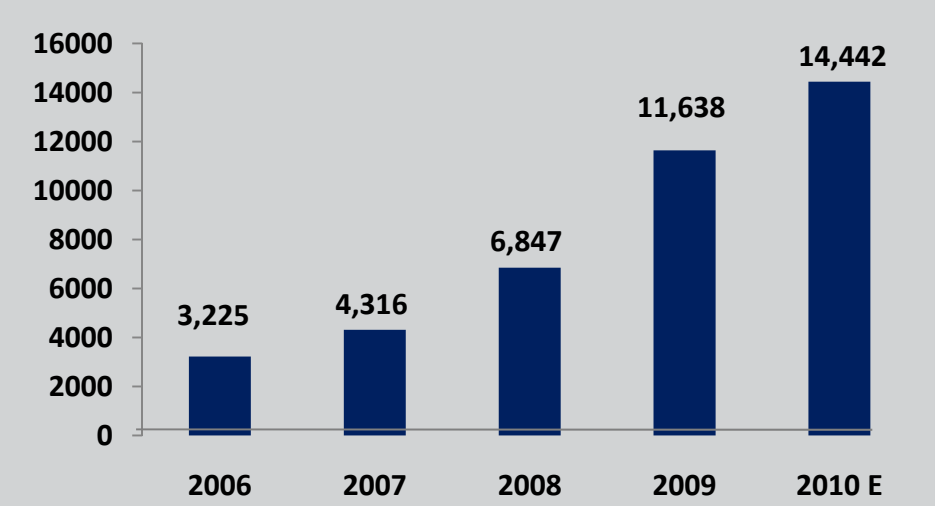
Scope of Activities

- The EPC division undertakes all engineering design, procurement & construction works from the point of connection with the national grid to final connection/conversion at the end user point.
- Design build and supervision of:
- High pressure transmission pipelines
- Medium pressure pipelines
- Low pressure polyethylene distribution networks
- External & internal residential, commercial and industrial installations.
- Conversion of residential and industrial appliances
- EPC contracts for Pressure Reduction Station installations
- Civil and maintenance works
- Electro-mechanical works (PRS erection, regulators assembling, fuel steel tanks, CNG stations, fire fighting systems)

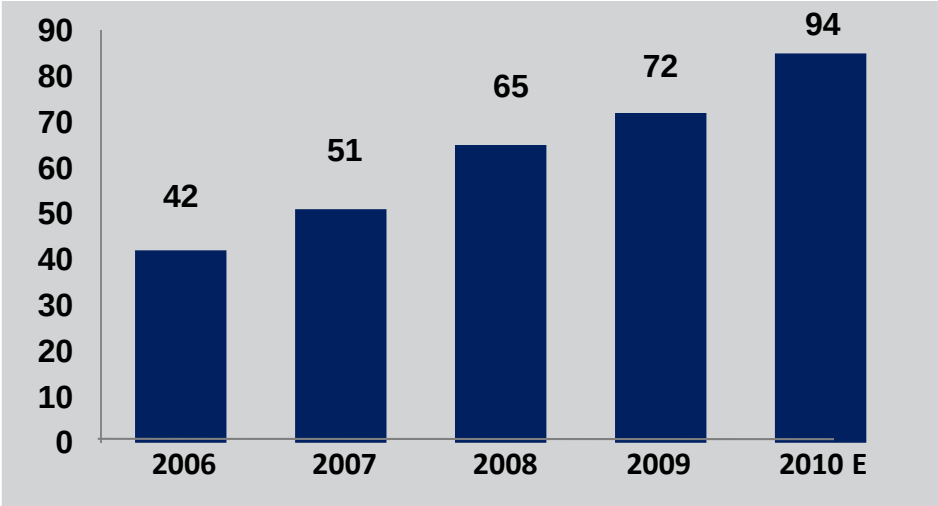
Gas Business Historical Growth



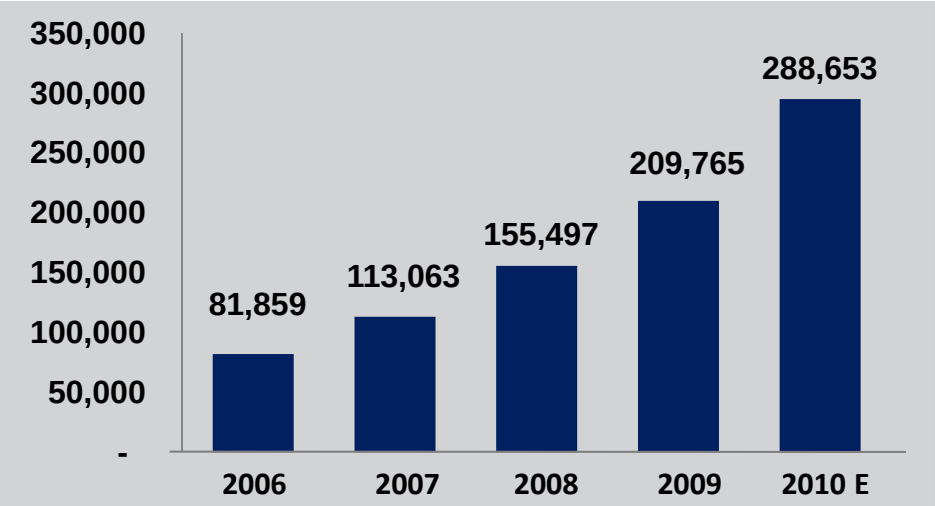
Gas Volume (BCM)



No. of Converted Cars to CNG

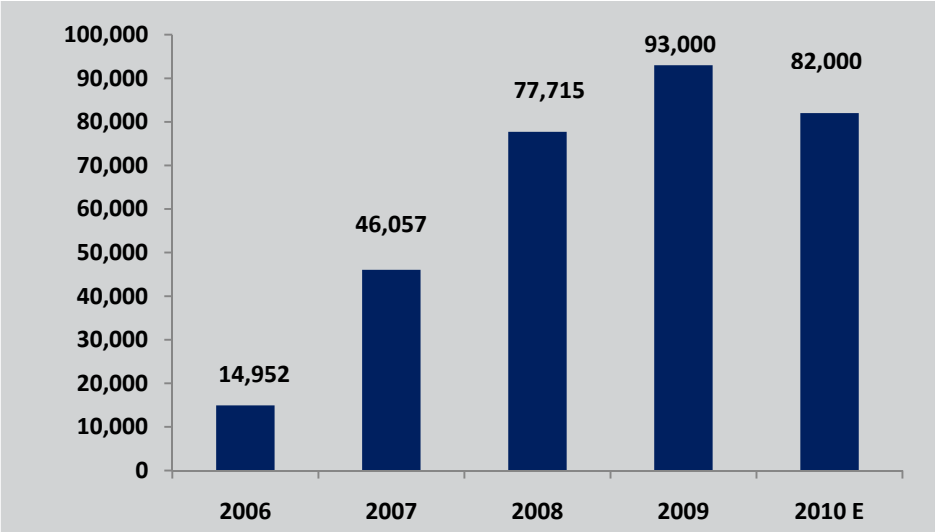


No. of Industrial Clients

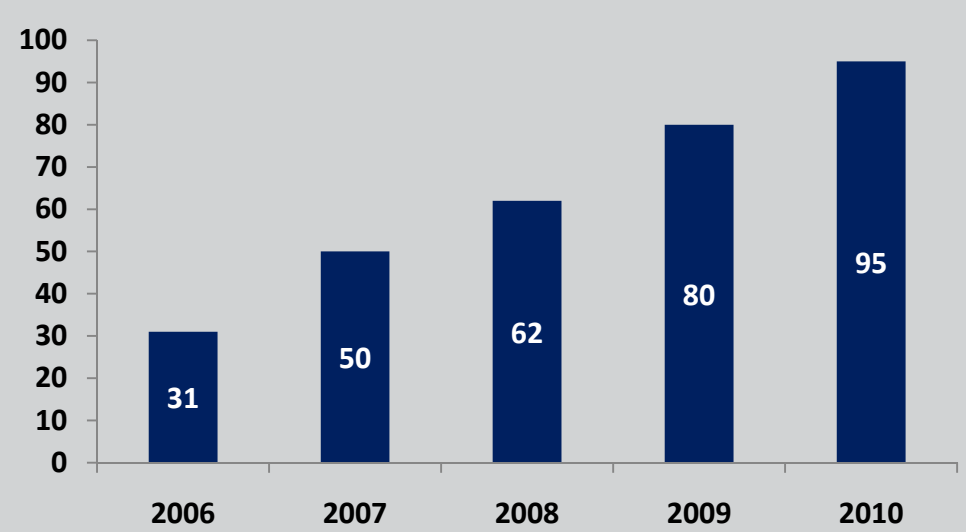


No. of Residential Customers

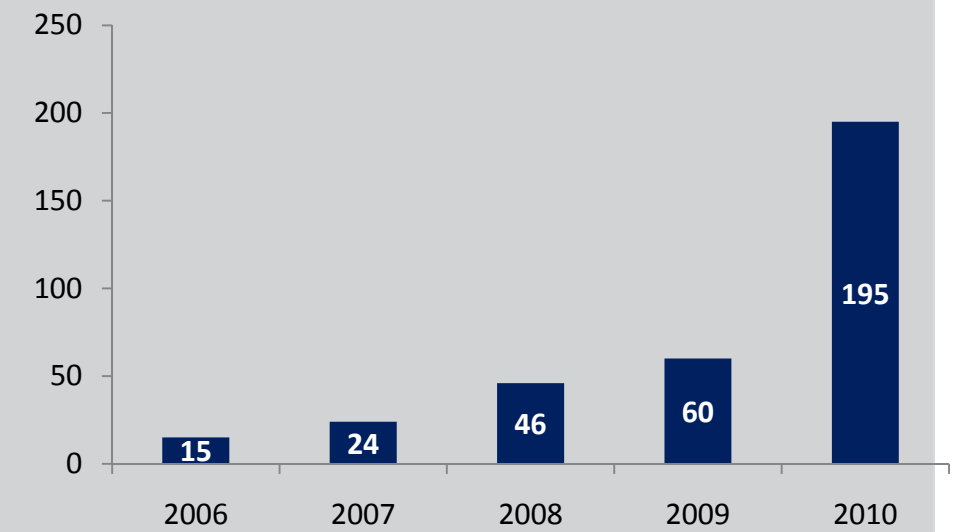
EPC Business Historical Growth



Number of converted residential customers



Number of converted industrial customers



Pressure Reduction Station / DRS Fabrication

Gulf EPC Track Record

EPC (NG, LPG & SNG)

- Reem Island SNG Station
- Reem Island NG Network
- Laguna Dubai
- Yas Island PRMS
- Raceday Hotel
- Al Reem Conair B1,B2,B3
- Centro Rotana Hotel
- New Plaster Board
- Porcelain Factory
- Hafilat Bus Factory
- Yas Island Race Track
- Croen Plaza Hotel
- Marina Hotel
- Dubai Marina Mall
- Oasis Residence Dubai
- Al Jaber Tower - Fujairah
- Global Chemical Factory
- Dubai Business Park
- Royal Cassels Suits Dubai
- Mansoory Steel Factory
- Al Raha Garden Phase 2 & 3
- Etihad Towers
- Royal Miramar Resort Fujairah
- Park Rotana Hotel
- Rawdet Abu Dhabi
- Najmet Abu Dhabi
- Ferrari World Yas Island
- NDIA (New Doha International Airport)
- LUSAIL CP 2
- Development of small & medium scale industrial area in Doha (NG network)

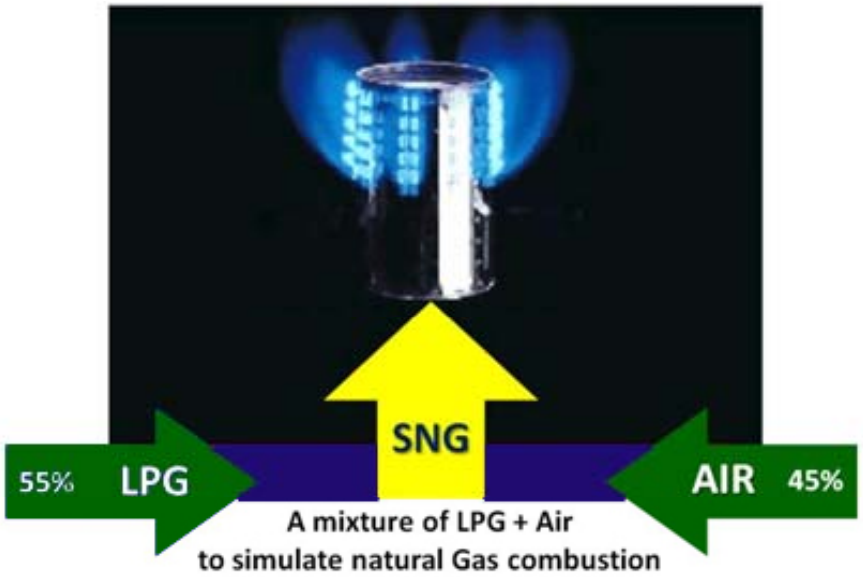
Engineering

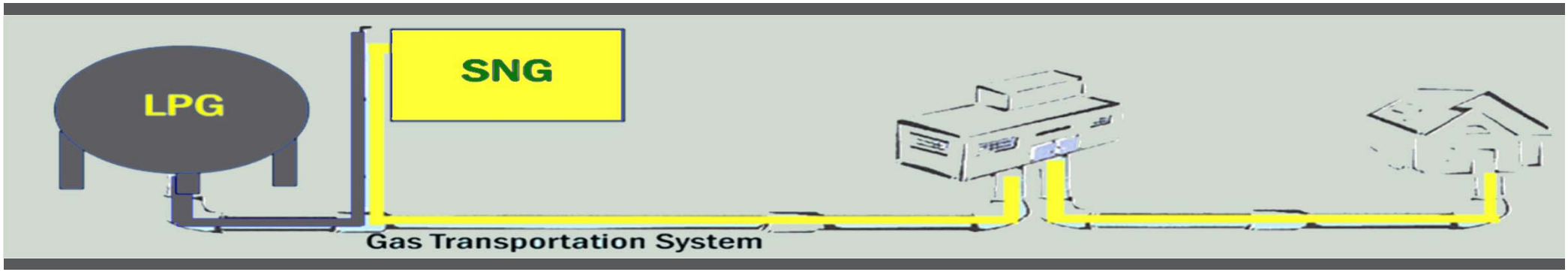
- Engineering & supervision for the Arab Gas Pipeline from the Syrian & Jordanian governments, through its alliance with Tractabel Engineering;
- Libya Gas Master Plan Study
- Engineering Contract for 3 gas transmission pipelines & gas distribution to 500,000 customers in Libya;
- 15 industrial & residential projects in Qatar;
- 7 industrial & residential projects in Libya.
- Gas Distribution Advisory Contract in Turkey

Regional Innovation: SNG in the MENA & Gulf countries

SNG as "Bridge Fuel" to precede NG

- Distributed NG is new to the UAE. New construction utilizes NG appliances and conveniences.
- In anticipation of NG, SNG will be used as a bridge fuel.



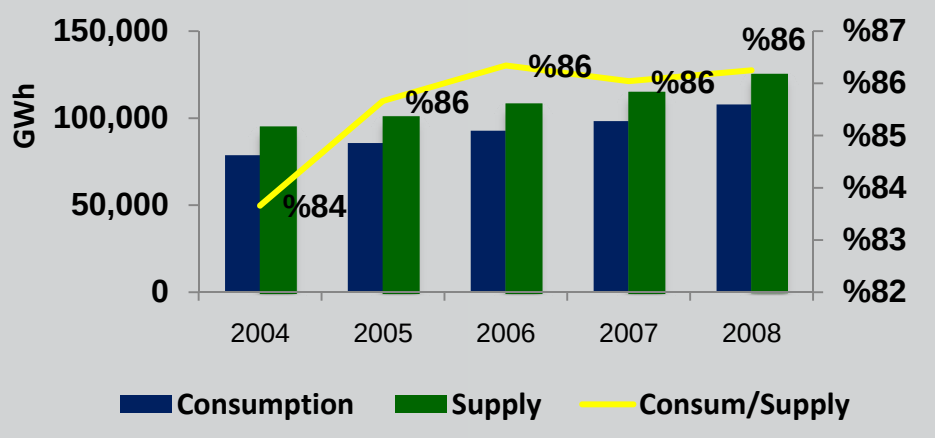


Power Arm

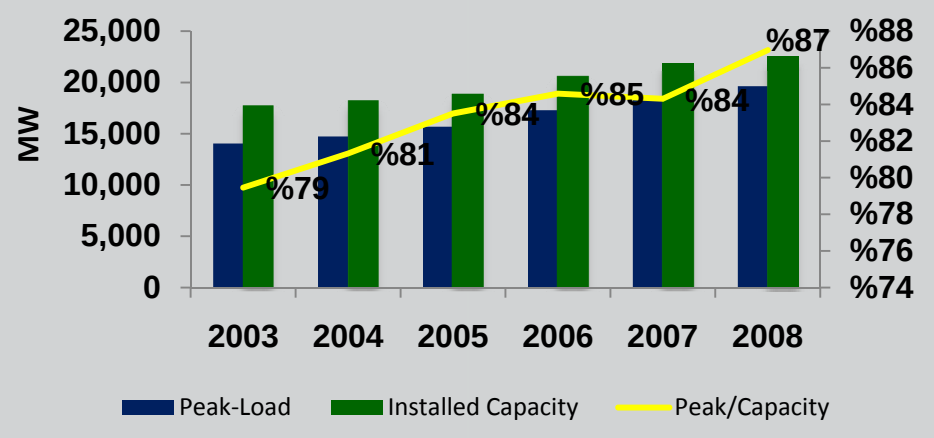
A World OF ENERGY

Power Sector

- Significant increase in power demand from strong economic development, population growth and real estate development.
  - significant pressure on the country's infrastructure
  - Recent countrywide outages have highlighted the problem



Fast growing electricity demand….



… served by an underdeveloped Infrastructure

- The government has been trying to shift most of the new industrial and mega real estate projects to seek their own power supply given that already strained national network is consistently being outpaced by growing demand;

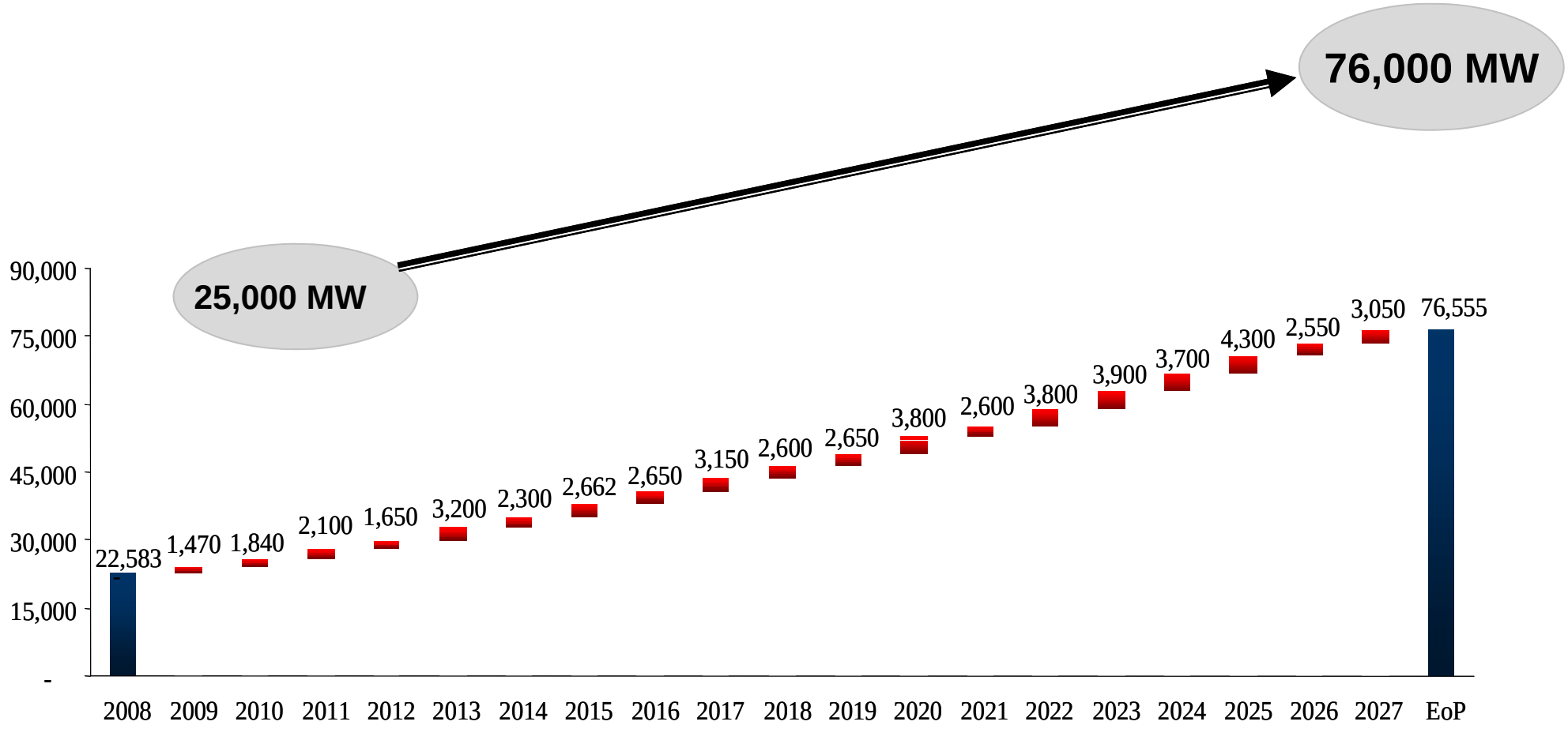
- The electricity market currently has a 2GW deficit and has a forecast deficit of 10-11GW by 2013 leading to a government initiative to liberalize the market and increase capacity

Generation Capacity (GW)

Egyptian Electricity Market: Setting the Scene

Egypt's Capacity Expansion Plan (MW)

2010 - 2027



Recent Developments in Egypt's Electricity Industry

Liberalization of Prices

- Most of the government subsidy bill was consumed in subsidizing the upstream industries
- As such, the government started to increase electricity prices paid by industrial players, and divided them into 2 brackets, the high electricity consuming industries, and other industries

New Electricity Law

- A new electricity law has been developed and is currently under approval to create a competitive electricity market where electricity activities are fully unbundled
- The law entails the following:
  - Eligible consumers have the right to undertake direct bilateral contracts with generation companies
  - Establishment of Transmission System Operator ("TSO"), to fulfill the above mentioned bilateral contracts
  - Ensuring third party access ("TPA")
  - Supporting energy efficiency and demand side management
  - Supporting renewable energies, cogeneration and power generated form secondary resources

Developments in Renewable Energy

- Egypt's plan is that by the year 2020, renewable energy should satisfy 20% of the generated electricity (7,200 MW)
- The Ministry of Electricity issued a prequalification of 250 MW BOO wind farm.

Interconnect Project – Export Potential

- Egypt exports and imports electricity through the following interconnection grids:
  - Arab Electrical Interconnection, which currently connects Egypt, Jordan, Syria, Lebanon, and going forward is expected to connect Europe through Turkey
  - African Electrical Interconnection, which currently connects Libya and going forward is expected to connect Tunisia, Algeria, Morocco and Europe, through Spain
  - Gulf Electrical Interconnection, which is expected to be connected through Saudi Arabia

TAQA Power Sector: Activities & Licenses

License to generate & distribute electricity

License to endorse engineering & electrical designs

Generation

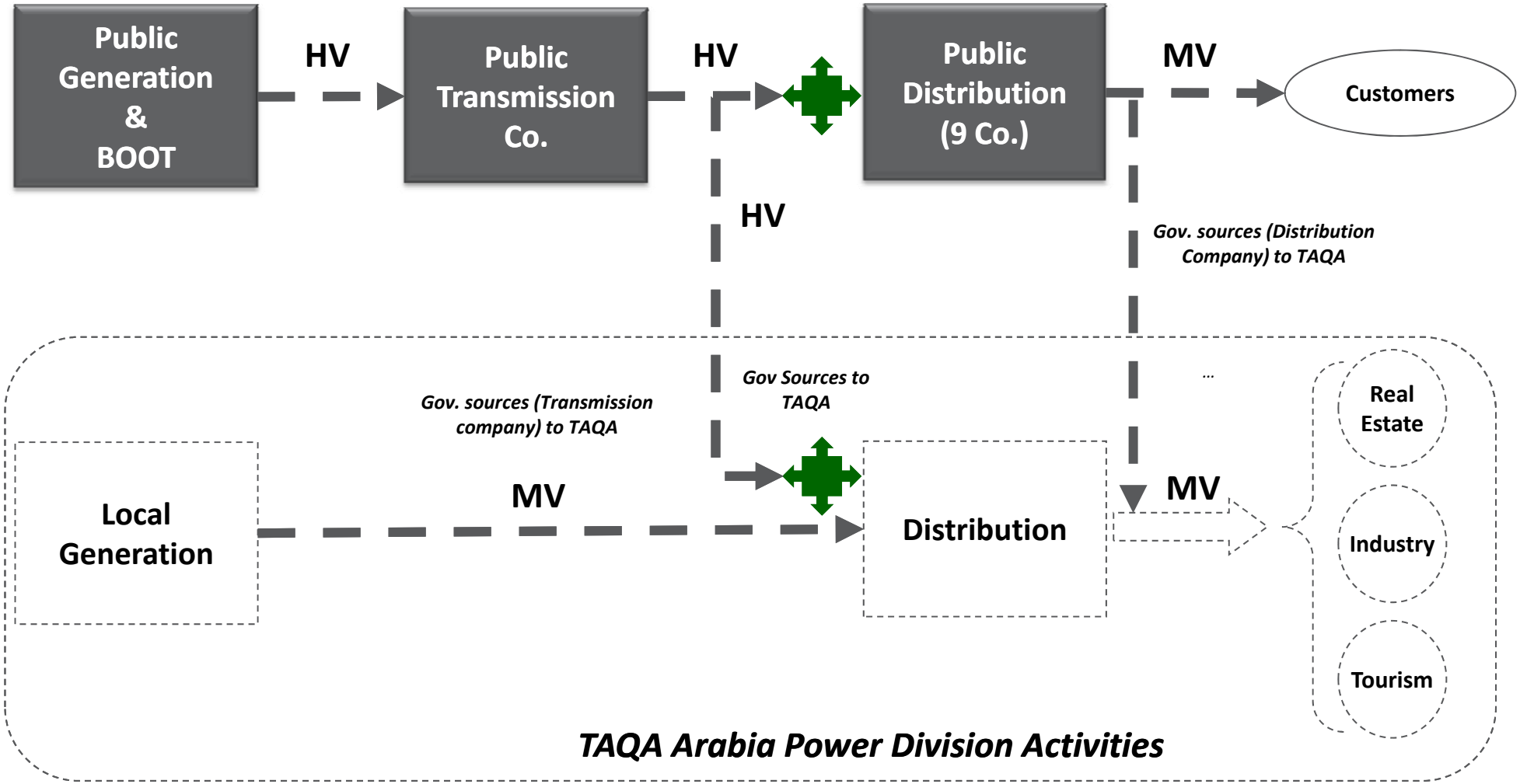
- Engineering
- Procurement
- Small Generation 1- 40 MW
- Large Generation 750 MW (under study)
- Feasibility for Wind energy

Distribution

- Operating Sub-stations
- Supply control
- Marketing
- Emergency 24/7
- Metering & Billing
- Maintenance
- Customer Services

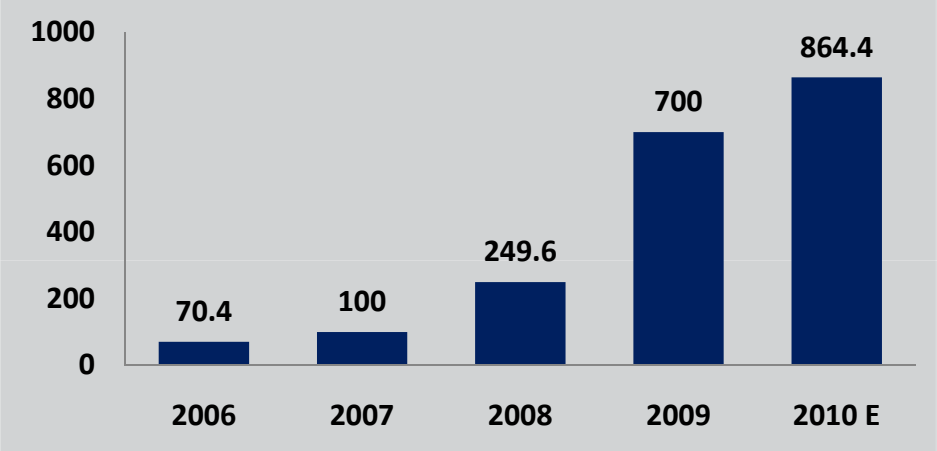
Egyptian Power Sector

Scope of TAQA's Activities in the Power Value Chain

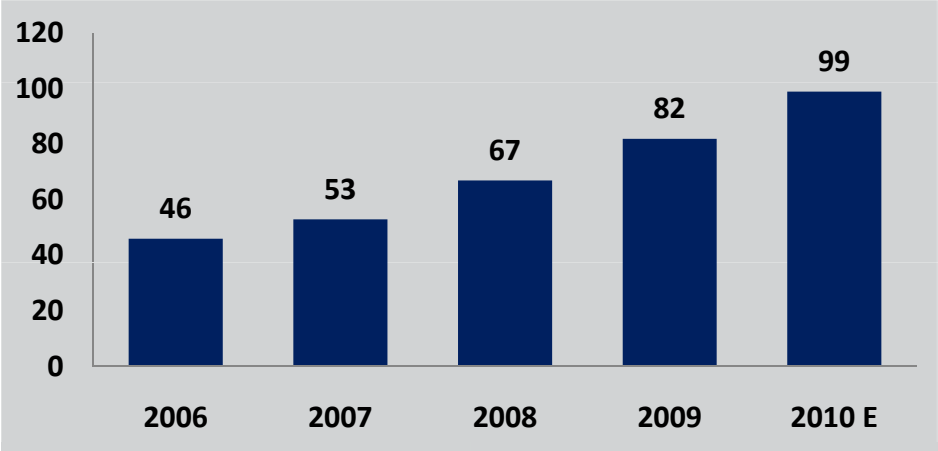


Substation

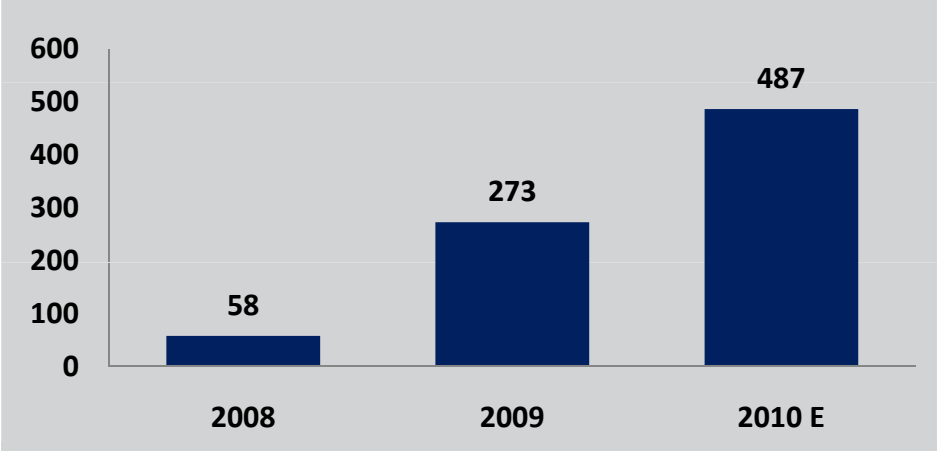
Power Business Historical Growth



Contracted & Installed Capacity (MW)



No. of Industrial & Touristic sectors clients (unit)



No. of Residential sector clients (unit)

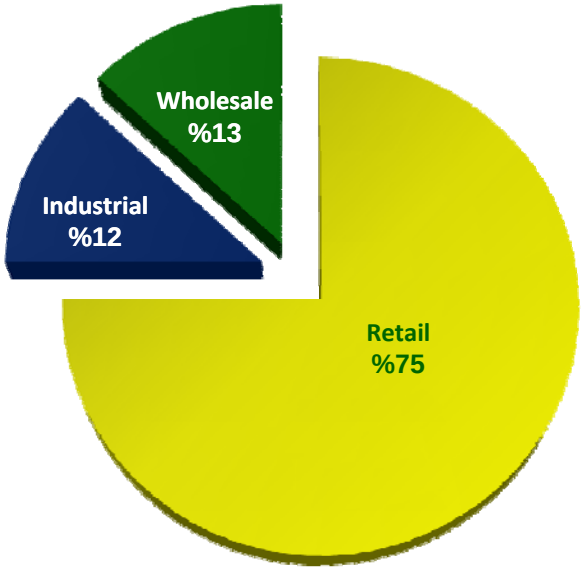
"The Rising Star" Unlimited Growth Potential

Oil Marketing Arm

Oil Products Marketing Sector

Fuels & Lubes Market

- Total demand 107Mbbl, being directed to the different channels as follows :
- The market is served by 12 marketing companies, seven of which are multinationals, 4 state owned and 1 private sector company (TAQA Marketing)
- The market is underserved, and it has only 2550 retail stations, translating to a high throughput per station
- State owned companies are currently refraining from further investing in this sector, due to their significantly high fixed costs
- The lubes market is deregulated with total demand of 450 K tons , out of which 320 K tons are consumed by Automotive and 130 K tons are directed towards industrial users



- Oil products market is currently tightly regulated as most of petroleum subsidies are directed to this sector, 2010/11 budgeted subsidy for gasoline and diesel is 42 bn EGP

Market Outlook

- This sector is expected to witness considerable growth rates, due to the large growth in the number of passenger vehicles, together with the expansion of urbanized areas in Egypt
- The government is expected to gradually liberalize the market , due to the hefty subsidies and the growing gap between local refineries supply and market demand.

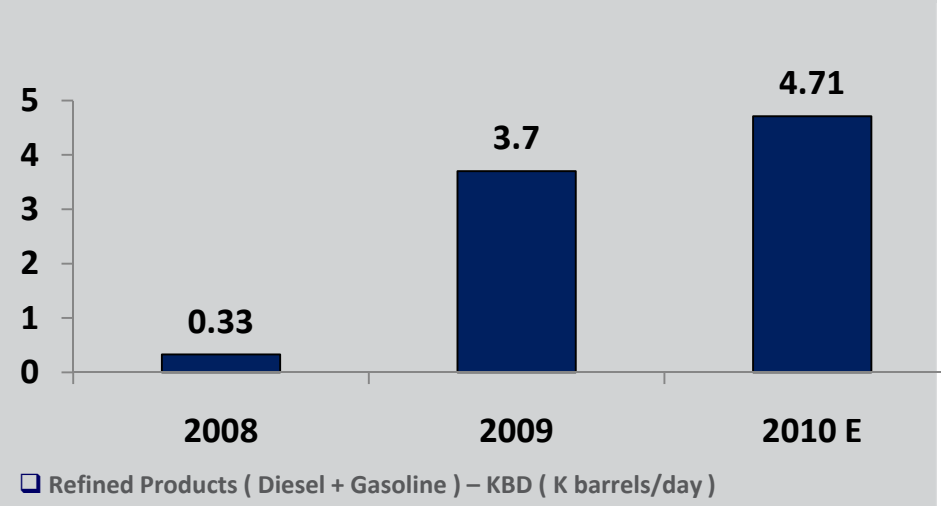
Margins are expected to experience a considerable boost

Industry / Market Overview: Market Share

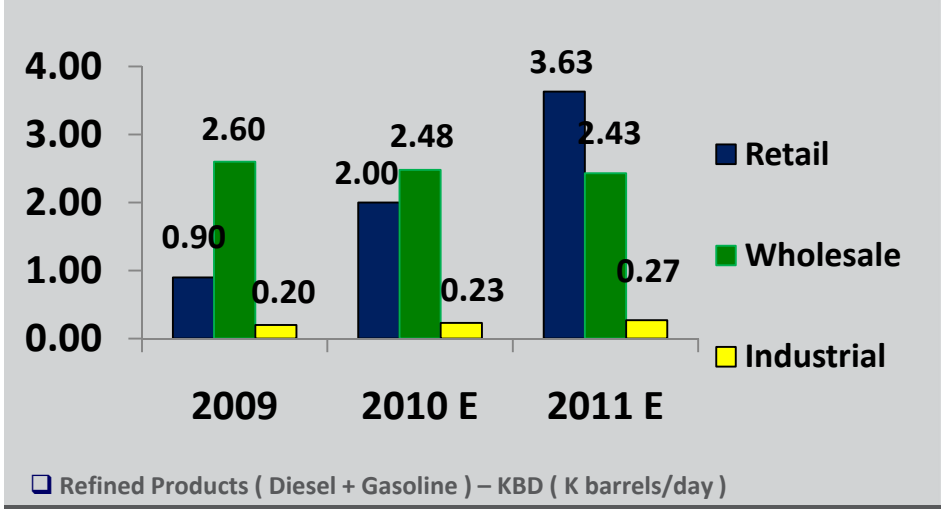
Marketing CO.s	Retail Sites #	Total Fuels %	Lubes %
Misr	850	29.2	20.0
COOP	921	23.3	22.6
Exxonmobil	392	21.4	31.0
Chevron	72	5.6	6.0
Shell	82	5.2	8.0
Total	77	4.2	5.0
Tamoil	60	3.0	3.0
Wataneya	35	3.5	0.5
TAQA	14	1.6	0.3
Emirates	8	2.0	1.1
others	39	1.0	2.5
12	**2550**	**100**	**100**

Fuels Marketing Business Historical Growth

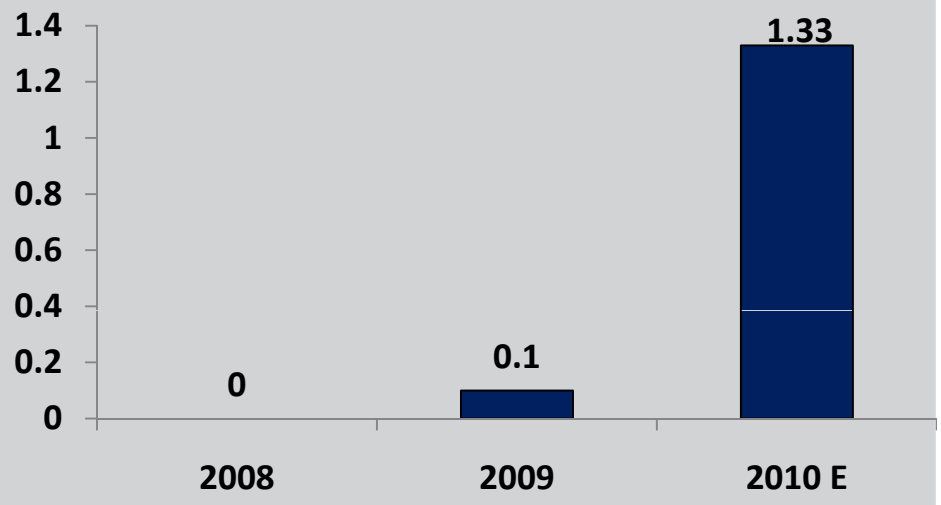
Focus on Retail sales growth as it's the most secured channel



Refined Products Sales Growth



Refined Products Sales / Trade Channel

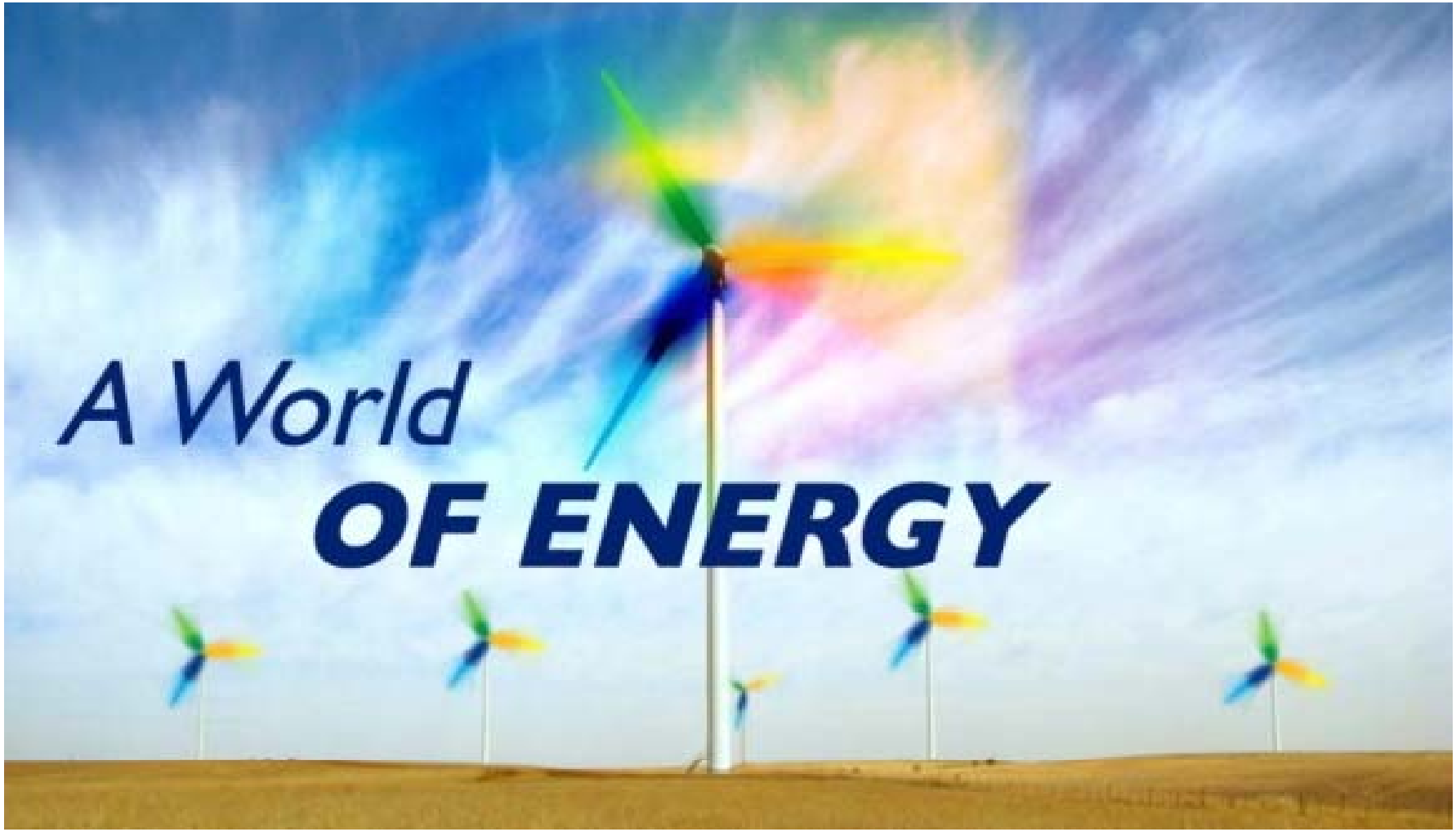


Castrol Lubricants Sales Growth (K Tones)

Stations' Sample: Menia El Kamh Station, Lower Egypt, 6/3/2009

Exclusive Oil Shop Sample: Belbeis, Lower Egypt

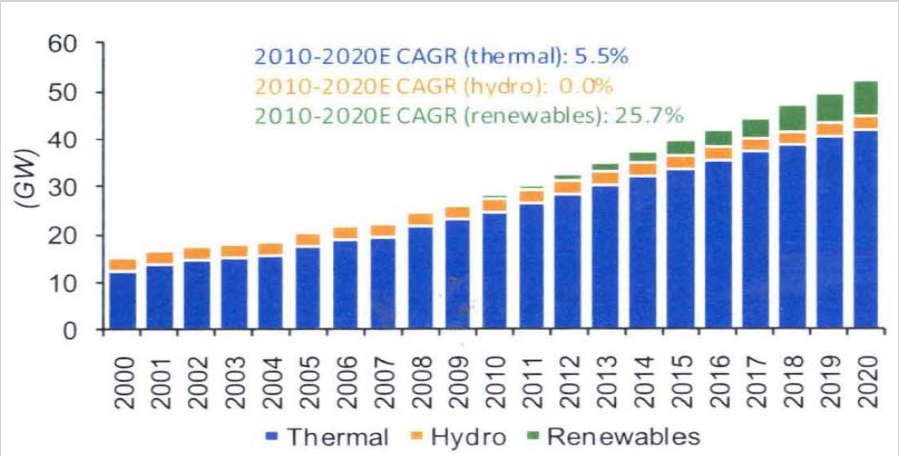
Renewable Energy Sector



Attractive upside potential from renewable energies

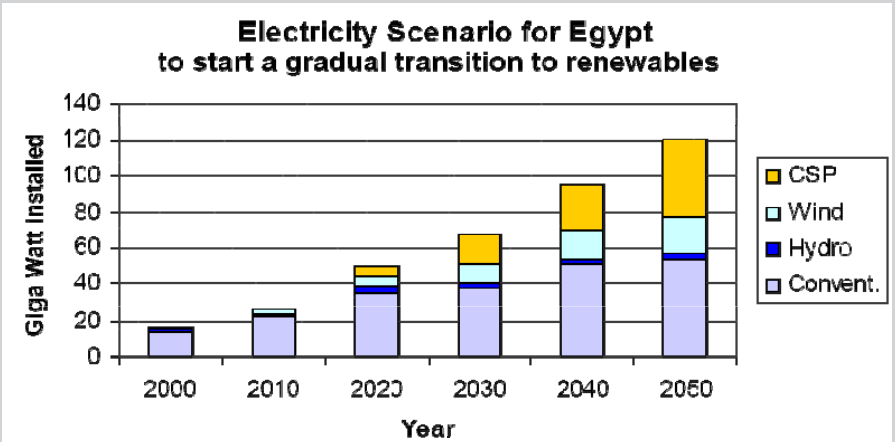
Current status of renewable generation in Egypt

- New and Renewable Energy Authority (NREA) created in 1986 to promote electricity generation from renewable energies, in particular from wind, solar and biomass
- In 2008, a newly implemented Energy Council adopted a plan to increase the share of renewable generation to 20% by 2020
- Up to 4,000 hours of sun per year provide excellent environment for solar generation
- Government intends to use World Bank, African Development Bank and other agencies funds
- Private sector is targeted to own over 60% of shares in development



❑Egyptian Ministry of Electricity & Energy

RE Growing importance in the Egyptian energy mix



❑Egyptian Energy High Council

Egypt Scenario for Transition to Renewable

Renewable Energy Development

TAQA Arabia has been actively pursuing renewable energy opportunities for the past few years and has taken all necessary steps to grow a substantial renewable generation capacity

Wind

- Establishing Joint Cooperation Agreement with International groups (such as GE)
- Participate in Wind IPP
- Develop 50 – 100 MW Wind farm in Egypt
- Evaluate other Markets for Wind Energy

Solar

- Evaluating Solar Power applications at large
- USTDA $600,000 to conduct a bankable feasibility study for TAQA 250 MW Concentrated Solar Power plant.

Waste to Energy

- Feasibility Study is prepared to generate power from 350 ton/year agricultural waste
- Equipment and Technology were adopted from Toshiba and Mitsui proposal.

TransGreen (MedGrid)

- TAQA signed TransGreen Industrial Partnership with other 12 European leading companies, in order to study the realization of Mediterenean Mega Grid, transmitting clean renewable energy to Europe from North Africa

USTDA Grant Brief

- TAQA signed on May 26, 2010 a grant agreement with the United States Trade and Development Agency (USTDA) for the provision of a $603,790 to complete a feasibility study regarding phase one (250MW) of concentrated solar power plant using the Molten Salt Storage technology.
- CH2MHill was the winner consultant, final contract negotiation is in progress.

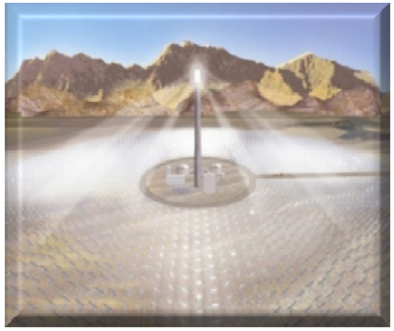
Feasibility Study main objectives are:

- To determine what tariff level is needed for a CSP Tower System with Molten Salt Storage plant to operate as a commercially viable investment in Egypt.
- To evaluate the commercial and technical viability of the proposed CSP plant to be established in Upper Egypt.
- To assess the environmental impact of the project and the socio-economic and development implications on the Egyptian society.
- To perform the localization on exercise through local production of commoditized components (e.g. heliostats, concrete, steel, piping, cabling) and through local labor costs.

TAQA CSP Project Brief

Utility scale electricity generation with zero fossil fuel use & zero green house gas emissions

➡ **Technology**	Molten Salt Solar Tower System
➡ **Plant**	2 Solar Towers 250 MW *(Phase I)*
	(Installed Capacity: 2 x 125 MW)
➡ **Land**	12.5 km2
➡ **Feasibility study**	Funding by USTDA, USA
➡ **Investment**	2.2 - 1.4 billion US$
➡ **TAQA (Consortium) Ownership**	51%



Phase I:
1 Plant

2Towers
250 MW
3,089 Acres (12.5 Km²)
2,500 GWh/y
2.2 - 1.2 billion US$

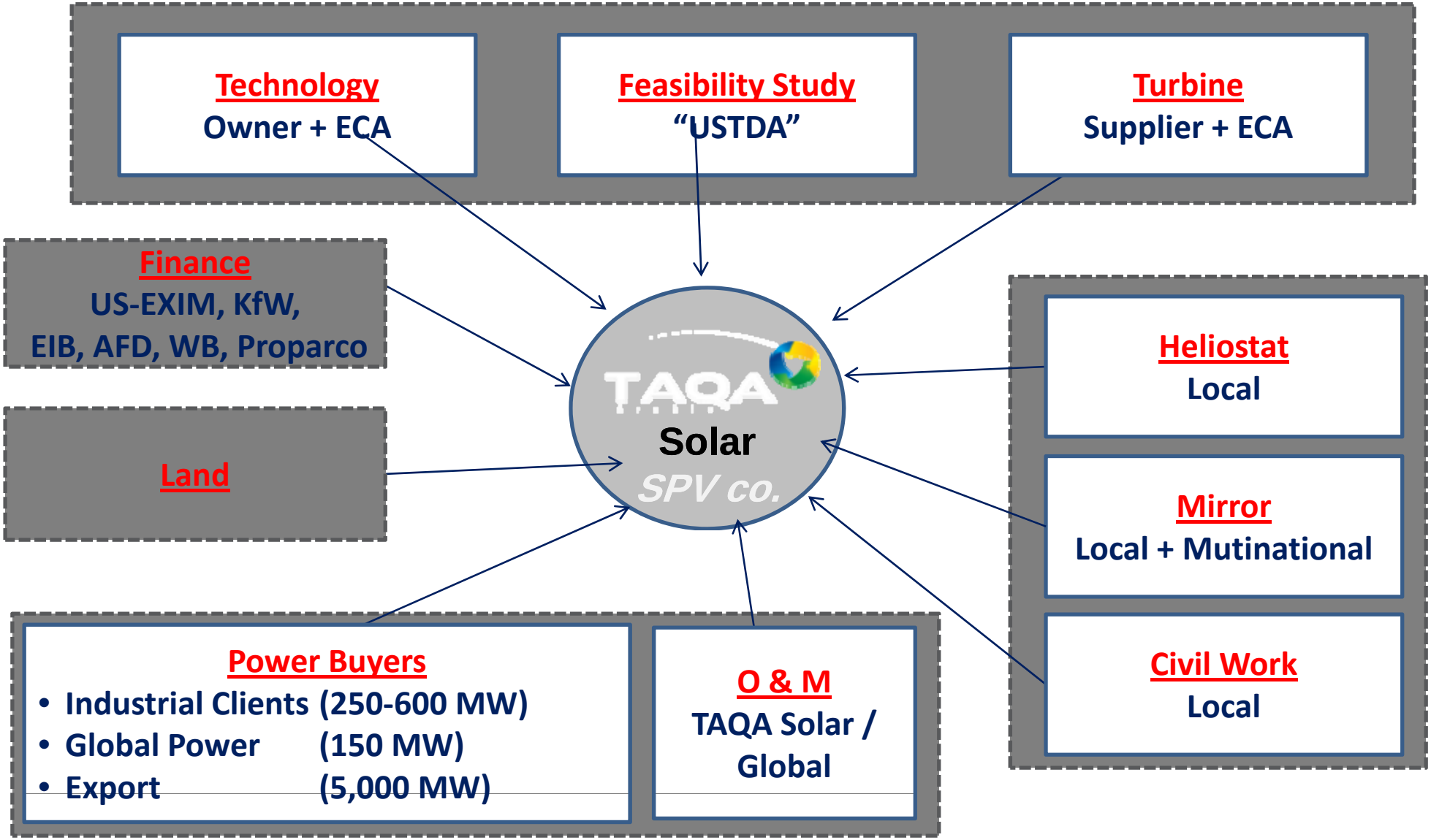
Phase II:
3Plants

6 Towers
750 MW
23,000 Acres (48 Km²)
7,500 GWh/y
6.6 - 4.2 billion US$

Phase III:
EXPORT
20 plants

9 towers
11,000 MW
155,000 Acres (70.4 Km²)
50,000 GWh/y
44 - 28 billion US$

TAQA CSP Project Participants



TAQA CSP Localization: Economic Front

Long-Term Secured Profit

➡Providing a green energy at a competitive cost and in large quantities for 30 to 40 years.

- Localized Manufacture and Assembly ~ 75%
  - Solar Receiver,
  - Molten Salt Storage Tanks,
  - Heliostats,
  - Solar Tower,
  - Steam Plant
  - Roads, ancillary buildings, etc.
- Imported Components ~ 25%
  - Steam Turbine,
  - Salt-Water Heat exchangers,
  - Feedwater Heaters,
  - Salt Pumps

TAQA Wind Initiative

Current Status

Government

1 Plant
250 MW

Short List

Developer
to be selected

UPM

1 Plant
50 MW

MOIndustry
IDA

Land to be located

- ***TAQA is offered 51% in each project***
- ***All studies covered by EU funds***

TAQA Wind Progress

UPM Wind Power Project at “Jabal El Zeit” 50 MW

Project Description

Project name	TAQA WIND 2012
Production site	Gab el Zait SUEZ- EGYPT
Area	Suez gov –Gab el Zayt
Aerogenerators	50 to 100 X 1 MW
Private order	TAQA ARABIA group
Annual availability	Sup 4000 h at 60 m.
Average speed	average 9.1 m/s, 53% /y, NNE, at 24 m
Commissioning	Spring 2013
Grid connection	HT 220 kv scheduled
Local compensation	About 330 millions kWh/y at peak hours & nights
Egypt MDP index MDP evaluation	0.619 k co2/k 74 millions usd dollars at average15 $ /t on 20 y

Letter from Ministry of Industry

Letter from IDA

TAQA Waste to Power Project

TAQA is currently studying the feasibility for a 15 MW Bio-Fuel Power Generation Project with Mitsui & Toshiba, in coordination with the Ministry of Environment …

- It is estimated that we would need about 150,000 tons of feedstock annually to generate the above electricity figure. (Mainly from ENTAG)
- To offset greenhouse gas emissions from existing landfills.
- To provide power to roughly 15,000-20,000 households.
- The overall project cost is approximately $43 million

Rice straw (shredded), size average max 50x50 mm

Cotton stalks (shredded), size average max 50x50 mm

Regional RE Initiatives MedGrid

Transgreen

- April 2010, Meeting in Elysee with President's councellor
- 5 July 2010, Transgreen MOUSignature (12 Companies)

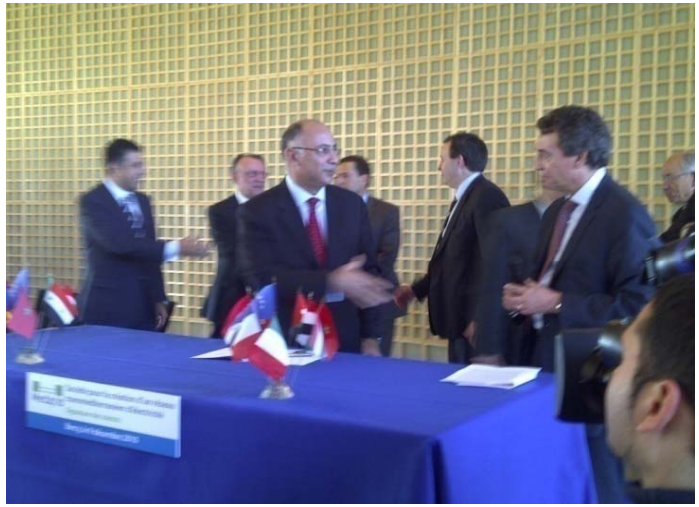
ABENGOA afd ALSTOM AREVA Atos Origin cdc infrastructure EDF Nexans PRYSMIAN RED ELÉCTRICA DE ESPAÑA Rte SIEMENS TAQA

- 9 Dec 2010, MedGrid Incoprporation (20 Companies),in Paris

SIMPLIFIED STOCK COMPANY
CAPITAL 4,000,000 €

- 2011, *100,000 €* Capital to be paid
- 2012, *100,000 €* Capital to be paid

Med Grid



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