Natural Gas Role in Sustainable Development
Arab Countries Case

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Agenda

1. Natural Gas in the Arab Countries: Key Figures
2. Natural Gas Role in Achieving Sustainable Development in different Sectoral Areas
3. Prospects of Natural Gas industry (Short and Medium Term)
1-Natural Gas in the Arab Countries:
Proven Gas Reserves at 1st January 2015

Source: OAPEC, Cedigaz

World’s Total Proven Gas Reserves 200 tcm

North America 12.4 tcm
S. America 7.6 tcm
Middle East 69.8 tcm
Europe/Eurasia 79.8 tcm
Africa 14.4 tcm
Asia Pacific 15.8 tcm
Arab Countries 54.3 tcm
1-Natural Gas in the Arab Countries:
Gas share in the energy mix

Source: OAPEC

Gas 48% in Primary Energy mix

Electricity 49% of total gas consumption
1-Natural Gas in the Arab Countries: Gas Production/Consumption Figures

Development of natural Gas Production & Consumption

Source: OAPEC

Gas Production CAGR (2004-2014)
5.3%
15.7% of the world’s total gas production

Gas Consumption CAGR (2004-2014)
5%
10.8% of the world’s total gas consumption

Development of Natural Gas Exports from Arab Countries

Source: OAPEC

Share of LNG Exports
75%
148 bcm, ~ 45% of the global LNG trade

Share of Gas Exports by Pipelines
25%
50 bcm, ~ 8% of the global gas trade by pipelines
II-Natural Gas Role in Achieving Sustainable Development in different Sectoral Areas

- Providing universal access to modern energy services.
- Doubling the global rate of improvement in energy efficiency.
- Doubling the share of renewable energy in the global energy mix.

Global Action Agenda of “Sustainable Energy for All Initiative”

Enabling Action Areas
- Energy planning and policies
- Business model and technology innovation
- Finance and risk management
- Capacity building and knowledge sharing

Sectoral Action Areas
- Industrial and agriculture process
- Distributed electricity Solutions
- Grid infrastructure and Supply Efficiency
- large scale renewable power
- Modern cooking appliances and fuels
- Buildings and appliances
- Transportation

I - Industrial Sector
- Gas flaring reduction

II - Electricity Sector:
- The use of CCGT (efficiency 55%)

III - Residential Sector
- Natural gas as domestic fuel

IV - Transportation Sector
- CNG vehicles
In 2014, Arab Countries produced 31.4% of the total world’s oil & NGLs production while flared 20% of the global gas flaring volume!

- Four Arab countries are members in the world bank-led Global Gas Flaring Reduction Partnership
2-Natural Gas Role in Sustainable Development:
  I-Gas flaring reduction: Examples in Arab Countries

Kuwait Oil Company: Gas Flaring as % of Total Gas Production

- Gas flared amounted to 1.12% of total production in 2014/2015.
- Total incurred investments: $3.6 billion
- Planned investments: $4.1 Billion

Jetty Boil Off Gas (JBOG)

- Inaugurated in April 2015.
- Recovers of 100 MMSCFD of boil off gas (BOG) during tankers loading (600,000 tons of LNG)
- Project investments $1 billion.

Qatar Gas Company

Heat from surrounding environment

LNG tanker under loading

Boil off Gas

-162°C

Boil off Gas

-100°C
Gas accounted for ~ 66% of the total electricity produced in 2013, while Oil share 29.4%, compared to 48% and 43% respectively in 1990.

CO₂ emissions (g) per kilowatt hour of electricity produced

Source: OAPEC
2-Natural Gas Role in Sustainable Development:
III-Residential Sector in Arab Countries

Fuels % in residential sector consumption

2013
- Oil products: 58.5%
- Gas: 21.8%
- Wastes/Biofuels: 19.2%

1990
- Oil products: 64.5%
- Gas: 6.7%
- Wastes/Biofuels: 28.8%

Algeria & Egypt: The earliest programs in the region

Algeria
- Started in early 1960’s
- Gas access rate 52%
- 7 million households by 2022

Egypt
- Started in early 1980’s
- 1 unit connected/minute
- Target: 30 million households
The ongoing and planned development projects in some Arab countries in the period (2015-2019) will provide ±180 bcm/y.

Production Development Projects (2015-2019)

- To support declining production from mature fields
- To meet the rapidly growing demand
Despite being a major oil and gas supplier to the world, the Arab region is set to be an emerging market for natural gas exports (LNG+ Piped Gas) due to growing demand that exceeds domestic supply in many countries. 

**Gas Import Projects**

- **Egypt** - LNG 3rd floating terminal, 5.2 bcm/y (2016)
- **Iraq** - Gas import pipeline from Iran, 8.8 bcm/y (2016)
- **Jordan** - Gas pipeline to import gas from tamar, 0.1 bcm/y (2016)
- **Lebanon** - LNG floating terminal, 5.2 bcm/y (2017)
- **Bahrain** - LNG floating terminal, 4.1 bcm/y (2017)
- **Oman** - Gas pipeline to import gas from Iran, 10 bcm/y (2017)
- **UAE** - LNG fixed terminal at Fujairah, 12.3 bcm/y (2018)
- **Kuwait** - LNG fixed terminal at Southern Kuwait, 15.5 bcm/y (2020)
- **Morocco** - LNG fixed terminal at Jorf Asfar, 7 bcm/y (2025)

**Total import capacity**: 68 Bcm/y
## Conclusions

The Arab region hold 27.1% of the world’s total proven gas reserves, 15.7% of the world’s total gas production.

Primary energy mix is dominated by fossil fuels (50% oil, 48% gas, 1.2% Coal)

There are many sectoral action areas in which natural gas can effectively contribute to sustainable development objectives.

In 2014, Arab Countries produced 31.4% of the total world’s oil & NGLs production while flared 20% of the global gas flaring volume!

Today, millions of households in Algeria, Egypt and Tunisia have an access to gas networks for cooking and heating purposes.

Arab region is set to be emerging market for natural gas exports (LNG+ Piped Gas) due to growing demand that exceeds domestic supply in many countries.