Organization of Arab Petroleum Exporting Countries
(OAPEC)

Current Situation and Future Perspectives of Natural Gas Industry & Trade in the Arab Countries

INTERGAS

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OAPEC

INTERNATIONAL GAS SUMMIT 2016
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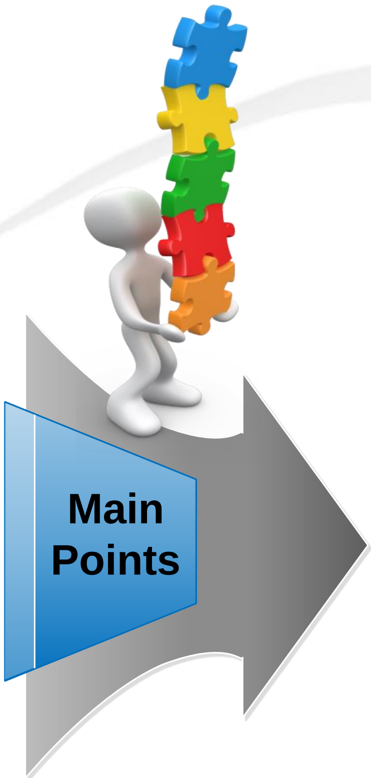

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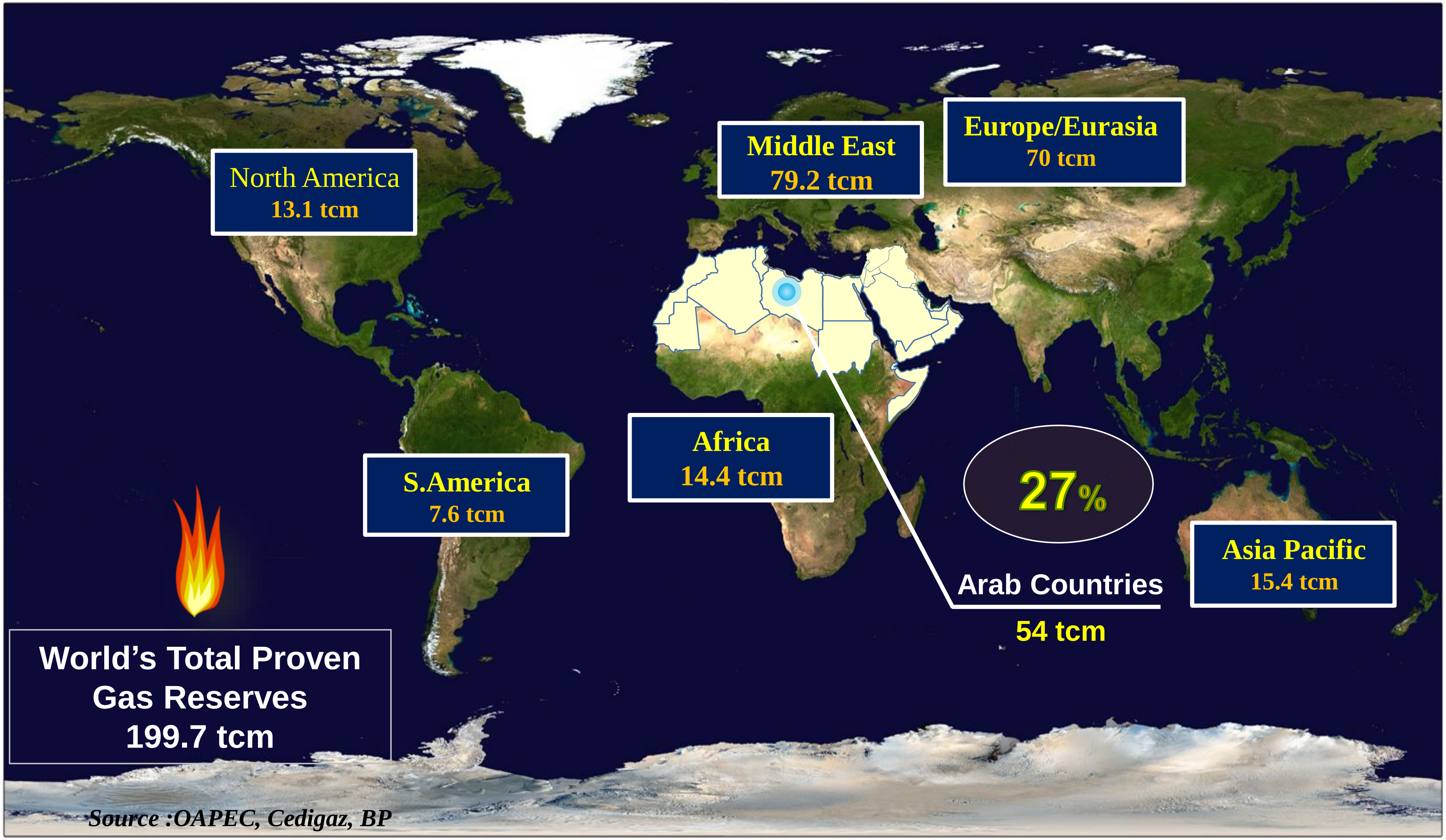
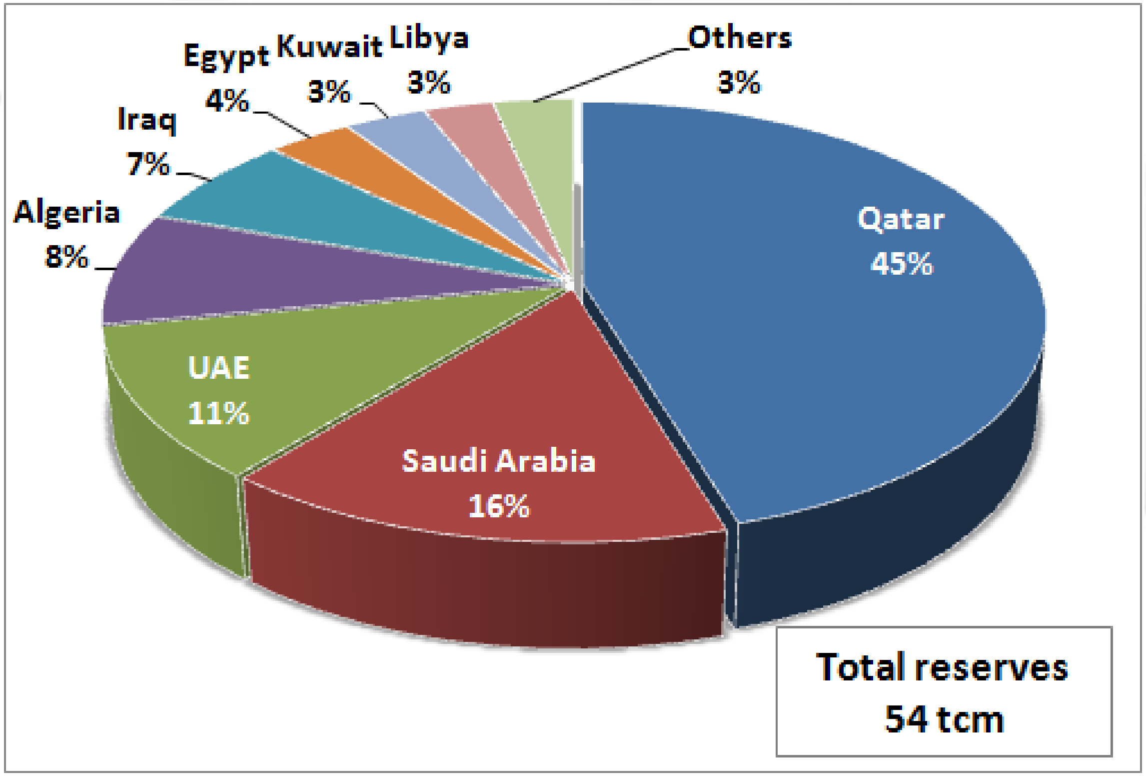
Main Points

1 World's Total Proven Gas Reserves, end of 2015



1 Natural Gas in the Arab Countries

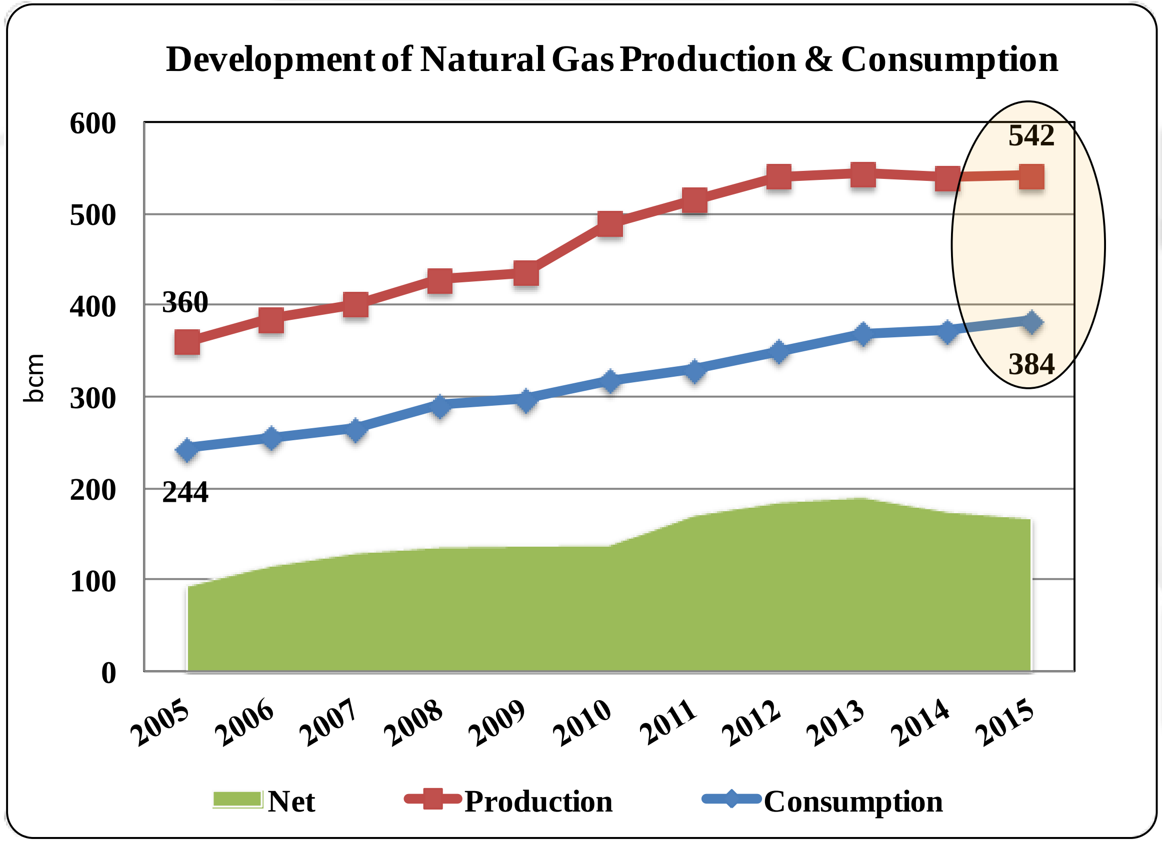
- Distribution of Gas Reserves in 2015



Source :OAPEC

1 Natural Gas in the Arab Countries

- Gas Production/Consumption Growth Rates



The highest growth rate worldwide

4.2% **Gas Production CAGR (2005-2015)**

15.5% of world's total gas production

The 2nd highest growth rate worldwide

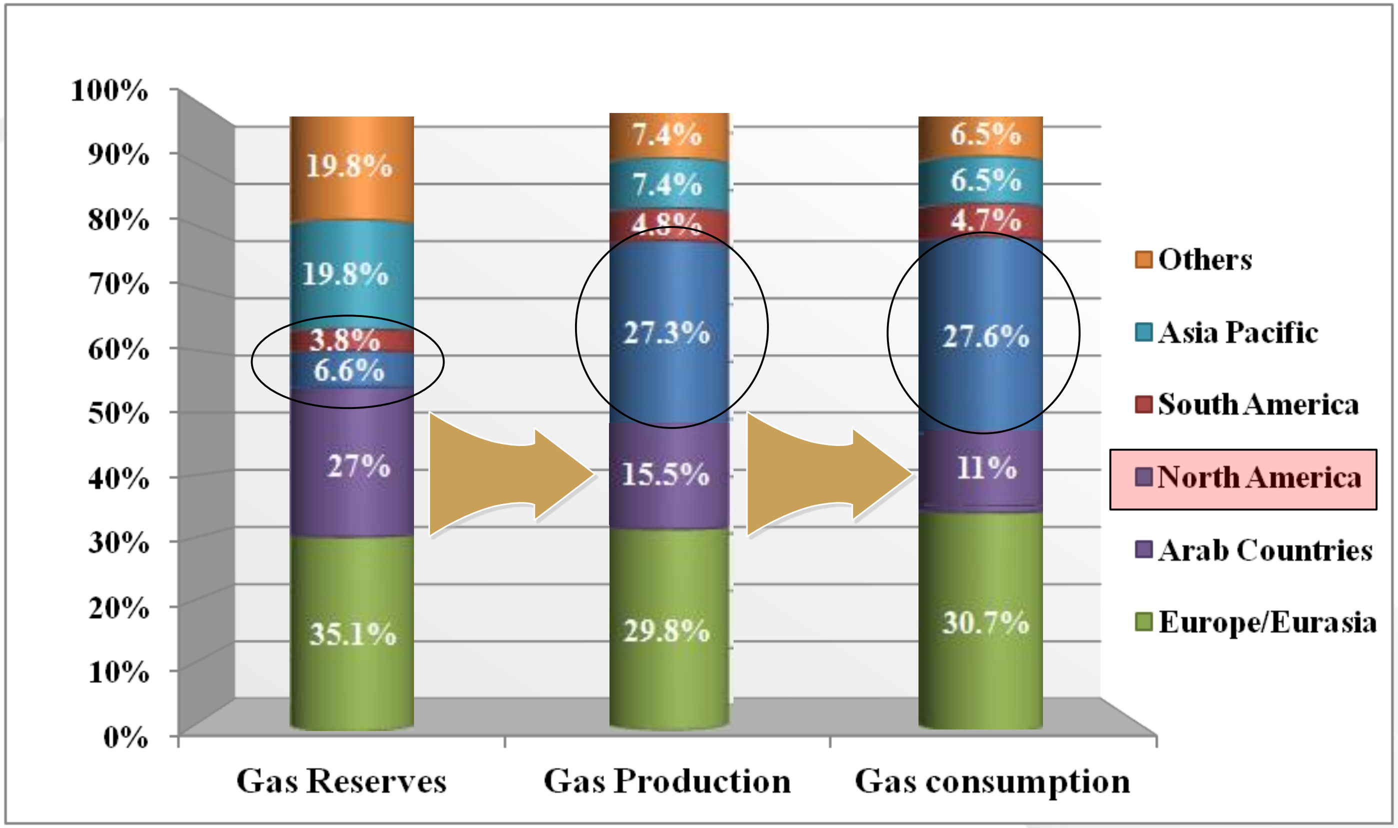
4.6% **Gas Consumption CAGR (2005-2015)**

11% of world's total gas consumption

Source :OAPEC

Natural Gas in the Arab Countries

▪Comparison with Other Groups



Source :OAPEC, Cedigaz

▪Despite gas reserves in the Arab region are relatively large compared with other regions, its production share is only 15.5% of the world's total gas production.

▪This paves the way for attracting more investments in developing gas reserves.

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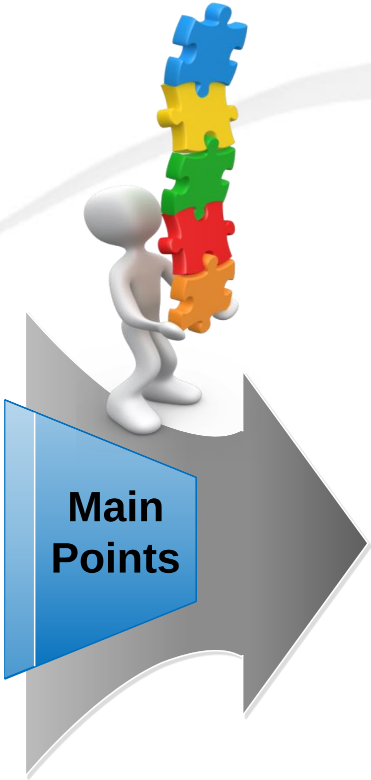
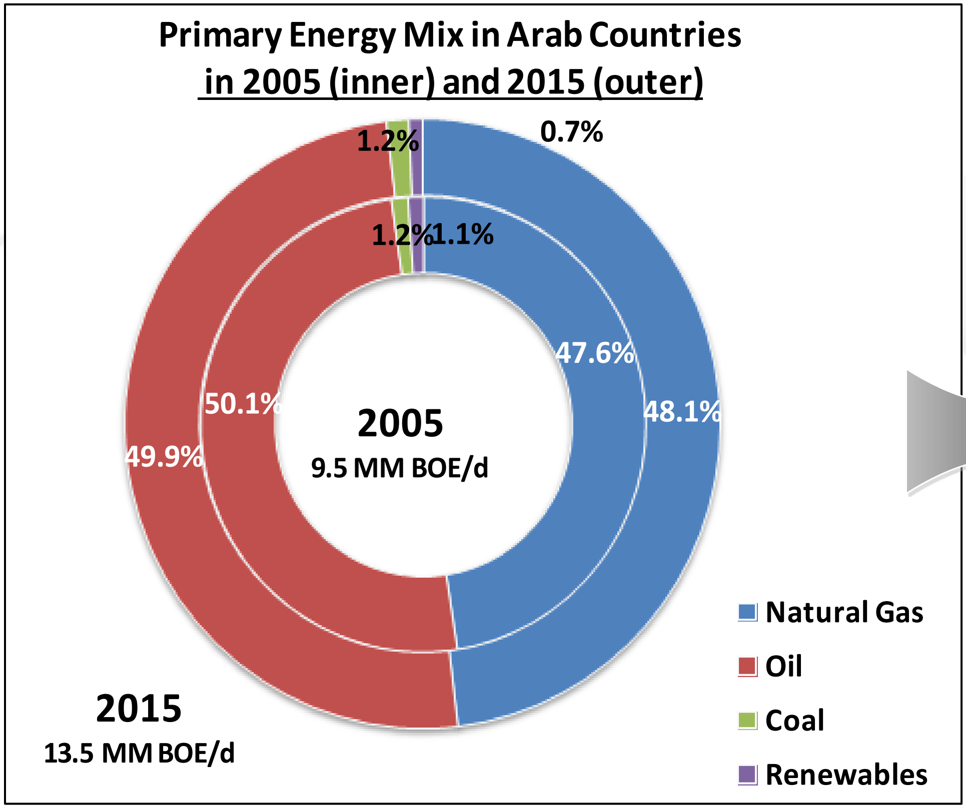
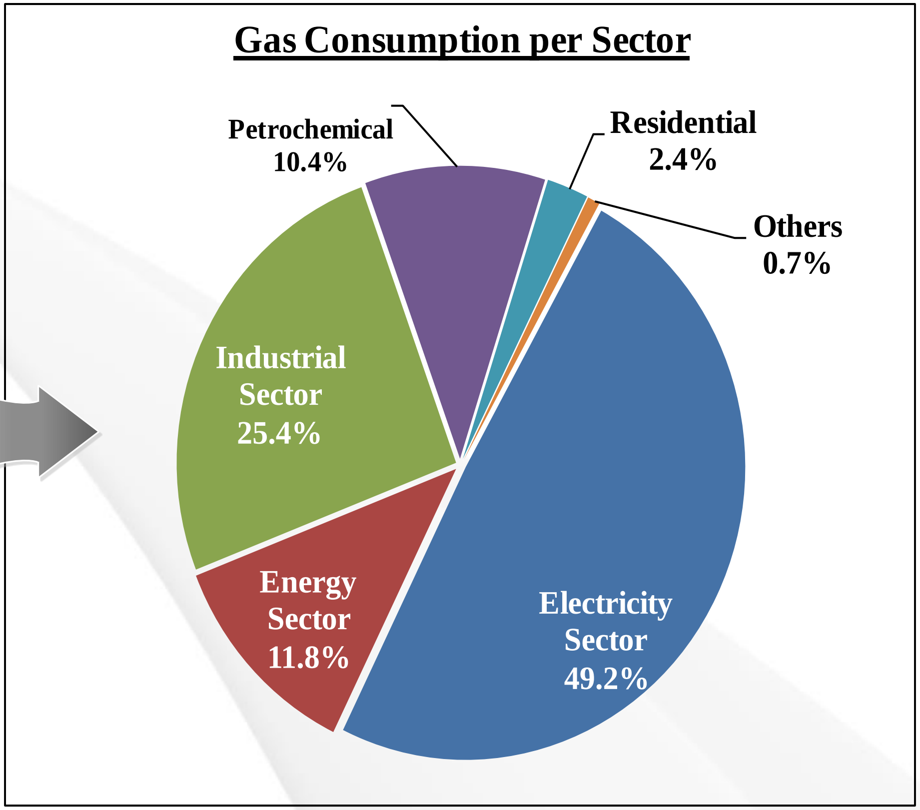


2 Natural Gas Role in Achieving Sustainable Development

▪Gas Share in the Energy Mix in 2015





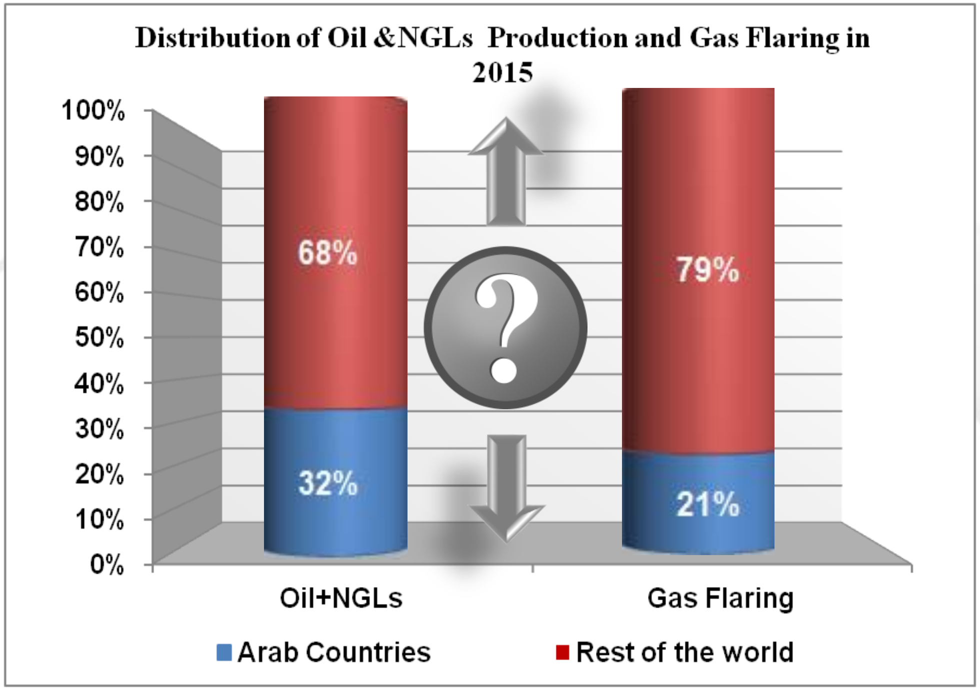
Source :OAPEC

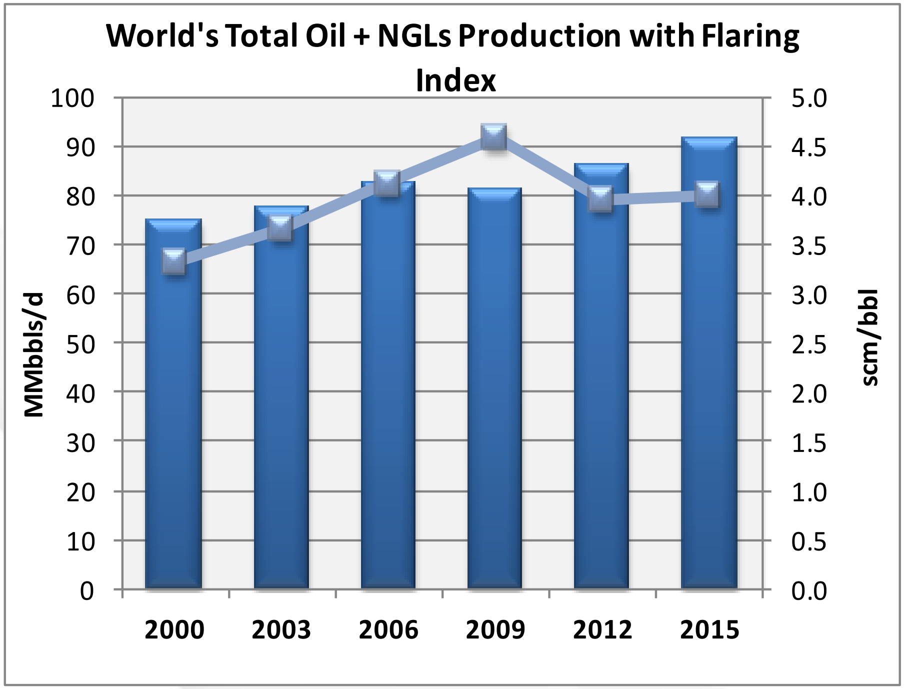
Gas **48%** in Primary Energy mix

Electricity **49%** of total gas consumption

2 Natural Gas Role in Achieving Sustainable Development

▪ Gas Flaring Reduction





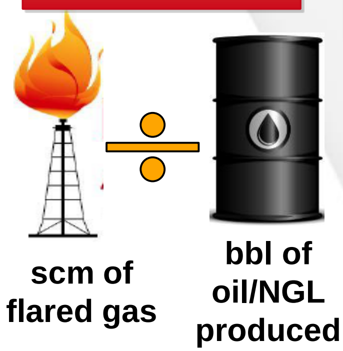
% of the world

In 2015, Arab Countries produced **32**% of the total world's oil &NGLs production while constituted **21**% of the global gas flaring volume!

Kuwait Iraq Qatar Algeria

GGFR
Global Gas Flaring Reduction
A Public-Private Partnership

Flaring Index
scm/bbl

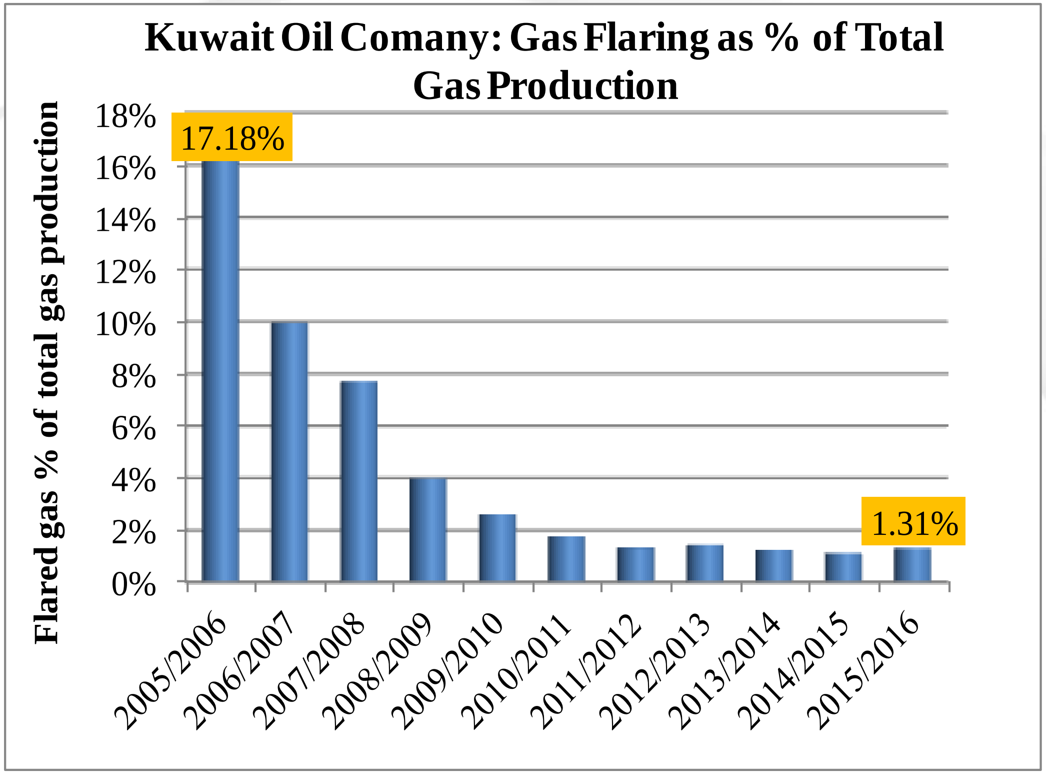


Indices

- World Average : **4.0 scm/bbl**
- Arab Countries : **2.6 ! Scm/bbl**
- Iraq standalone : **9.9 Scm/bbl**

Natural Gas Role in Achieving Sustainable Development

▪ Gas Flaring Reduction: Successful Projects



Source :KOC

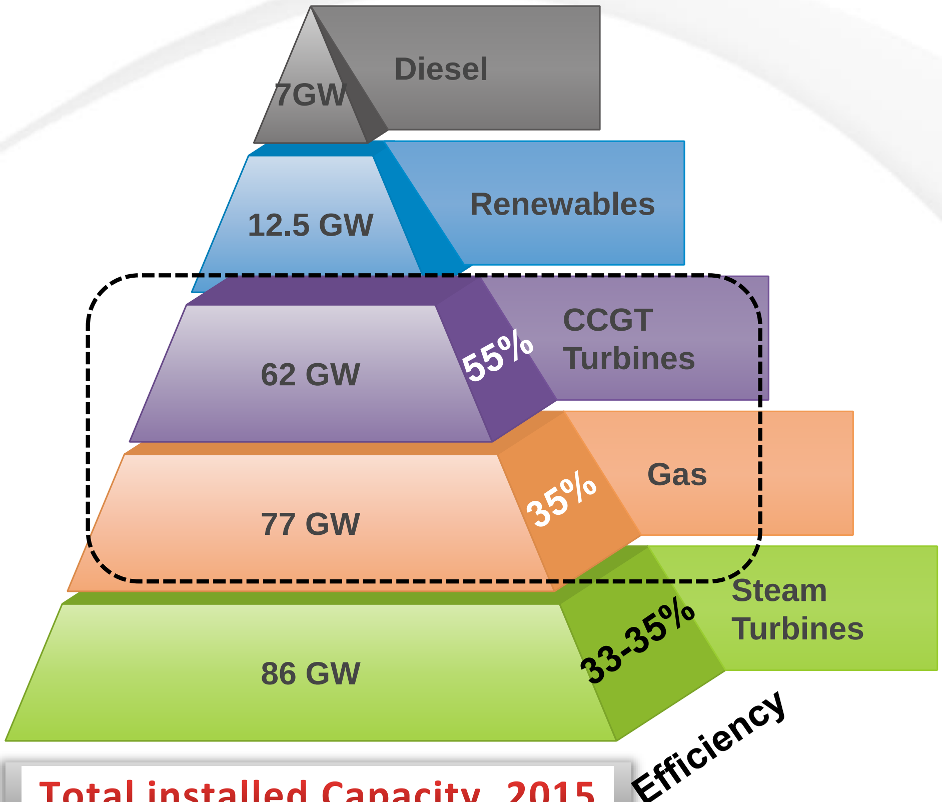
Kuwait Oil Company

- Gas flared amounted to 1.31% of the total gas production in 2015/2016.
- Total incurred investments: $3.6 billion.
- Planned investments : $4.1 billion.
- KOC is a strategic member in the GGFR initiative.

2 Natural Gas Role in Achieving Sustainable Development

- Electricity Sector in the Arab Countries

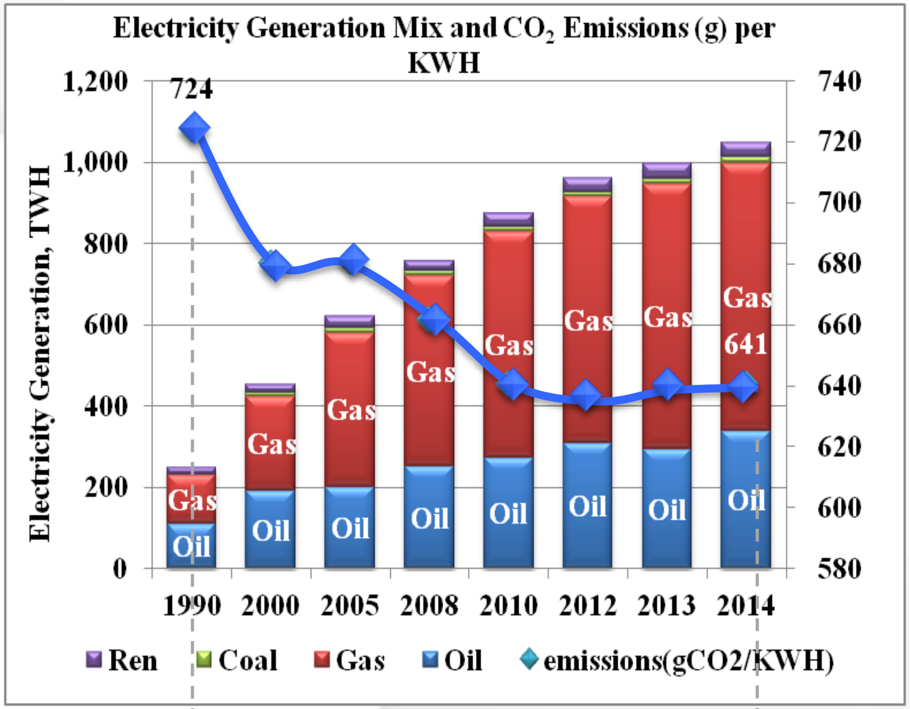
Installed Capacities of Power plants in Arab Countries



Total installed Capacity, 2015
244 GW

Source :OAPEC

Gas accounted for ~ **63**% of the total electricity produced in 2014, while Oil accounted for 32%, compared to **48**% and 44% respectively in 1990.



724

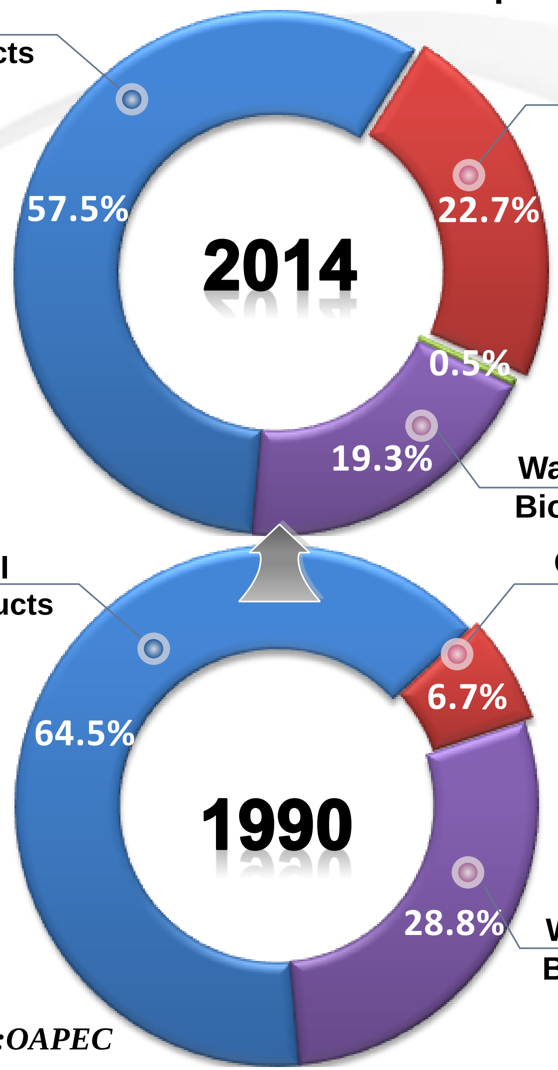
CO_2 emissions (g) per kilowatt hour of electricity produced

641

2 Natural Gas Role in Achieving Sustainable Development

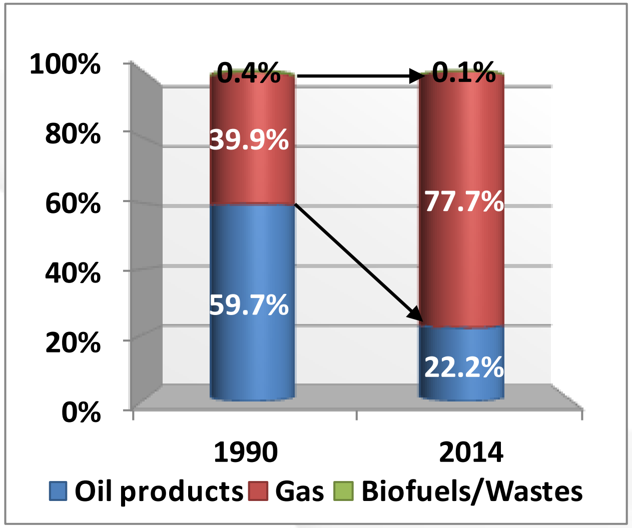
- Residential Sector in the Arab Countries

Fuels % in residential sector consumption



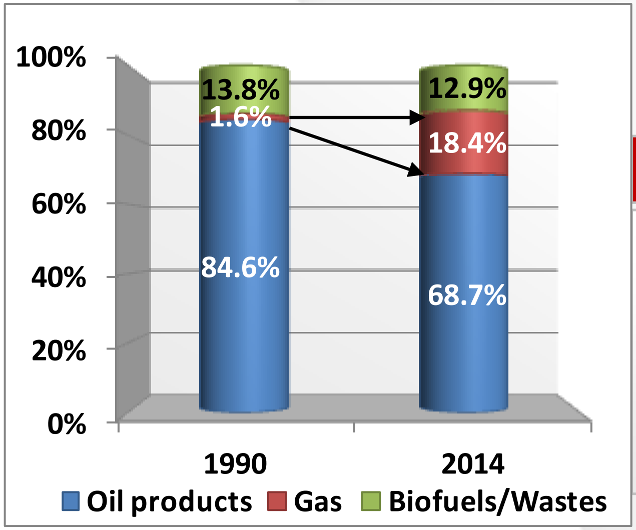
Source :OAPEC

Algeria & Egypt: The earliest programs in the region



Algeria

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

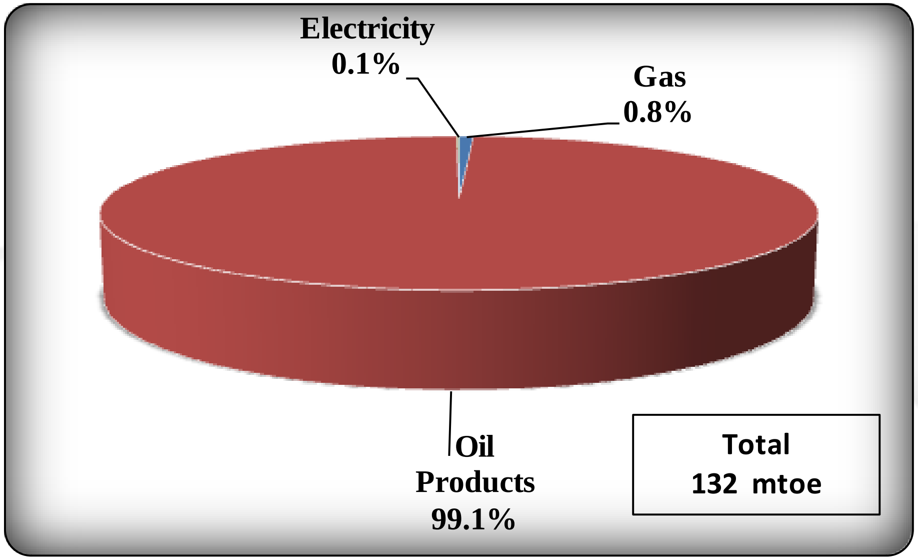


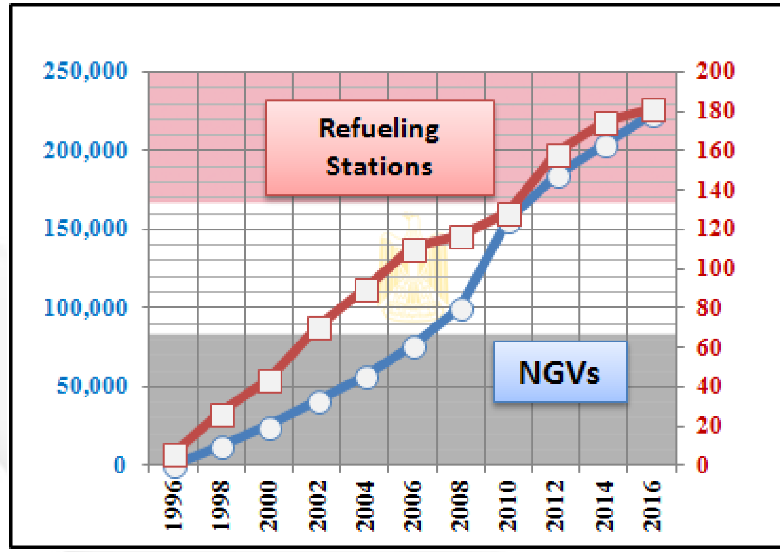
Egypt

- Started in early 1980's
- 1 unit connected/ minute
- 7.6 milion unit till 2015
- Target: 30 million households .

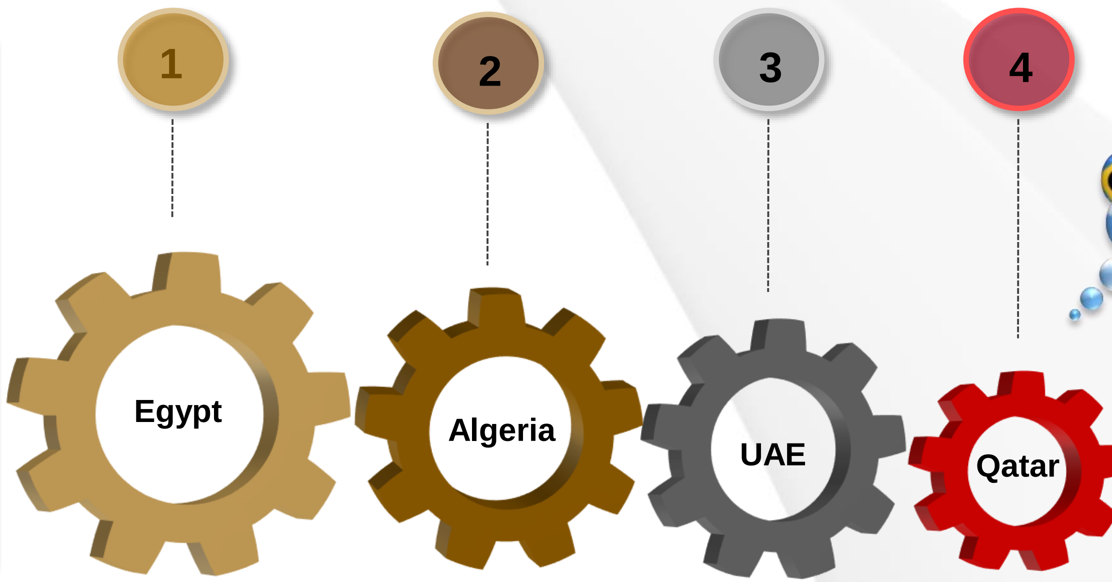
2 Natural Gas Role in Achieving Sustainable Development

▪Transportation Sector in the Arab Countries





1. In Egypt, 223,500 vehicles were converted by mid of 2016, ~ 5% of the local transport fleet.
2. Algeria 's total CNG fleet reached 215 vehicles in 2015.
3. UAE's program started in 2008,and it is progressing well.
4.Qatar started a test phase in 2012



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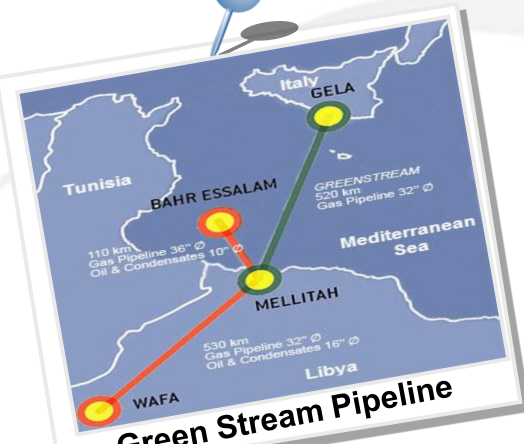
Main Points

Natural Gas Trade

▪Export Pipelines to Europe and Intra-trade Pipelines

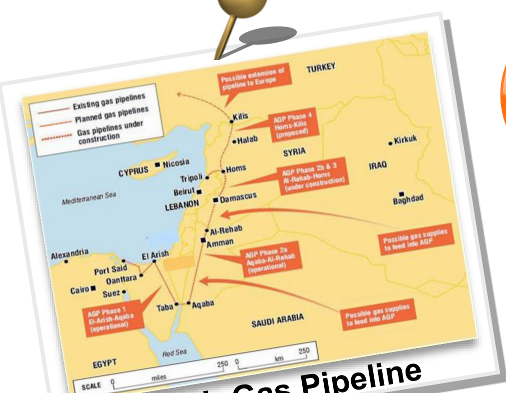


Green Stream Pipeline

4 Pipelines · From Algeria and Libya to Europe (Italy & Spain) · **63.5 Bcm/y**

Dest.	Pipeline	Route	Start up	Cap., Bcm/y
Europe	Enrico-Mattei	**Algeria**-Tunisia-Italy	1983	33.5
	P.Duran Farell	**Algeria**-Morocco-Spain	1996	11
	Medgaz	**Algeria**-Spain	2011	8
	Green Stream	**Libya**-Italy	2004	11

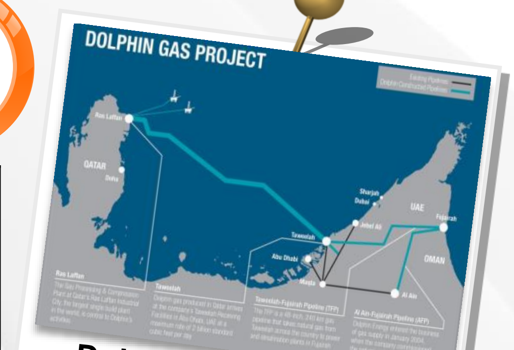
Algeria to Europe



Arab Gas Pipeline

2 Pipelines · Intra-trade Pipelines (Arab gas and Dolphin gas) · **43 Bcm/y**

Intra-trade	Arab Gas	**Egypt**-Jordon-Syria	2003	10
	Dolphin gas	**Qatar**-Abu Dhabi- Oman	2007	33



Dolphin Gas Pipeline

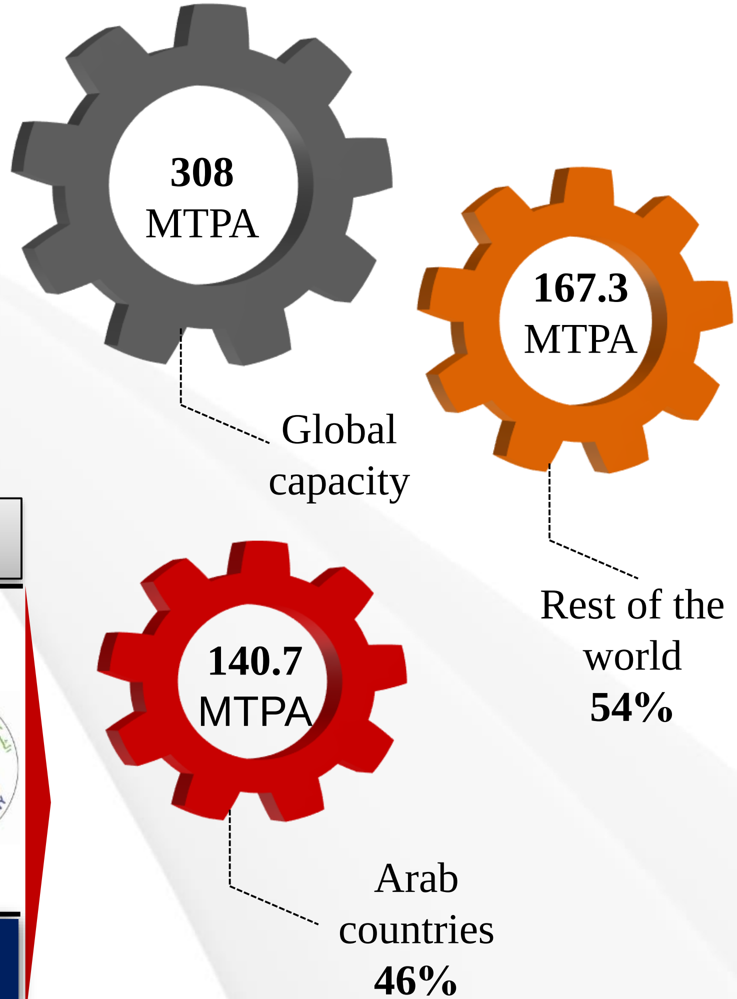
3 Natural Gas Trade

▪LNG Capacity, million tons per annum (MTPA)

▪Global LNG capacity reached **308** million tons per annum in 2015.

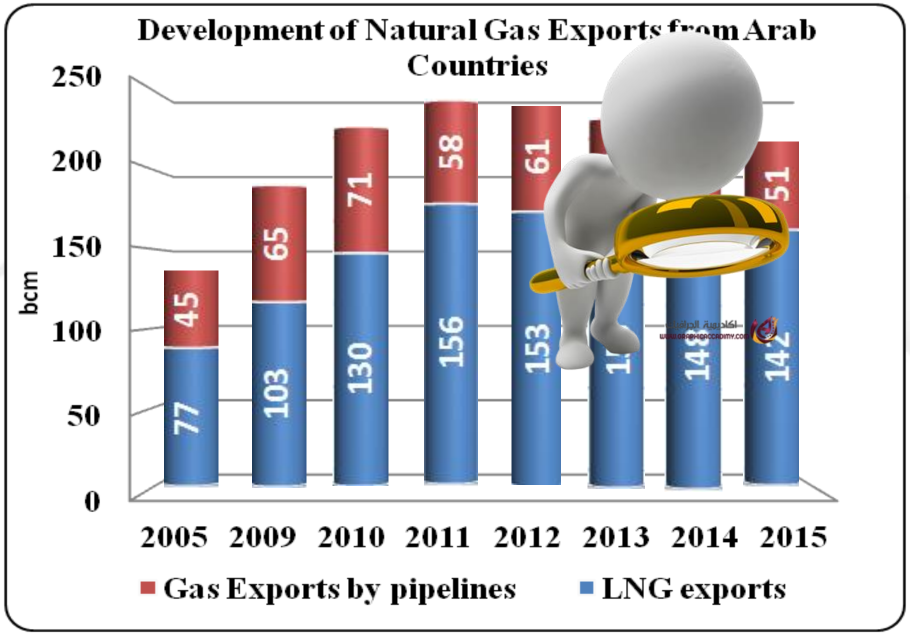
▪LNG capacity in Arab countries reached **140.7** million tons per annum in 2015 which represents 46% of the global capacity.

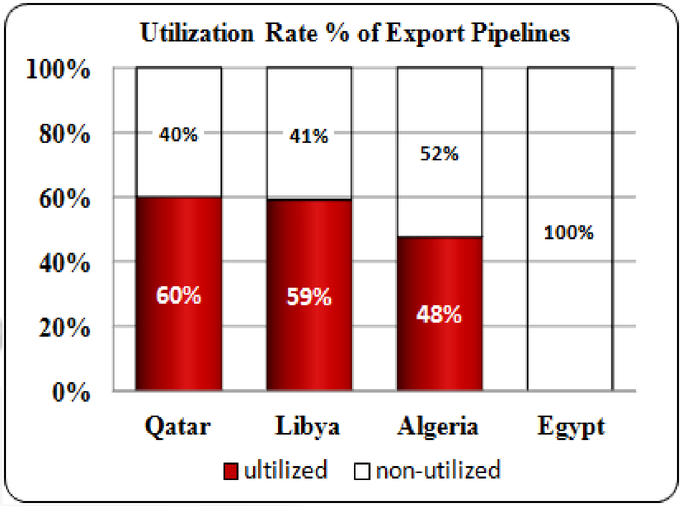
Algeria 1964	Libya 1971	UAE 1977	Qatar 1996	Oman 2000	Egypt 2004	Yemen 2009
28.6 MTPA	1 MTPA	5.8 MTPA	77 MTPA	10.4 MTPA	12.2 MTPA	6.7 MTPA



3 Natural Gas Trade

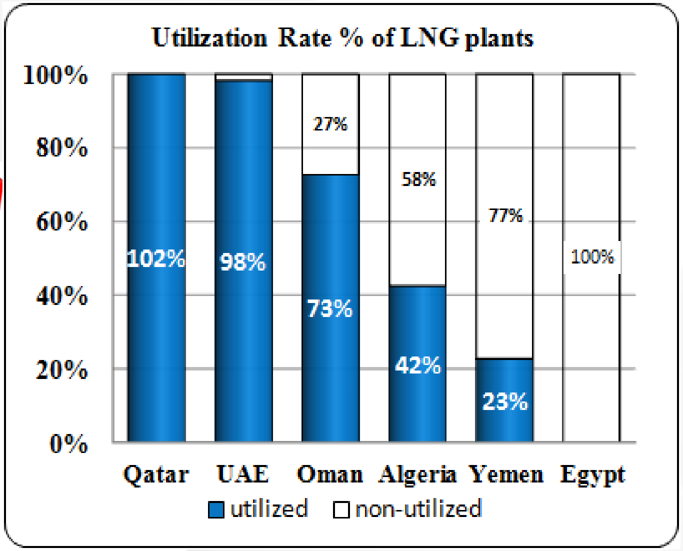
▪Development of Natural Gas Exports from Arab Countries





8.5% CAGR of Gas Exports From 2005 to 2012

With total volume of 215 bcm, 20% of the global trade in 2012

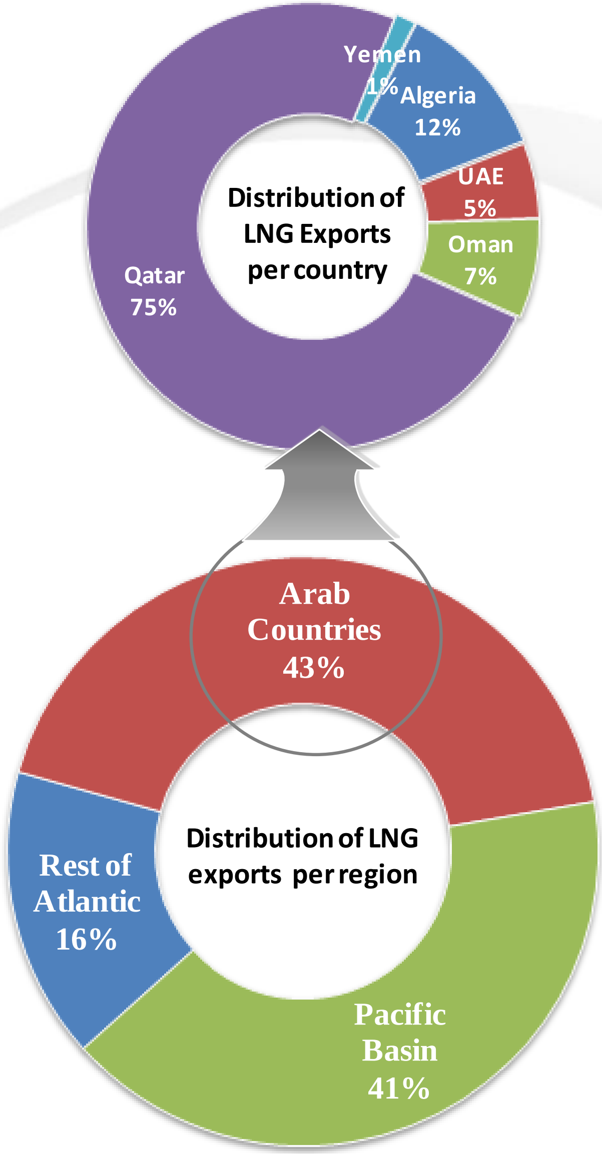


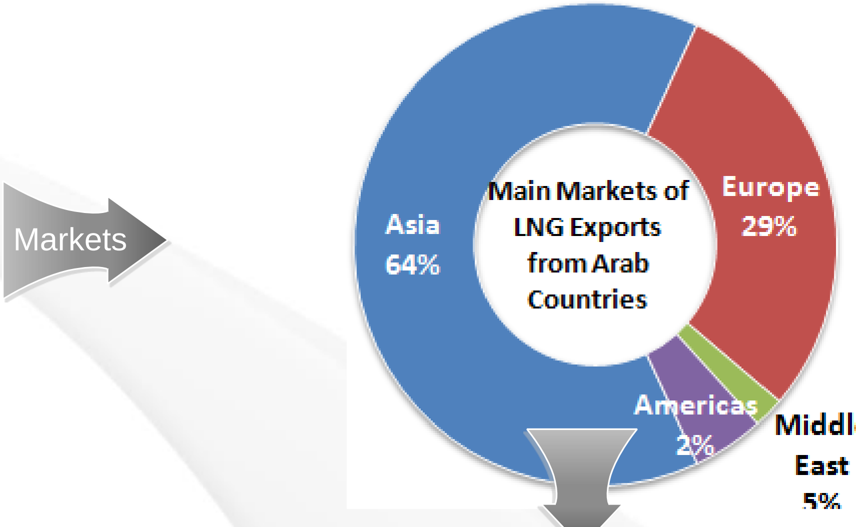
26÷74% Share of Gas Exports by Pipelines & LNG tankers in 2015

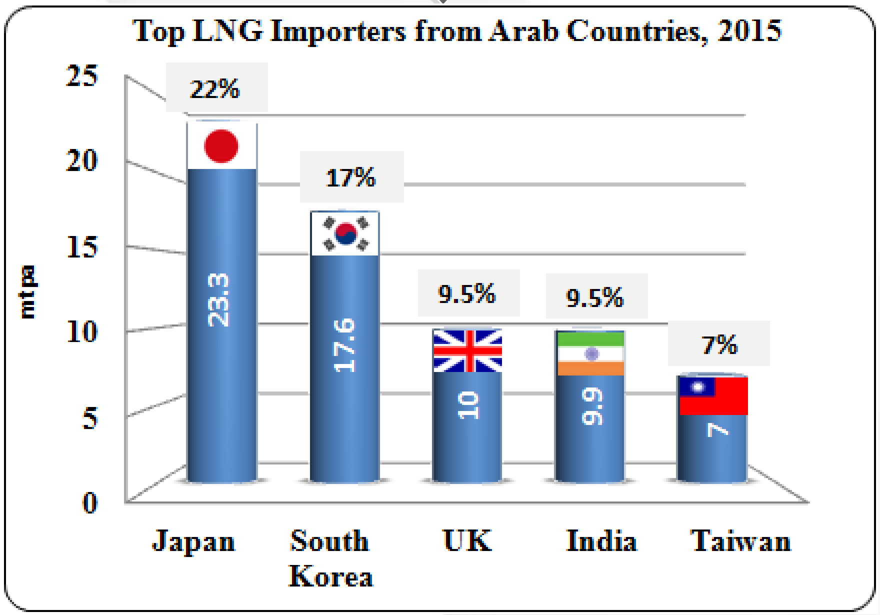
18.5% of the Global Gas Trade in 2015

3 Natural Gas Trade

▪LNG Exports from Arab Countries in 2015

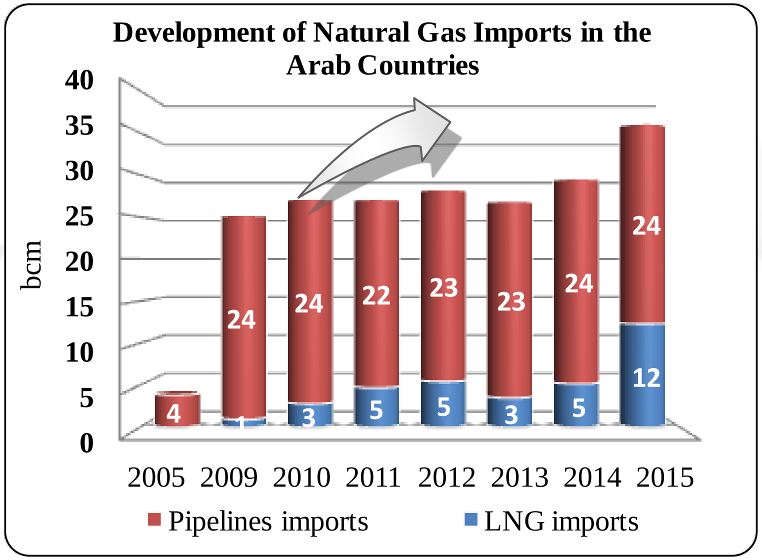






3 Natural Gas Trade

▪Development of Gas Imports by Pipelines and FSRUs

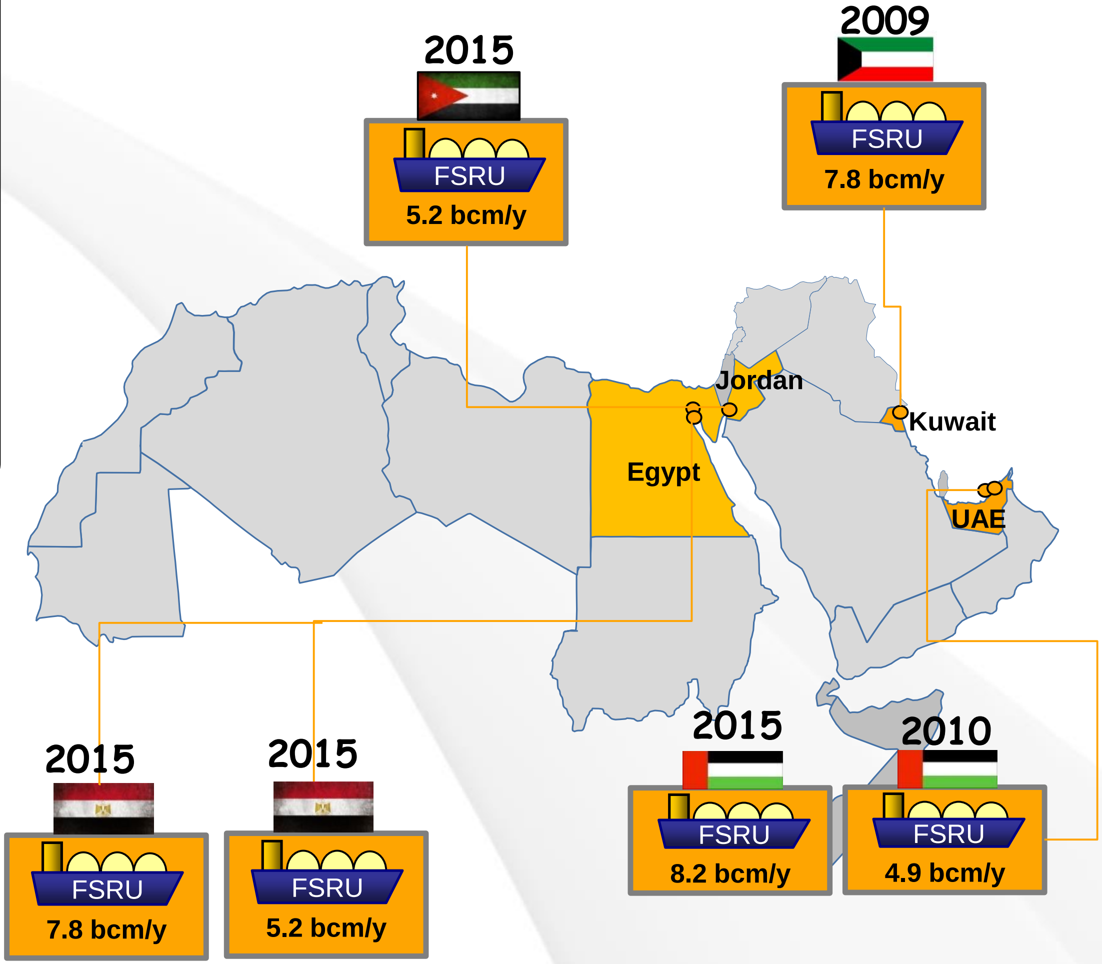


25% **CAGR of Gas imports from 2005 to 2015**

66÷34% **Share of Gas Imports (Pipelines & LNG) in 2015**

6 **FSRUs in Kuwait, Dubai, Egypt and Jordan**

FSRUs in the Arab Region



*FSRU: floating storage and re-gasification unit

INTERGAS LNG FOCUS

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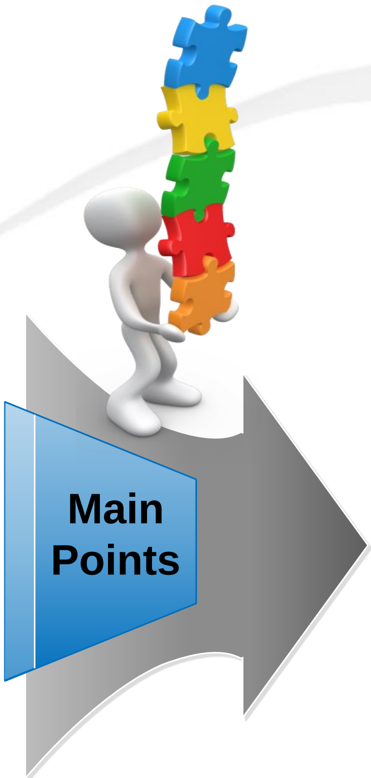
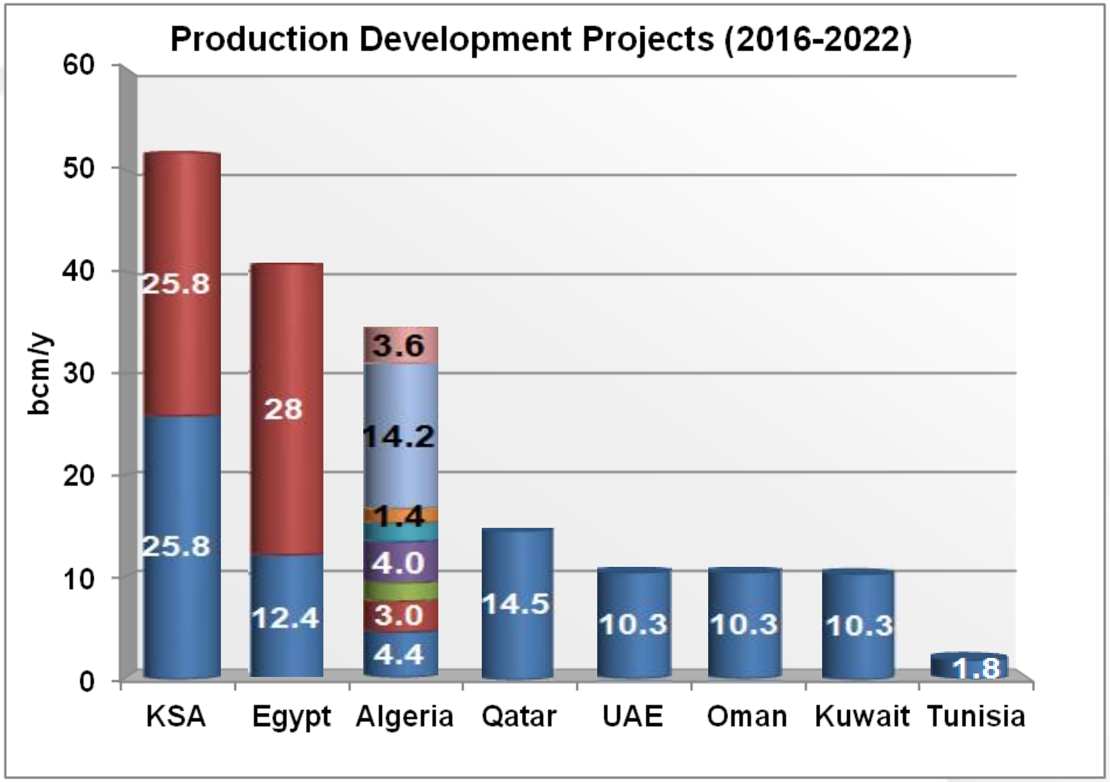


Prospects of Natural Gas Industry

▪ Production Development Projects

Production Development Projects



Source :OAPEC

KSA	2 mega projects, 40 bcm/y
Egypt	2 mega projects, 40 bcm/y
Algeria	8 projects, 37 bcm/y
Qatar	1 project (Barzan), end of 2016
UAE	1 project (Bab), end of 2020
Oman	1 project (Khazzan), 2017
Kuwait	1 project (Jurassic), 2021
Tunisia	1 project (Nawara), 2017

The ongoing and planned development projects in some Arab countries in the period (2016-2021) with total capacity of ±180 bcm/y

To support production decline from mature fields

To meet the rapidly growing demand

4 Prospects of Natural Gas Industry

▪Gas Import Projects

Despite being a major oil and gas supplier to the world, the Arab region is set to be emerging market for natural gas exports (LNG+ Pipelines) due to growing demand that exceeds domestic supply in many countries

Gas Import Projects

Egypt	Iraq	Jordan	Lebanon	Bahrain	Oman	UAE	Kuwait	Morocco
3rd LNG terminal (floating)	Gas Pipeline to import gas from Iran	Gas pipeline to import gas from Tamar field	LNG Terminal (Floating)	LNG terminal (FSU)	Gas Pipeline to import gas from Iran	LNG terminal (Fixed) at Al Fujairah	LNG terminal (Fixed) at Ras Al Azor	LNG terminal (Fixed) at Jorf Asfar
5.2 bcm/y	8.8 bcm/y	0.1 bcm/y	5.2 bcm/y	4.1 bcm/y	10 bcm/y	12.3 bcm/y	15.5 bcm/y	7 bcm/y
2017	2017	2017	2018	2018	2018	2018	2021	2025

3 Pipelines Projects

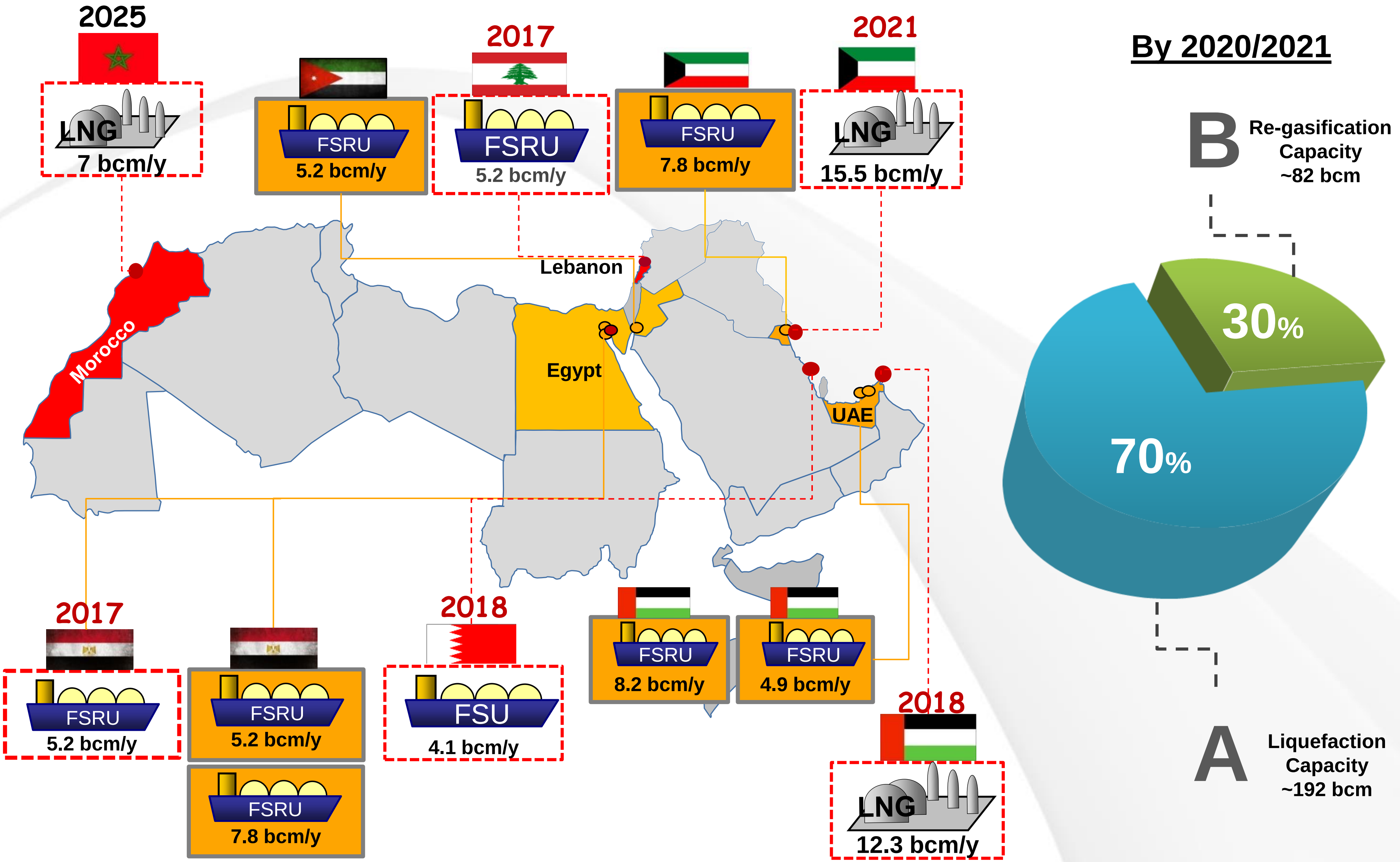
6 LNG Receiving Terminals

Total Additional Import Capacity

68 Bcm/y

4 **Prospects of Natural Gas Industry**

▪LNG Receiving Terminals (Onshore+ FSU/FSRU)



Conclusions

The Arab region holds 27% of the world's total proven gas reserves, represents 15.5% and 11% of the world's total gas production and consumption respectively.

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

There are many sectoral areas in which natural gas effectively contributes to sustainable development objectives.

In 2015, Arab Countries produced 32% of the total word's oil &NGLs production while flared 21% of the global gas flaring volume.

Arab Countries supply LNG markets by ~45% of their needs, while Qatar alone represents 75% of total LNG exports from Arab Countries.

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

Questions?

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