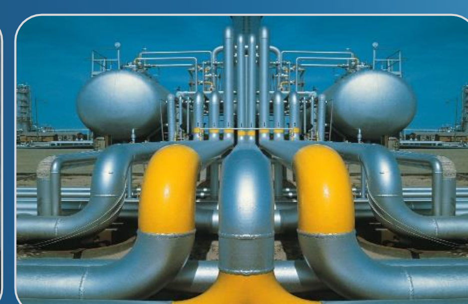
The 4th Session of the UNECE's Group of Experts on Gas,
United Nations, Geneva, 27-28 March 2017

OAPEC
Organization of Arab Petroleum Exporting Countries

UNECE
United Nations Economic Commission for Europe

"The Latest Developments of Natural Gas Industry in the Arab Countries & Potential Impacts on Europe"

Eng/Wael Hamed A. Moati
Gas Industries Expert
OAPEC



Agenda

1. OAPEC in Brief
2. Natural Gas in the Arab Countries: Key Figures
3. Current Trends of Gas Trade in the Arab Countries
4. Prospects of Gas Industry in the Arab Countries
5. Focus on Europe & Potential Impacts

11 Member Countries

OAPEC Since 1968

701 Billion Oil Barrels

~55% of the World's Total Reserves

53 Trillion Cubic Meters

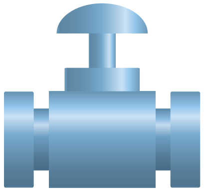
27% of the World's Total Reserves

4 JVs

Transport, Shipbuilding, Investment & Petroleum Services

28 MMbbls/d

32% of the World's Total Oil/NGL Production

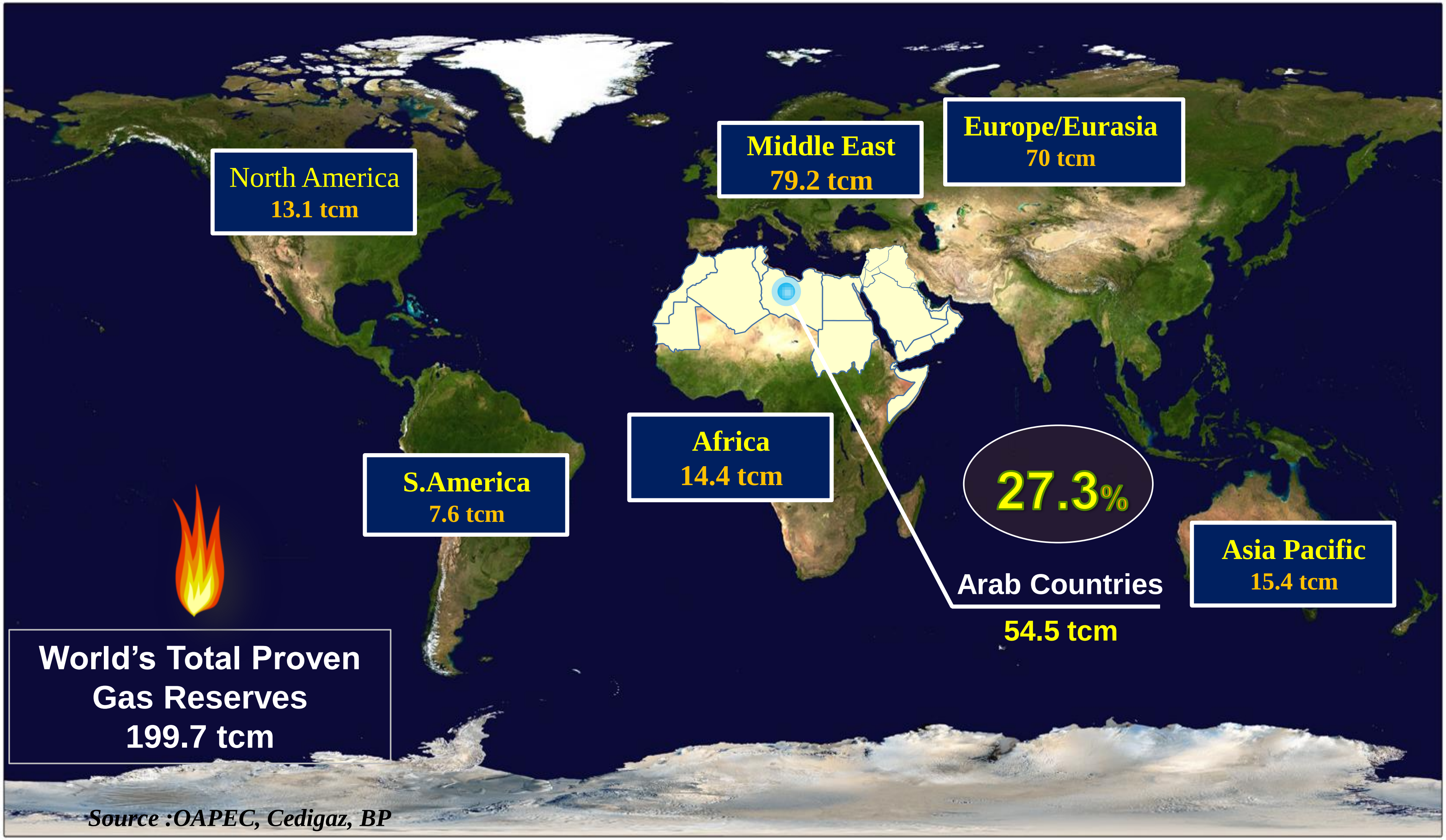


510 Bcm/y

~15% of the World's Total Gas Production

2 Natural Gas in the Arab Countries

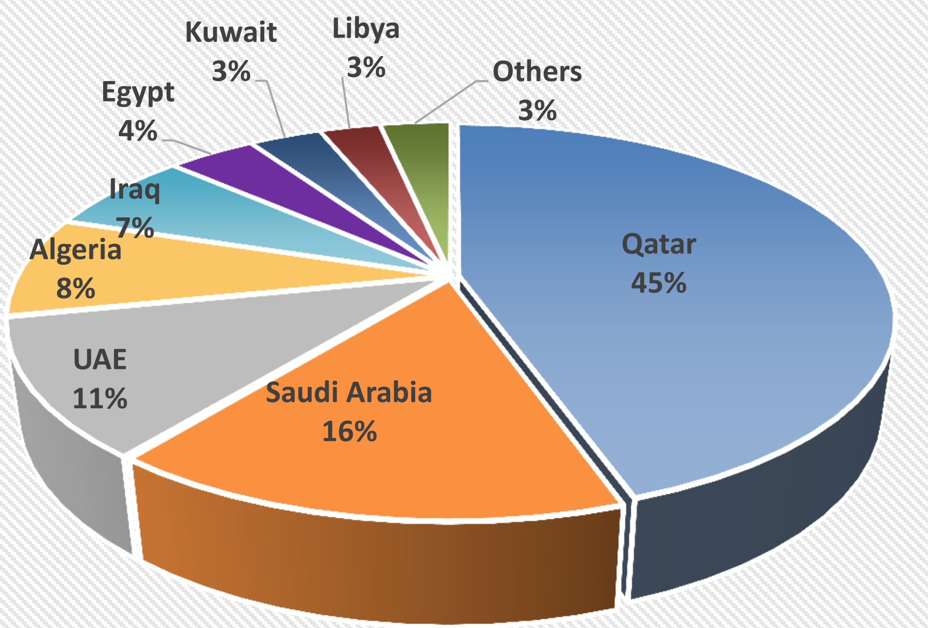
- Proven Gas Reserves at 1st January 2016



UNECE

Distribution of Proven Gas Reserves

Distribution of Proven Gas Reserves in the Arab Countries



Total Reserves 54.5 tcm

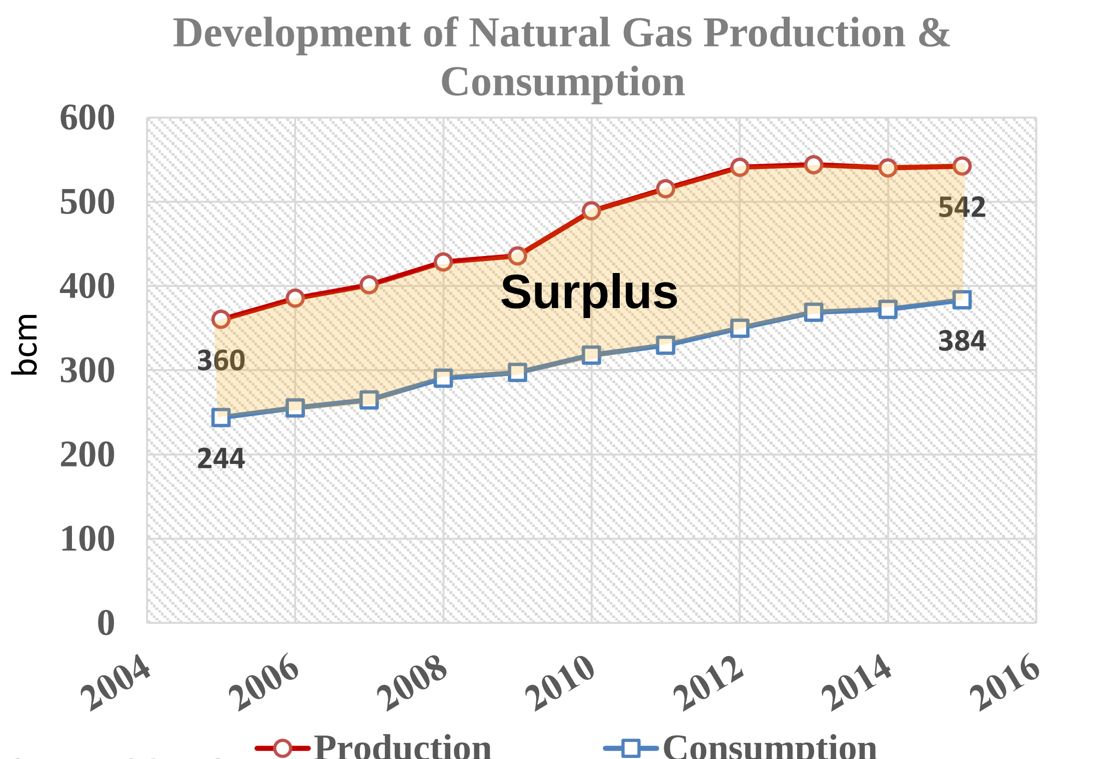
Source :OAPEC

Countries

Country	Reserves	Rank
Qatar	24.4 tcm	1
KSA	8.6 tcm	2
UAE	6.1 tcm	3
Algeria	4.5 tcm	4
Iraq	3.7 tcm	5

Natural Gas in the Arab Countries

❑ Developments of Natural Gas Production and Consumption



Source :OAPEC

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

Gas **49%** in Primary Energy mix

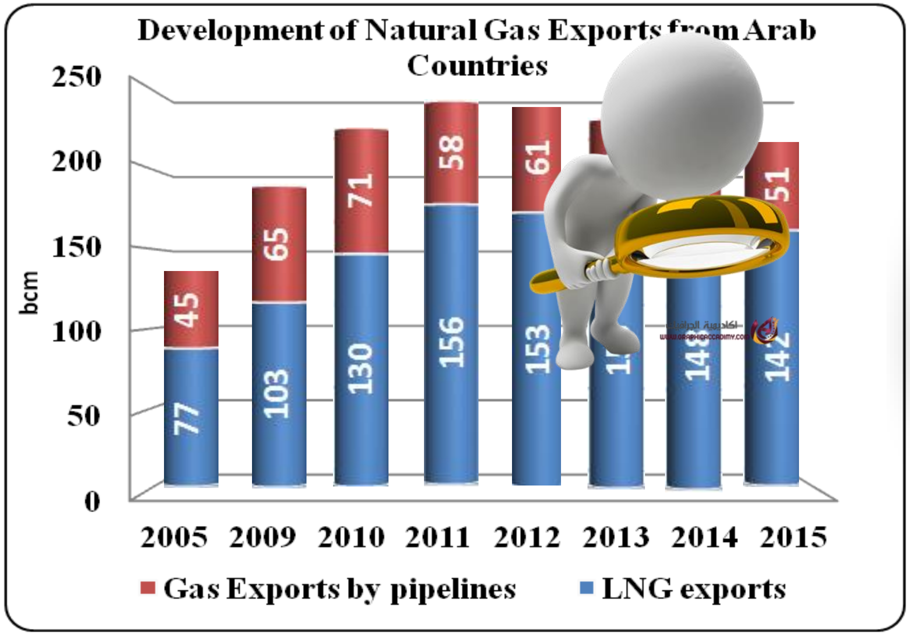
Electricity **49%** of total gas consumption

The 4th session of the UNECE Group of Experts on Gas
Palais Des Nations, Geneva, 27-28 March 2017

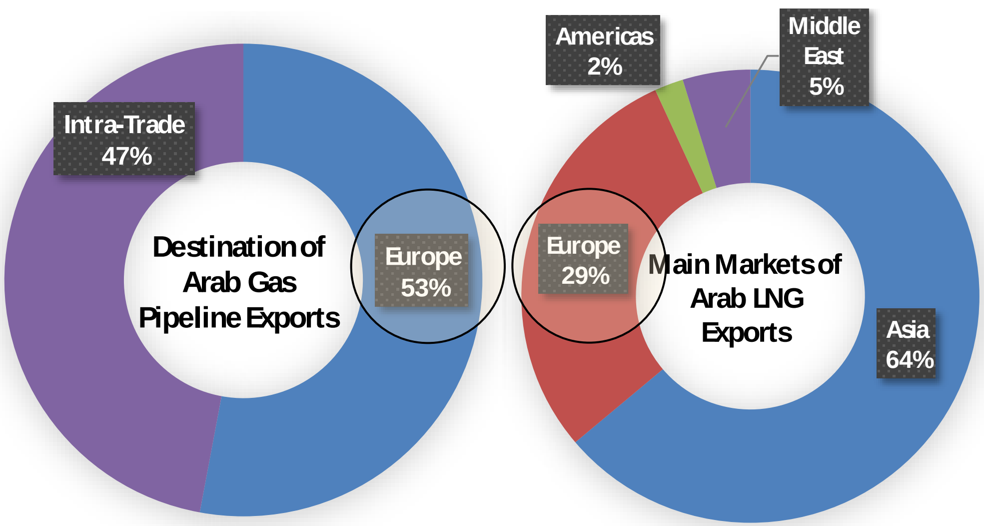
UNECE

Current Trends of Gas Trade in the Arab countries

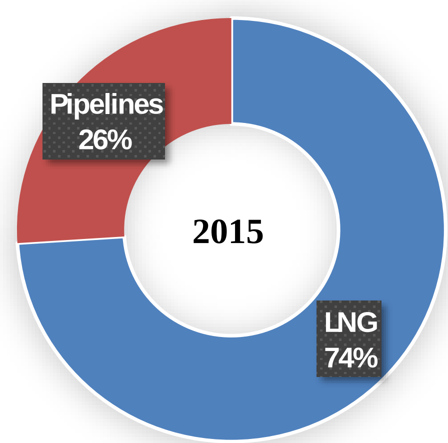
❑ Development of Natural Gas Exports



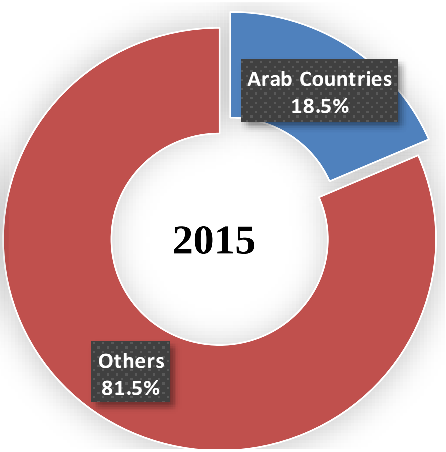
Destinations of Gas Exports



Arab Gas Exports



Global Gas Trade



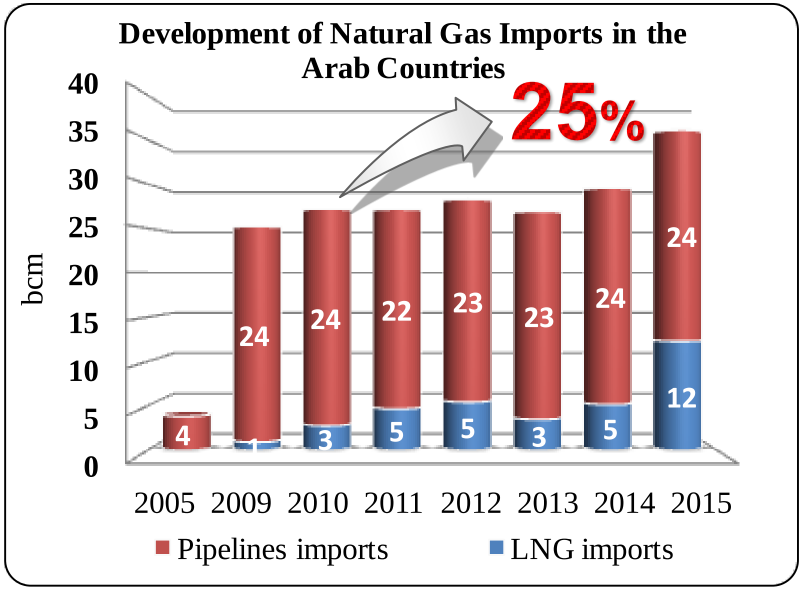
53% Piped gas exports to Europe

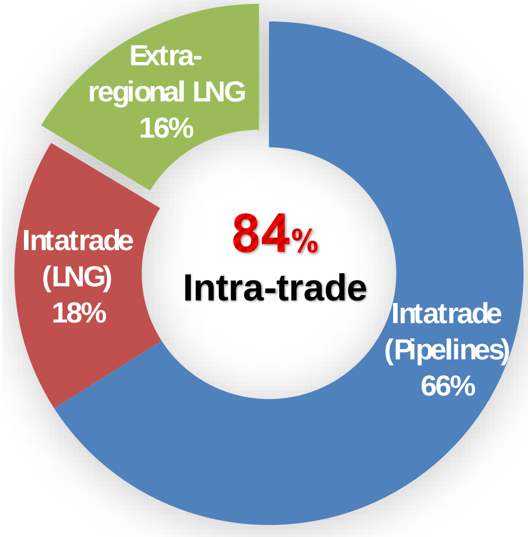
29% LNG exports to Europe

What about Europe?

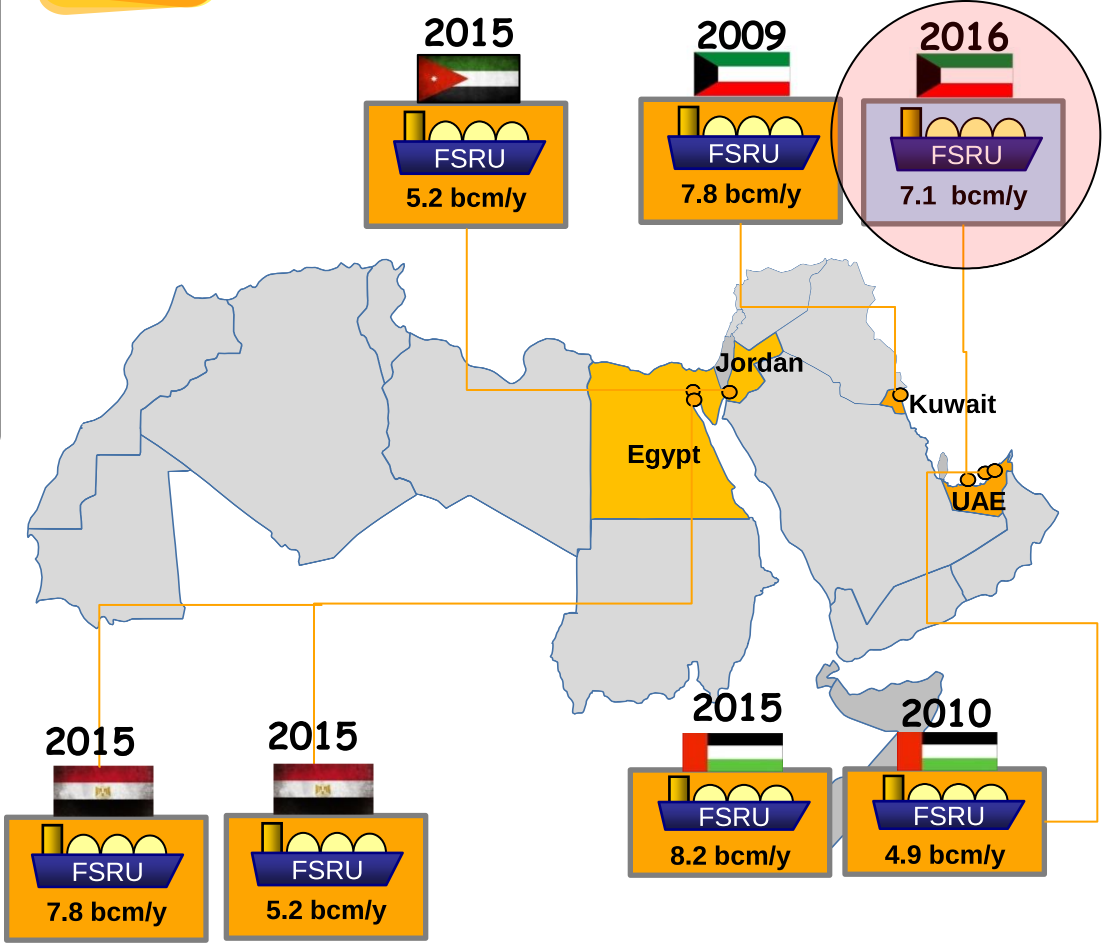
Current Trends of Gas Trade in the Arab countries

❑ Development of Gas Imports by Pipelines and FSRUs





7 FSRUs in the Arab Region



*FSRU: floating storage and re-gasification unit

Prospects of Natural Gas Industry in the Arab Countries

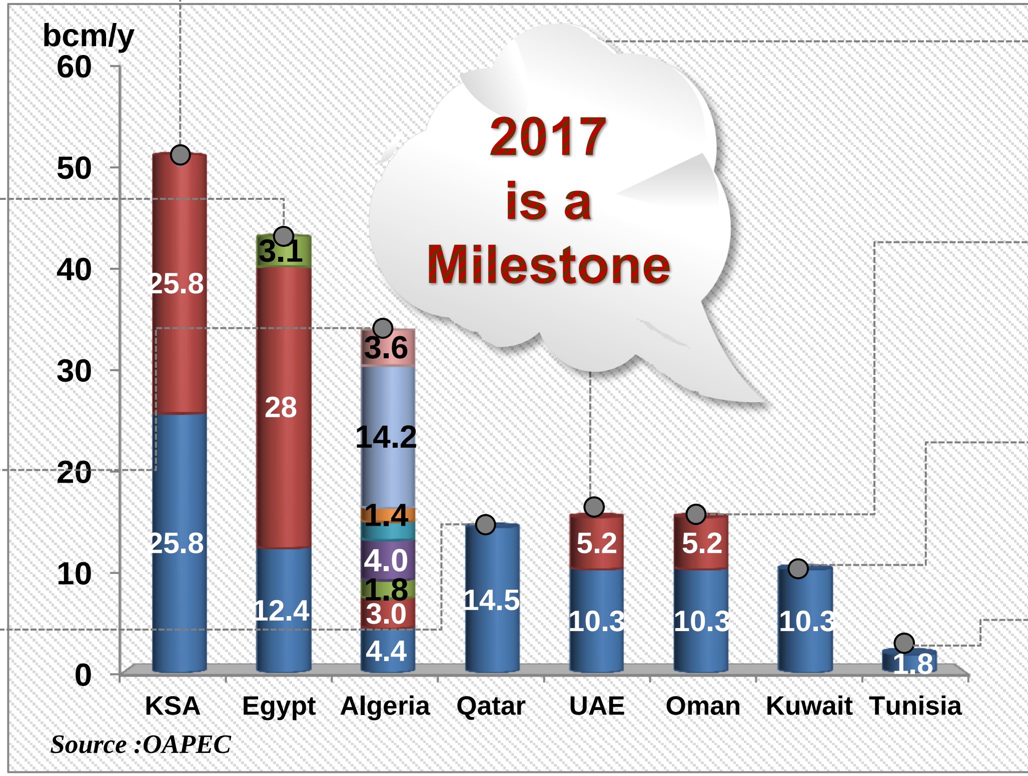
❑ Production Development Projects (2016-2021)

KSA
- Wasit Mega Project, **2016**
- Fadhili Mega Project, **2019**

Egypt
- WND Project, **2017**
- Zohr Mega Project, **2017**
- Atol Project, **2018**

Algeria
- 8 Project, **2016-2019**

Qatar
- Barzan Project, **2017**



Source :OAPEC

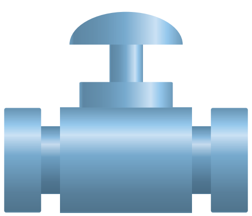
UAE
- Shah phase 2, **2020**
- Bab Project, **2020**

Oman
- Block-62, **2016**
- Khazzan 1& 2, **2020**

Kuwait
- Jurassic Project, **2021**

Tunisia
- Nawara Project, **2017**

21 Projects



200+ Bcm/y

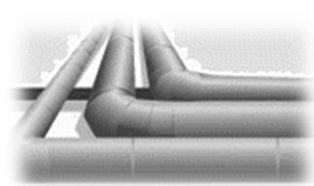
$120+ Billion

Prospects of Natural Gas Industry in the Arab Countries

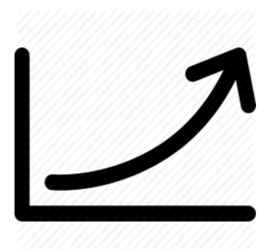
Gas Import Projects

Country	Project	Capacity	Year
Iraq	Gas Pipeline to import gas from Iran	8.8 bcm/y	2017
Jordan	Gas pipeline to import gas from Tamar field	0.1 bcm/y	2017
Lebanon	LNG Terminal (Floating)	5.2 bcm/y	2018
UAE Sharqa	LNG terminal (floating)	5.2 bcm/y	2018
Bahrain	LNG terminal (FSU)	4.1 bcm/y	2018
Oman	Gas Pipeline to import gas from Iran	10 bcm/y	2019
UAE Fujairah	LNG terminal (Fixed) at Al Fujairah	12.3 bcm/y	2019
Kuwait	LNG terminal (Fixed) at Ras Al Azor	15.5 bcm/y	2021
Morocco	LNG terminal (Fixed) at Jorf Asfar	7 bcm/y	2025

6
LNG Terminals



3
Import Pipelines



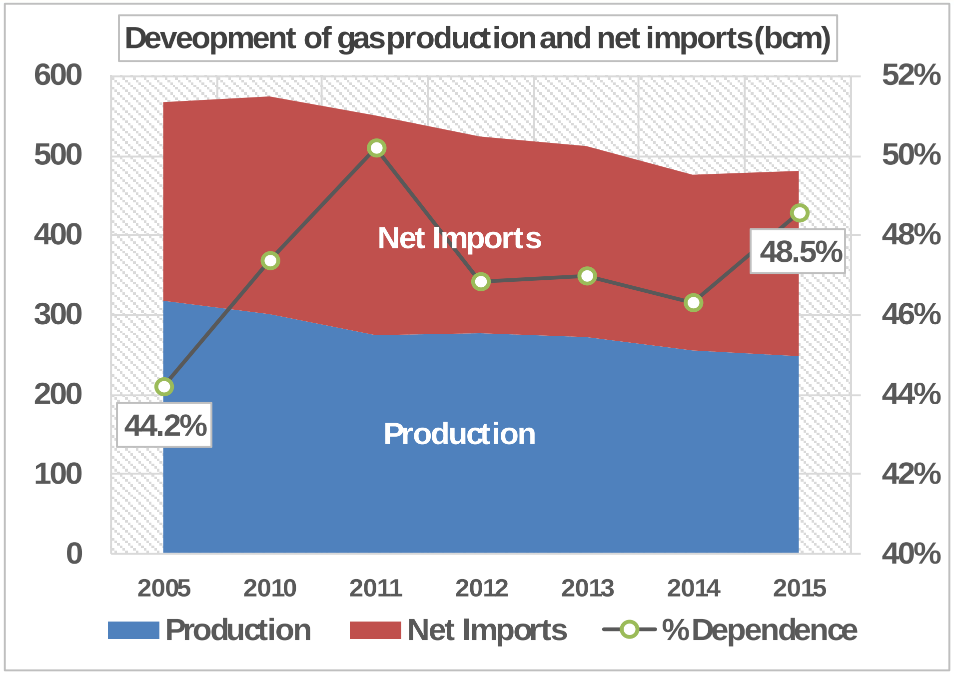
70
Bcm/y Import Capacity

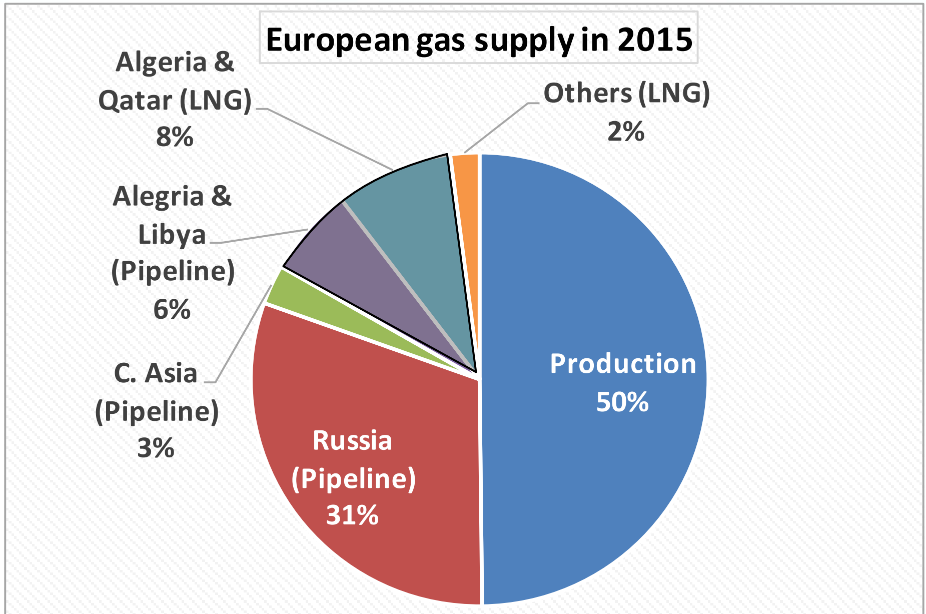
The 4th session of the UNECE Group of Experts on Gas
Palais Des Nations, Geneva, 27-28 March 2017

UNECE

5 Focus on the European Market

❑ Production, Consumption and Extra-regional Imports





Supply is defined as production plus extra-regional imports

-2.4%
Production Growth Rate

-1.6%
Consumption Growth Rate

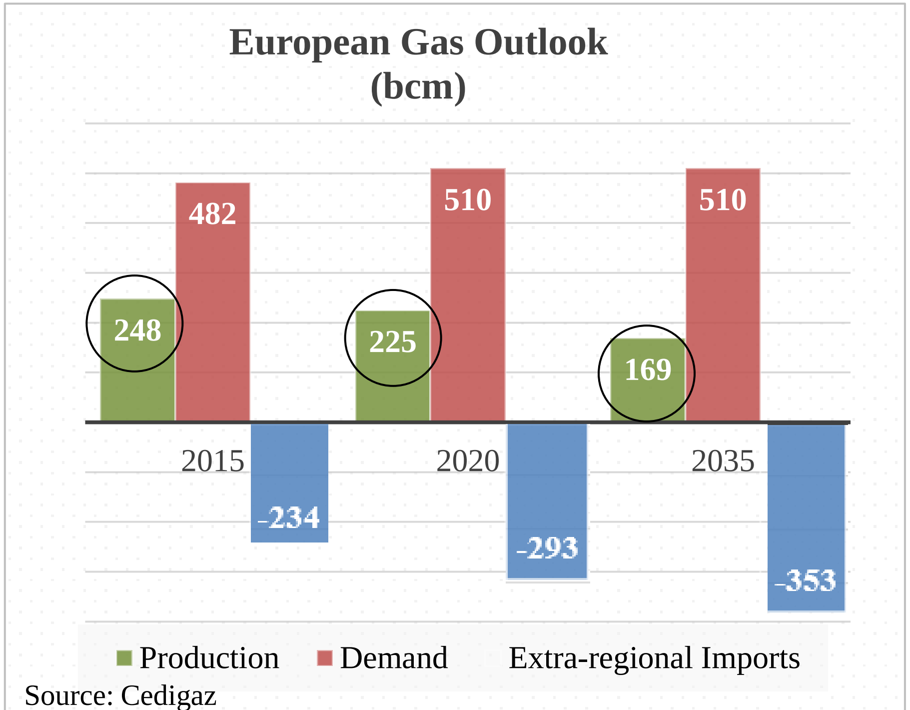
14%
Arab Countries % in Euro Supply

1 — **8% LNG**

2 — **6% Pipelines**

5 Focus on the European Market

❑ European Gas Outlook



49%	57%	70%
2015	2020	2035

Production and Demand

Continuous decline of indigenous gas production while demand is stable at 510 bcm/y

Net Extra-regional Imports

Higher dependence on imports (LNG and Pipelines) to meet the forecasted demand

Share of LNG Imports

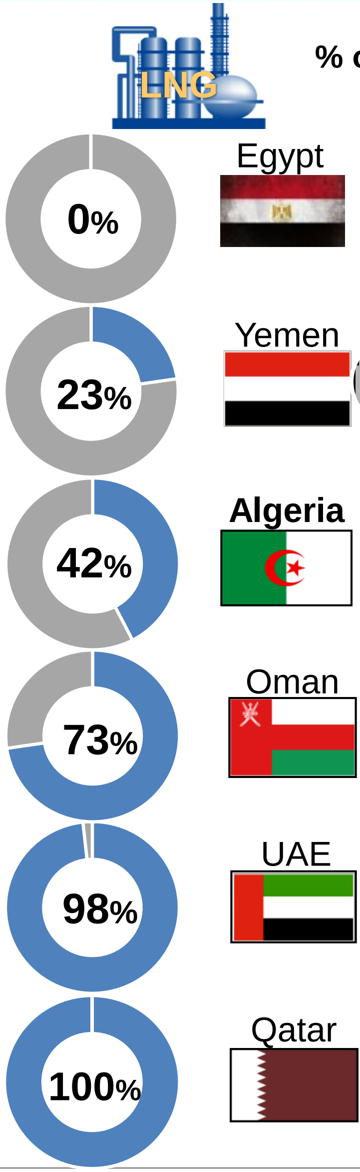
Expected higher share of LNG to enhance diversification and security of supply

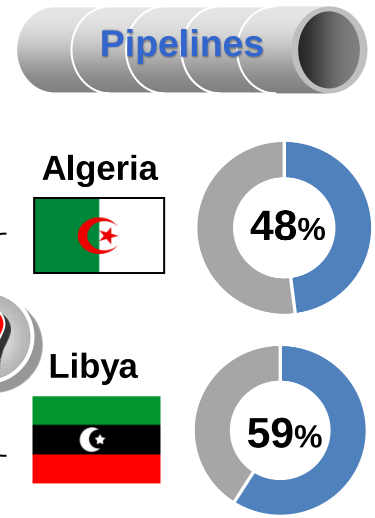
10% → 15% → 26%

Focus on the European Market

❑ Boosting exports to Europe

% operating capacity of LNG plants and export gas lines to Europe in 2015

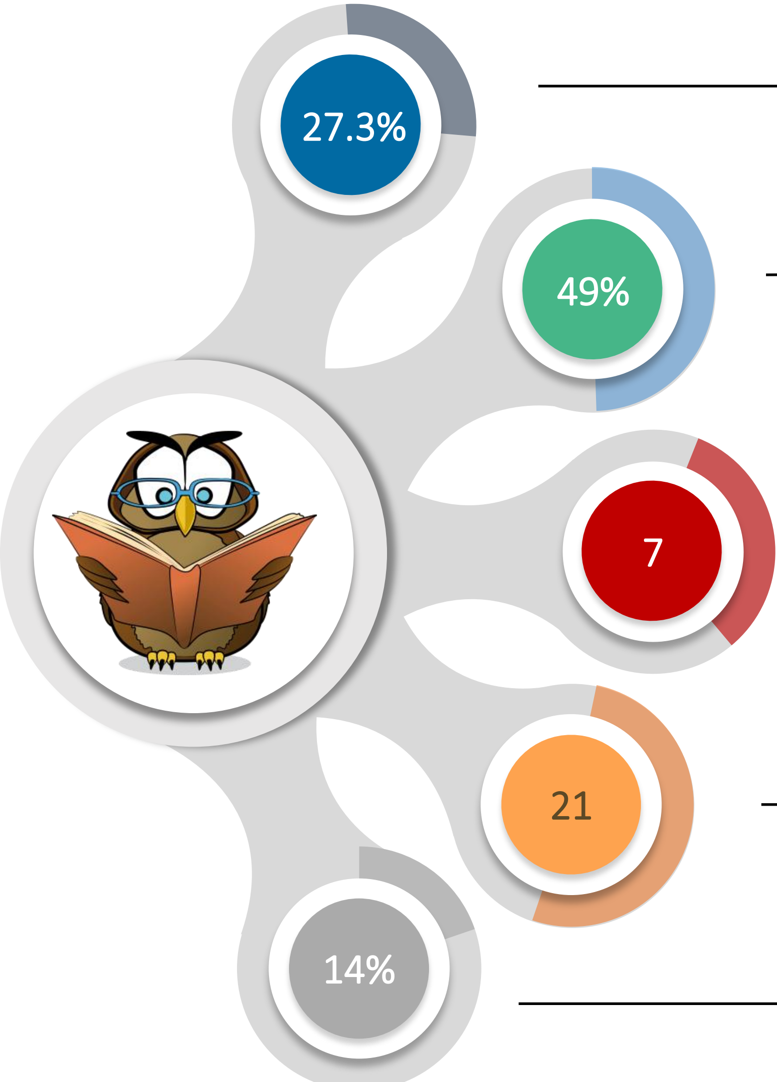




Boosting Exports to Europe

- Existing export infrastructure is working under capacity
- Upon completion of gas development projects, it is possible to boost gas exports from 2015 levels

Conclusions



Share of Arab Countries in World's Gas Reserves

The Arab region represents 15.5% and 11% of the world's total gas production and consumption respectively

Share of Gas in the Arab Energy Mix

Primary energy mix in the Arab countries is dominated by fossil fuels (49.3% oil, 49% gas , 1.1% Coal).

FSRUs in the Arab region

In Dubai, Kuwait, Abu Dhabi, Jordan & Egypt. Further 6 LNG terminals are planned to start in the medium term to meet the soaring demand on gas.

Gas Development Projects

are planned to start in (2016-2021) with total production capacity of 200 bcm/y and total investments of $ 120 billion.

Share of Arab Gas Exports in European Supply

There is a high potential to increase in the future upon the completion of the planned gas development projects in many Arab countries.

Questions?

Eng.Wael A.Moati
Gas Industries Expert,
OAPEC
Whamed_eng@oapecorg.org