ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES
(OAPEC)

The Secretary General's 41th Annual Report

41

2014

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PREFACE

PREFACE

I have the pleasure to introduce the Secretary General's 41st Annual Report for the year 2014. The report analyzes thoroughly the most important Arab and international developments in oil, natural gas, and energy during 2014.

International oil markets have witnessed important developments in 2014, most significant of which was the severe drop of oil prices with the beginning of the second half of 2014 as a result of the continuation of the slowdown of the global economic growth rates, especially in the Euro-zone and emerging countries. This has led to a fall in the global demand for oil, while oil supplies from non-OPEC members and unconventional resources witnessed a noticeable growth. This situation created abundant oil supplies which in turn led oil prices to fall to unusual rates since many years.

Oil producing and exporting countries, led by OAPEC member countries, have spared no effort in working to bring stability back to the oil market in order to secure safe and stable oil supplies to consuming countries around the world, and to protect their national economies as they depend mainly on the oil industry. We would like to mention here that the importance of the petroleum industry in the Arab region does not relate to petroleum producing countries alone. The industry benefits all Arab countries as they indirectly benefit from the money transfers of the workers, commercial exchange, and joint projects between Arab countries. On another note, the continued security tension in some OAPEC member countries has reflected on the growth of the petroleum industry as many petroleum installations have been subjected to damage and destruction which led to a huge drop in their oil production. We are hopeful that 2015 would witness a better security situation in these countries as well as a better global economic performance in general, and that of the oil market in particular.

This report is released after the Secretariat General had organised The 10th Arab Energy Conference in Abu Dhabi, UAE, from 21 to 23 December 2014. The conference was co-sponsored by OAPEC, the Arab Fund for Economic and Social Development, the Arab League, the Arab Industrial Development and Mining Organisation, and the UAE's Ministry of Energy with the participation of official delegations from all Arab countries, specialised international energy organisations, and Arab and foreign experts. The conference reviewed the current situation and future prospects of the oil and gas industry in light of economic and technological developments. The conference also discussed energy cooperation among Arab countries.

The report comes out while OAPEC celebrates its 46th anniversary since its establishment on 9 January 1968, which marked the beginning of an important stage in the joint Arab action in energy. OAPEC, represented in its Secretariat General, has been working for long decades to defend the stances of its member countries in various international events and oil, gas, and energy forums. It has also been working on encouraging cooperation among the member countries in the various economic activities of the petroleum industry and participating in all relevant Arab and regional events and activities.

The report at hand consists of two sections:

First section: introduces the main features of the oil market and the main factors influencing it and their reflections on the value of OAPEC member countries oil exports. It also presents the developments on oil and energy consumption in Arab countries in general, and OAPEC member countries in particular. This section also gives an extensive presentation of the Arab and international developments in energy resources exploration, production, reserves, downstream industries (refining/petrochemicals), and natural gas consumption, trade, and industry.

Second section: covers conferences and seminars organised by OAPEC or which the Organization has taken part in during 2014. Most important events are the Ministerial Council and Executive Bureau meetings, the 10th Arab Energy Conference, as well as the coordinating

meetings for gas, environment, databank and other experts organised by OAPEC. This is in addition to economic and technical studies and reports prepared or co-prepared by the Organisation, including The Joint Arab Economic Report 2014.

The report also details the financial and administrative status of OAPEC joint ventures which are the Arab Maritime Petroleum Transport Company (AMPTC), Arab Shipbuilding and Repair Yard Company (ASRY), Arab Petroleum Investments Corporation (APICORP), and the Arab Petroleum Services Company (APSCO).

Finally, we would like to stress that OAPEC member countries, while realizing the role of petroleum as the main source of income, spare no effort to achieve the most ideal use of their petroleum wealth as it is an exhaustible energy resource. This fact has created responsibilities on the part of these countries for investing petroleum in production projects that contribute to the economic and social development in the member countries, and the good and growth to the rest of the world.

The Secretariat General hopes that the new edition of the Secretary General's Annual Report would be a distinct addition to the Arab library, and to provide researchers and those interested in the oil industry with a scientific reference containing a comprehensive overview of the petroleum developments during 2014.

Thank you.

Secretary General

Abbas Ali Al Naqi

PART ONE

INTERNATIONAL DEVELOPMENTS IN OIL AND ENERGY

CHAPTER ONE

DEVELOPMENTS IN GLOBAL MARKETS AND THEIR IMPACT ON OAPEC MEMBER COUNTRIES

CHAPTER ONE

GLOBAL OIL MARKET DEVELOPMENTS AND THEIR IMPACT ON OAPEC MEMBER COUNTRIES

FOREWORD

During the first half of 2014, oil markets were relatively stable as a reflection of the global economic recovery which continued on moderate rates. The second half of the year, however, a sudden change hit the oil market represented in a sharp drop of oil prices, and fluctuations in global markets in general which affected the trade movement and global economy performance rates.

Global oil prices witnessed a sharp drop with OPEC crude basket annual price rate of 2014 hitting $96.3 per barrel, the lowest since 2010, as a result of various interrelated factors; some of which are market-related and others unrelated. Demand for oil has fallen more than expected. Demand growth has risen by 1million b/d only in 2014 with 91.2 million b/d in 2014 compared to 1.3 million b/d in 2013; in the light of abundant supplies hitting 92.5 million b/d. The excess of supplies came mainly from non-OPEC producers, North America in particular. At the same time, OPEC members' supplies have dropped in 2014 for the second successive year reaching 36.3 million b/d. Global oil prices have been affected by a number of other factors; most important of which is that geopolitical tension has become less in many major oil producing regions as well as the rise of the US dollar's value compared to other major currencies.

The first chapter introduces the main features of the oil market and the main factors influencing it and their reflections on the value of OAPEC member countries oil exports. It also presents the developments on oil and energy consumption in Arab countries in general, and OAPEC member countries in particular.

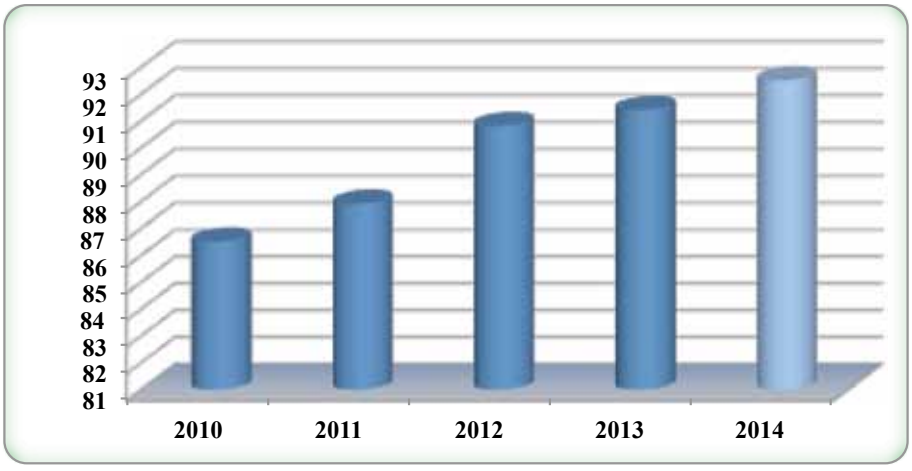
First: Main Developments in the Global Oil Market for 2014 and Influencing Factors

To shed more light on all main developments in the global oil market in 2014, the next paragraphs explain in detail some of the oil market-related issues like oil supplies, global oil demand, price trends, global oil reserves movements, and their impact on the value of OAPEC member countries oil exports.

1- Supplies

In 2014, total world oil supplies (crude oil and NGLs) have witnessed a noticeable increase of about 1.1 million b/d (1.2%) compared to the previous year to reach 92.5 million b/d as explained in table (1-1) and figure (1-1).

Figure (1-1)
World Supply of Oil and NGLs 2010-2014
(Million barrels/day)



With regards to supplies development throughout the year quarters, the first quarter in 2014 has witnessed a rise in global supplies of about 800,000 b/d compared to the last quarter of 2013. It reached about 92.3 million b/d which has been maintained at the same level in the second quarter. This has been followed by an increase of about

100,000 b/d in the third quarter compared to the second quarter. Another increase of about 800,000 b/d reaching 93.2 million b/d followed that during the fourth quarter.

1-1 OPEC Supplies

The rates of OPEC member countries' oil supplies (crude oil and NGLs) dropped by about 900,000 b/d to reach 36.3 million b/d in 2014. This caused a slight drop of OPEC share of the total global oil supplies from 41% in 2013 to about 39% in 2014 as shown in table (1-1).

OPEC oil and NGL supplies have increased by about 400,000 b/d during the first quarter of the year compared to the fourth quarter of the previous year. It dropped in the second quarter by 200,000 b/d compared to the first quarter. This was followed by a drop of about 200,000 b/d in the third quarter compared to the second quarter then by a slighter drop of 100,000 b/d to reach 36.1 million b/d in the fourth quarter.

At the same time when OPEC oil supplies have dropped from about 30.9 million b/d in the first quarter of 2014 to reach about 30.2 million b/d in its fourth quarter, OPEC NGLs and unconventional oil supplies have gone up from 5.7 million b/d in the first quarter to 5.9 million b/d in the fourth quarter.

In light of the abundant global oil supplies, OPEC has continued working hard to monitor the global oil market very closely and produce the required supplies in an attempt to keep the oil market balanced.

In this regard, OPEC held two ordinary meetings during 2014. It has taken measures that would help achieving more balance in the market. Here are some details from these meetings:

- The first ordinary meeting was held on 11 June 2014 at OPEC headquarters in Vienna. The meeting discussed oil market developments and the world's economic growth, including supply and demand projections in the second half of the year,

as well as 2015 projections. It has been noted that prices were relatively stable in the first half of the year, an indicator of the sufficient oil supplies. As for the periodical fluctuation of oil prices, these have been a reflection of the geopolitical tensions.

- Based on that, the conference decided that member countries should keep the Organization's production ceiling at current rates of 30m b/d.
- The second ordinary meeting was held on 27 November 2014 at OPEC headquarters in Vienna. The meeting reviewed international oil market projections, especially demand and supply projections for 2015, with special focus on the first half. The meeting noted that the global economic recovery has continued in spite of the growth slowdown. It has also noted the increase of crude oil reserves and products in the industrial countries. There was concern over the big and rapid drop of oil prices in the last months of 2014. Therefore, the conference decided to keep production at the current rate of 30 million b/d for six months until the next meeting in June 2015.

1-2 Non-OPEC Supplies

Non- OPEC oil producing countries' total supplies in 2014 have reached about 56.2 million b/d with an increase of about 2 million b/d or 3.7% compared to 2013 as shown in table (1-1).

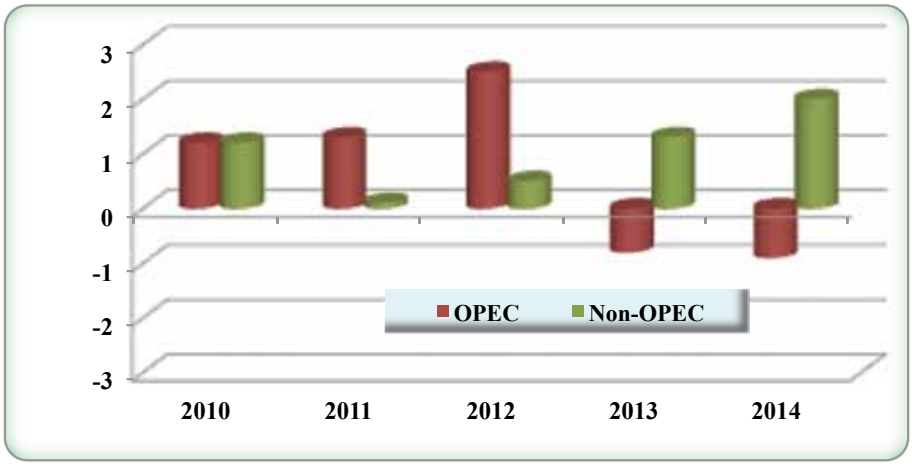
In spite of the classic drop in production which many non-OPEC countries have been suffering from, they have been able to increase net production significantly countering predictions that their oil production has reached its peak. The source of the greatest portion of this supply increase was the strong growth of the Unites States' shale oil and unconventional NGLs. The US production went up by about 1.6 million b/d during 2014 compared to 2013. This is in addition to other countries although on a lower scale, especially Canada (180,000 b/d). As a result, OECD countries have been able to increase their supplies significantly to touch the borders of 24

million b/d throughout the year. Developing countries' supplies have also witnessed an increase of about 170,000 b/d during the year, especially Latin America.

Figure (1-2) shows annual change rates of OPEC countries' oil supplies in addition to non-OPEC oil producing countries during the period from 2010 till 2014.

Figure (1-2)

Annual Change Rates in the World Oil and NGLs supplies (2010-2014)
(Million barrels/day)



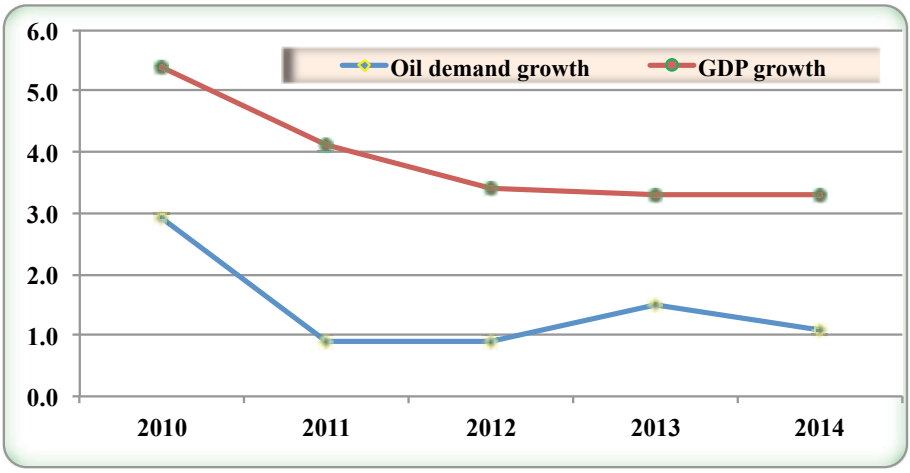
2- World Oil Demand

Generally the absolute global oil demand has increased in 2014 with 1 million b/d and growth rates that were significantly lesser than the previous year influenced by the very meager global economic growth. The status of the global economy is an important parameter for knowing the global demand for oil. The relationship between economic growth and the increase in global demand for oil has been embodied in the impact of the continuation of the economic growth slowdown on demand growth rates in recent years. Figure (1-3) and table (1-2) show annual growth rates of global demand for oil compared to global economy growth rates for the period between 2010 and 2014.

Figure (1-3)

World Economic Growth and Oil Demand Growth, 2010-2014

(%)



2014 witnessed continued world economic growth albeit in a modest way due to reasons related mainly to the high level of sovereign debts in the Euro zone and inflation risks in emerging economies. In light of this, the global economic growth in 2014 has been reconsidered towards a fragile recovery throughout the year by specialised international institutes especially the International Monetary Fund (IMF).

Concerning the different international groupings, OECD countries, which account for 50.2% of the global oil consumption, have witnessed a decline in economic growth rates from 1.4% in 2013 to 1.8% in 2014.

Amongst the OECD countries, the USA economy has maintained its annual growth rates of 2.2%. Japan's economy witnessed a big drop in its economic growth from 1.5% in 2013 to only 0.9% in 2014 influenced by increase of VAT in April 2014.

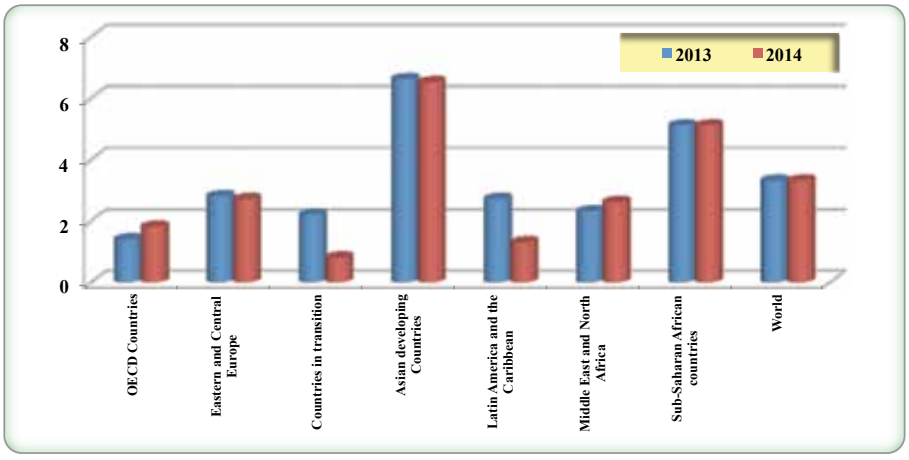
A significant improvement has happened in the Euro zone economic growth rates from (-0.4%) in 2013 to (0.8%) in 2014 due to relative improvement of neighbouring countries' economies.

The world economic growth rates have dropped slightly to reach 4.4% compared to last year's growth rates of 4.7%. The Commonwealth of Independent States (CIS) growth rates have dropped from 20.2% in 2013 to 0.8 in 2014.

Asian developing countries growth rates have witnessed a slight drop throughout the year to reach 6.5% compared to 6.6% in the previous year including China that witnessed a relative slowdown in its economic growth to reach 7.4% in 2014 compared 7.7% in 2013.

Latin America and the Caribbean's economic growth rates have dropped from 2.7% in 2013 to 1.3% in 2014. Economic growth rates in the Middle East and North Africa region (MENA) have increased from 2.3% in 2013 to 2.6% in 2014. South Sahara's African countries have maintained last year's economic growth of 5.1% as shown in figure (1-4) and table (1-3).

Figure (1-4)
World Economic Growth in 2013 and 2014
(%)

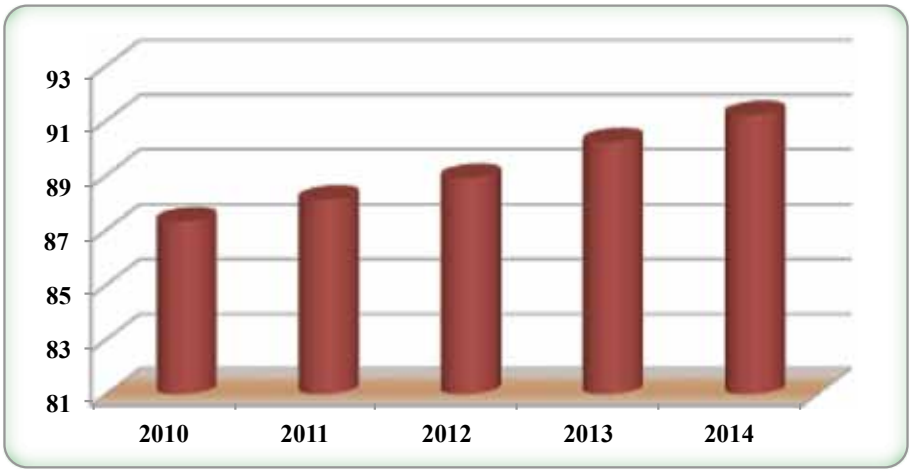


By monitoring global oil demand growth rates in 2014, it can be noted that the fragile global economic recovery has affected oil demand growth rates. This has affected the world's oil demand monthly forecasts for 2014 that are issued by specialized institutes worldwide, including OPEC whose January 2014 statements predicted an increase of about 1.1 million b/d in the world's oil demands during

the year. This forecast remained unchanged throughout the year.

Generally, economic growth rates, which are still relatively low, have affected the global oil demand that went up by 1.million barrels per day throughout the year (1.1% compared to last year) as total global demand has reached 91.2 million b/d in 2013 as shown in figure (1-5) and table (1-4).

Figure (1-5)
Total Global Oil Demand, 2010-2014
(Million barrels/day)



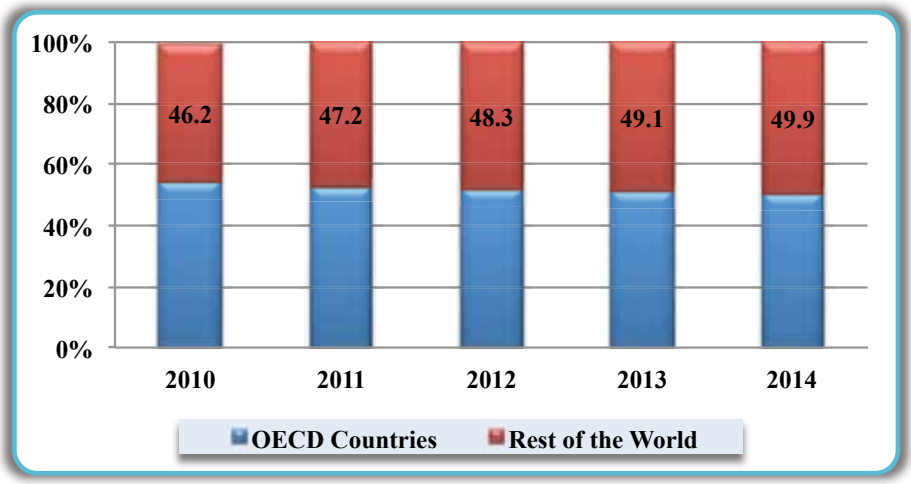
Oil demand rates have varied from one international grouping to another. While OECD countries demand rates have dropped in 2014 by about 200,000 b/d to reach 45.7 million b/d, they went up in other countries in the world by 1.2 million b/d compared to 2013 rates.

Change in every group demand rates has led to a change in their share of global demand in 2014. OECD countries share has dropped from 50.9% in 2013 to 50.1% in 2014. While the share of other countries in the world has gone up from 49.1% to 49.9% as shown in figure (1-6) and table (1-5):

Figure (1-6)

Distribution of Oil Demand according to International Groupings, 2010-2014

(%)



Following are the development of oil demand levels for each individual international group:

2-1 OECD Countries

OECD countries demand has fallen by about 200,000 b/d during the year (0.4%) compared to last year to reach 45.7 million b/d. Within the said grouping, Western Europe demand has fallen by 200,000 b/d to reach 13.4 million b/d throughout the year. Asian industrial countries' demand has fallen by 300,000 b/d to reach 8.1 million b/d. On the contrary, North America's demand for oil has risen by 300,000 b/d to reach 24.2 million b/d, as shown in figure (1-7) and table (1-6):

Figure (1-7)
Total OECD Oil Demand, 2010-2014
(Million barrels/day)

US economy developments are considered the most important factor with regards to global oil consumption. Oil consumption in the USA, which claims 21.2% of the world's total oil consumption, has become the significant and unpredictable factor in connection to global oil consumption for the past few years. US demand for oil has been characterized by a declining trend in the first half of 2014 due to drop in demand for propane and fuel oil. During Q3 and Q4, demand has increased in a noticeable way in light of the massive drop in the world's oil prices and the increase of US dollar's exchange rate compared to other major currencies, as well as, the rapid growth pace of the US economy, improvement of labour market and consumer's confidence in the USA during the second half of the year.

With regards to European industrial countries, weak oil consumption trends that prevailed in past years have continued to domain. This is a result of the continuation of the sovereign debts crisis in the Euro zone that started in 2009 and escalated in the beginning of 2011 to gravely affect industrial European economies. In the second and fourth quarters of 2014, Europe has witnessed a positive growth in demand for oil which resulted in shrinking the

drop on oil demand in addition to stability in industry and transport sectors in the region during the year.

As for Japan, the effect of the Fukushima nuclear center's explosion crisis in 2011 and closing down its nuclear plants has continued to influence oil demand and all aspects of the Japanese economy. However, Japan's need for crude oil in generating power and direct combustion has dropped slightly during the year in light of the increasing natural gas, charcoal and other types of fuel shares.

With respect to OECD countries' demand for oil on a quarterly basis during 2014, OPEC projections indicate that following a drop in the group demand of about 500,000 b/d during the first quarter of 2014 compared to the fourth quarter of the previous year, the second quarter has witnessed a drop of about 800,000 b/d compared to the first quarter. It was followed by an increase of about 900,000 b/d during the third quarter compared to the second quarter. Then demand level has risen by about 700,000 b/d in the fourth quarter of the year.

2-2 Developing Countries

Developing countries' demand (including China) has increased by more than 1 million b/d during 2014 compared to the previous year reaching about an unprecedented 40.2 million b/d with a growth rate of 2.8 compared to the previous year. It is worth mentioning that developing countries' demand is considered the main drive for global oil demand. Oil demand in these countries has witnessed an increase of 4.7 million b/d in 2014 compared to its level in 2010.

Within this grouping, demand has risen in MENA region by about 400,000 b/d reaching 11.8 million b/d. Arab countries' demand has claimed 6.7 million b/d (a share of 50% of the region's demand and 18.2% of the total increase in developing countries oil demand). The increase is largely attributed to the increase in OAPEC member countries consumption which reached 5.8 million b/d during the year (an increase of 3.6% compared to the previous year). Diesel was

the most used product in these countries especially in transportation and industry sectors. As for other Arab countries, the demand has maintained the previous year's rates of 0.9 million b/d. Other MENA region countries, demand has increased by about 300,000 b/d to reach 5.1 million b/d during the year.

Asian developing countries' demand has risen by 500,000 b/d to reach 21.7 million b/d in 2014. In spite of the slowdown of the Chinese economic growth, China's demand, which is the main drive for economic development and the vehicle for the said market recovery claiming 48% of this grouping demand, has dominated by 60% of the increase in Asian countries demand and 27.3% of the total demand of all developing countries with an increase of 300,000 b/d to reach 10.4 million b/d in 2014.

Increasing demand for petrochemicals' raw material and the slight increase in transport fuel needs have contributed to supporting crude oil demand increase in China.

It is worth mentioning that following its drop in the first quarter of 2014 compared to the fourth quarter of the previous year, Chinese demand for oil has increased in the second quarter but then dropped again in the third quarter then increased in the fourth as China boosted its strategic reserves in light of the falling oil prices.

Concerning India's economy, the other drive for the Asian economic growth, the demand for oil has risen by about 100,000 b/d to reach 3.8 million b/d.

Latin American countries witnessed an increase in demand by 200,000 b/d to reach 6.7 million b/d due to demand of 100,000 b/d for oil in Brazil followed by the rest of the region by an increase of 100,000 b/d as shown in table (1-7).

2-3 Countries in Transition*

The demand of the countries in transition has risen by 100,000 b/d compared to the previous year's levels to reach 5.3 million b/d as shown in table (1-7).

* Including the former Soviet Union and Eastern European countries that did not join the OECD .

3- Price Trends

3-1 Crude oil prices

World oil prices dropped significantly in 2014 hitting their lowest levels since 2010. Monthly OPEC basket rates varied significantly between $59.5 and $107.9 per barrel throughout the year. Average annual OPEC basket rate reached $96.2 less by about $9.7 per barrel (equivalent to a drop of 9% compared to 2013).

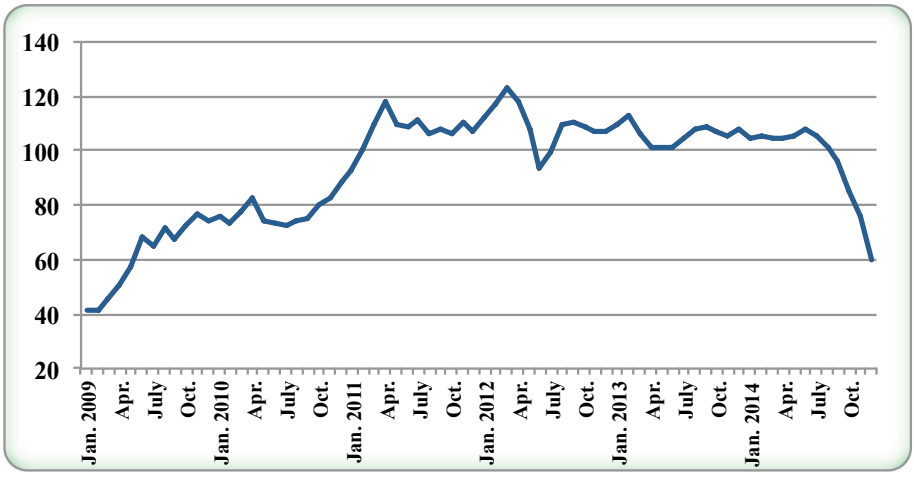
The first half of the year witnessed a limited degree of price fluctuations ranging between about $104.2 and $107.9 per barrel as monthly averages for OPEC basket compared to the second half of the year which witnessed a sharp fall of prices.

Quarterly oil prices average has been at $104.7 per barrel for OPEC basket in the first quarter of the year, less by $1.8 per barrel (about 1.7%) compared to the fourth quarter of the previous year. It then went up to reach $105.9 per barrel in the second quarter. The price then dropped by $5 per barrel in the third quarter (4.8%) compared to the second quarter of the year to reach $100.8 per barrel. The price continued to drop during the fourth quarter reaching $73.4 per barrel, a drop of 27% compared to the third quarter, the lowest price rate since the third quarter of 2010.

Monthly OPEC basket price averages have increased till they reached their highest at about $107.9 per barrel during June. Prices then started to gradually drop in a dramatic way throughout the remaining months of the year hitting $59.5 per barrel in December, the lowest since May 2009.

As a result, 2014 witnessed clear expanding gaps between the highest and lowest prices for OPEC basket reaching about $48.4 per barrel, compared to $12 per barrel, as a difference between the highest and lowest monthly prices for the basket in 2013. Figure (1-8) and table (1-8) show the monthly average of OPEC basket during the year.

Figure (1-8)
Monthly OPEC Basket Average, 2009-2014
($/barrel)



World oil prices are usually determined as a result of various and inter-wined factors with different trends. Some of the main factors that caused the prices to fall can be listed as follows:

- The drop of the annual growth rate of the demand for oil with abundant supplies is one of the most significant reasons for the fall of oil prices especially following the success of using unconventional oil and natural gas resources in the USA, which resulted in a huge increase of the total oil supplies from the non OPEC group hitting almost 2 million barrels per day in 2014.
- The gradual hike of the US dollar exchange rates compared to other major currencies since the beginning of 2014, which led to the drop of oil prices for concerns over soaring inflation rates.
- The trend among major petroleum exporting countries to maintain their production rates unchanged to secure their market share instead of trying to raise prices through reducing production; which created a gap between supply and demand.

- The geopolitical developments in some oil exporting Arab countries like Iraq and Libya have not affected production rates contrary to world forecasts that expected oil prices to hike in 2014.
- The drop in crude oil demand by European and Chinese markets, the most important energy consumers, especially with the suffering of many European countries economically and financially, with increasing concerns over the world economic growth slowdown.
- Speculations had a major role, especially in the second half of the year, in light of the nature of the prevailing geopolitical factors throughout the year.

2014 has also witnessed developments in price differences pattern. The pattern is characterized by relatively limited differences between the prices of light low sulfur oils and heavy high sulfur oils throughout the year compared to the previous year. For example, the price difference between Brent crude oil (highest quality of light oils) and Dubai oil (heavy) has reached $2.4 per barrel in 2014 compared to $3.2 per barrel last year. OPEC basket price has been lower than Brent by $2.8 per barrel during the year.

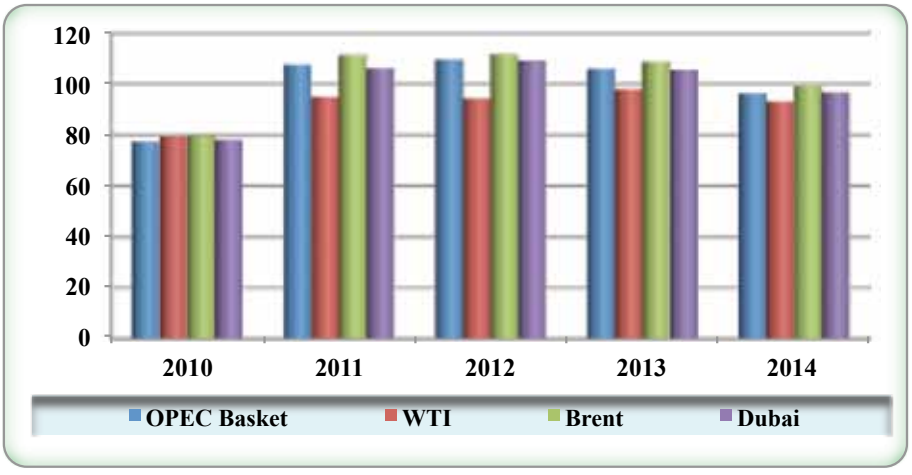
These price difference developments could be attributed greatly to the low supplies of light oils in the world market due to low demand from European and Asian markets as a result of weak refining margins, reduced differences between products, and undisrupted fixed supplies. This happened in spite of the geopolitical tension in various regions during the year especially Libya, and its direct impact on Brent oil prices. Main crude oil prices witnessed a drop worldwide in 2014. During the year, Dubai oil dropped by about $8.9 per barrel, Brent dropped by about $9.7 per barrel, and West Texas dropped by about $4.7 per barrel.

West Texas crude, one of the world's main crude indices of light nature and low sulfur content, has been suffering since 2007 of logistic limitations, especially that it is closed and isolated from other world markets. Its prices have moved in a way that is irrelevant

to the world market fundamentals. Traditionally, price differences between West Texas and Brent oils, similar in quality, favoured West Texas. However, in 2014, these differences hit $5.8 per barrel compared to $10.8 per barrel in the previous year in favour of Brent. Moreover, the price of West Texas crude of high quality was less than other crudes with lower quality by about $3.4 per barrel compared to Dubai, and $3 per barrel compared to the average OPEC basket during the year.

Price differences can be figured out from table (1-9) and figure (1-9) showing the annual OPEC basket price rate and the main oil indices in the world (light US crude, Brent, and Dubai) from 2010 till 2014.

Figure (1-9)
Annual Average Prices for OPEC Basket, US Crude, Brent, and Dubai from 2010 to 2014
($/Barrel)



The evolution of prices and their pattern of differences during the year have been reflected on spot prices of all Arab crudes in general that have followed the same course as they fell during the year compared to the previous year and by different degrees.

Algerian crude has fallen by $9.8 per barrel to reach $99.6 per

barrel during the year (a drop of 9% compared to last year). Kuwaiti export crude has fallen by $9.9 per barrel reaching $95.2 per barrel (a drop of 9.4% compared to 2013). This resulted in unchanged price difference from last year's $4.4 per barrel between the Algerian and Kuwaiti crudes.

With regards to other Arab crudes, Arab light crude of Saudi Arabia has fallen by (9%) to reach $97.1 per barrel, UAE Murban crude by (8.3%) reaching $99.3 per barrel, Libyan Sidra (9.4%) reaching $98.4 per barrel, Qatar marine crude by (8.6%) hitting $96.3 per barrel and Iraqi Basra by (9%) reaching $94.4 per barrel respectively during the year. As shown on table (1-9).

It is clear that the fall of nominal crude oil price, which reached about $9.7 per barrel is lower than the fall in its actual price calculated using the year 2000 as a base year after amending according to the index number that represents the Gross Domestic Product deflator in industrial countries, as it fell by $8.9 per barrel (more than 10%) reaching an average of about $77.3 per barrel in 2014 as shown in table (1-10).

3-2 Spot Prices for Oil Products

In 2014, there has been a decline in the annual average price of various oil products in all major markets around the world and by different percentages according to the market and product type.

3-2-1 Premium gasoline prices

In 2014, the price rate of gasoline in US Gulf has reached $120.8 per barrel, that is $8.9 lower representing 6.9% compared to the 2013 prices. In the Mediterranean market, the price rate has reached $112.5 per barrel during the year with a drop of $10.2 per barrel representing a drop of 8.3% compared to the previous year. The price rate in Rotterdam market has reached $117 per barrel during the year with a drop of $5.6 per barrel (4.6% when compared to 2013). As for Singapore market, the price rate has reached $112.5 per barrel in

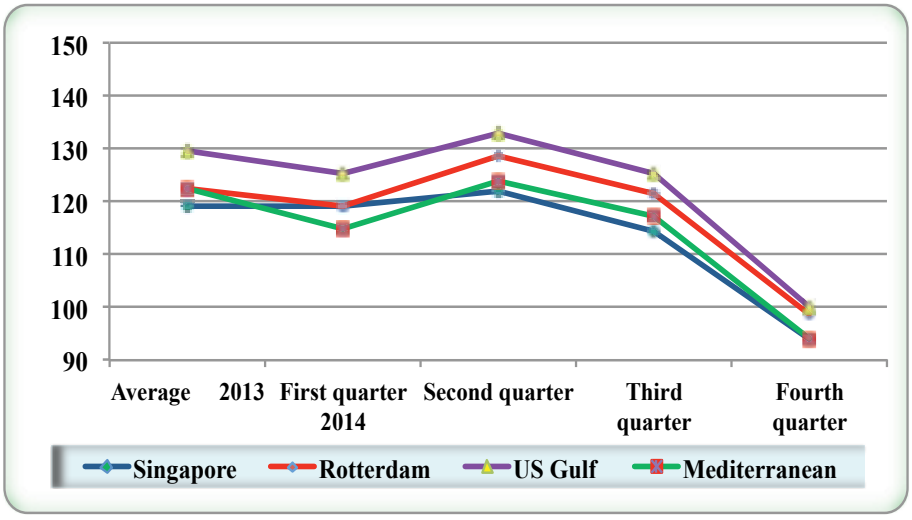
2014, with a drop of $6.8 per barrel (5.7% drop when compared to 2013 prices).

The US market has achieved the highest prices among the four markets in 2014, followed by Singapore, the Mediterranean, and finally Rotterdam, that recorded the lowest prices as shown in table (1-11) and figure (1-10).

Figure (1-10)

Premium Gasoline Prices, 2013-2014

($/Barrel)



When comparing the final price in some major industrial countries, it can be noted that it is lowest in the US market due to low taxation in that market. Such taxes represented about 13.6% of the gasoline net price in October 2014 compared to 32.4% in Canada, 41.9% in Japan, 51.4% in Spain, and more than 58% in some other European countries (France 58.6%, Germany 59.2%, Italy 61.1%, and the UK 62.8%) during the same period as shown in table (1-12) and figure (1-11).

Figure (1-11)

Gasoline Prices in some OECD countries, October 2014 ($/Liter)

3-2-2 Gasoil/ Diesel prices

The absolute price levels of gasoil in 2014, whether in Rotterdam or Singapore, had surpassed gasoline and fuel oil due to the continuous demand for the product in summer as well as winter, especially in transportation, heating, cooling and power generating sectors like in China. Singapore market had claimed the highest prices reaching $115.2 per barrel in 2014 with a drop of 7.6% compared to 2013, followed by the Mediterranean with a price rate of $114.8 per barrel with a hike of 0.3%, then Rotterdam with a price rate of $114.5 per barrel with a drop of 7.7%, then finally the US Gulf market with the lowest price rate of $131.1 per barrel in 2014 with a drop of 7.1% compared to the previous year.

3-2-3 Fuel Oil Prices

Fuel oil prices have dropped in all markets in 2014. In Singapore, fuel oil price rate reached $89.6 per barrel with a drop of 8.2% compared to 2013. In the US, the price rate reached $91.7 per barrel with a drop of 8% compared to the previous year. In Rotterdam, it

reached $88.5 per barrel with a drop of 7.7% compared to 2013. In the Mediterranean, the price reached $89.4 per barrel with a drop of 7.5% compared to the previous year.

3-3 Oil Freight Rates

Crude oil freight rates witnessed varied hikes in 2014 compared to their 2013 levels in spite of the ongoing global economic growth slowdown. In addition, some of the non-OPEC countries, especially the United States and to a lesser degree Canada, experienced an increase in domestic oil production which resulted in lower US oil imports and thus a decrease in the demand for tankers. This is due to the fact that the drop of oil prices has given the tankers market an unexpected push with a wave of oil storing aboard tankers with the help of the falling ship fuel. Navigational data indicate that many oil traders have chartered tankers to store oil due to excessive supplies and low prices, until prices recover in a repeated trading bet similar to that of 2009 when oil prices collapsed. Data also show that demand for tankers has increased significantly especially from the east. The number of inactive tankers has become very low; the trend used the excess marine transport capacity that has been causing concern for tanker owners for years.

In 2014, freight price rate for oil shipments from Arabian Gulf ports to the East using big size tankers on VLCCs (230,000-280,000 dead weight tons (dwt)) was about 47 points on the World Scale (WS)[1]. This was 6 points, or about 14.6% higher than in 2013.

As for the freight price rates for shipments from Arabian Gulf ports to the West, with a capacity of 270,000-285,000 dwt, averaged 30 points on the WS, which was 4 points, or 15.4% higher than in 2013, as shown in Table (1-13).

1- World Scale is a method for calculating freight prices. One point on the WS means 1% of the freight price index for the direction in the WS book, which is published annually by the World Scale Association. It contains a list of prices in the form of dollars per ton, called "World Scale 100" for all the major routes in the world.

In the Mediterranean region there was a similar increase in freight rates for small and medium-sized tankers (80,000-85,000 dwt). The average freight rate in 2014 was 110 WS points, with a big increase of 29 points, or higher with more than one third of the rate in 2013.

It is worth mentioning that the freight rates from the Arabian Gulf to the East started 2014 with a decline compared to the end of 2013 recording 57 points, the highest rate in that year. They continued to decline until they reached their lowest rate of 36 points in May. They then picked up and started to increase throughout the remaining months except in September hitting 56 points by the end of the year.

Crude oil freight rates aboard big size tankers from the Arabian Gulf to the West route have started 2014 with a decline compared to 2013 registering 36 points, the highest rate it reached during the year. Rates continued to decline hitting 26 points in May. This was followed by an increase during the following three months to reach 30 points in August before dropping to their lowest rate of 23 points in September. Rates went up again during the following months hitting 33 points by the end of the year.

As for the Mediterranean destination, freight rates started 2014 with an increase compared to 2013 registering their highest rate of 172 points. After that, they declined to reach 85 WS points in February. They continued to fluctuate hitting their lowest rate of 82 points by the end of the first half of the year. The situation has been repeated in the second half of the year, with the freight price rates rising to register 104 points in July, followed by a decline to 83 points in September, and a rise to 168 points by the end of the year.

4- Global Oil Inventories

The year 2014 witnessed an increase in total world oil inventories (commercial and strategic) by the end of the fourth reaching 8040 million barrels, representing an increase of 195 million barrels, or 2.5% compared to the fourth quarter of the previous year. Crude oil stocks at sea totaled 1037 million barrels by the end of 2014 with an increase of 48 million barrels compared to the end of 2013.

4-1 OECD Commercial Inventories

After the total commercial inventories in OECD countries reached 2487 million barrels by the end of the first quarter of 2014, they increased by 168 million barrels by the end of the second quarter of the year to average 2655 million barrels. They went up again in the third quarter by 26 million barrels to reach 2718 million barrels. This was followed by a decline of 5 million barrels to reach 2713 million barrels by the end of the fourth quarter.

It is worth noting that OECD commercial inventories level of forward consumption has reached a level of 58.2 days, which is slightly lower than previous year's level and lower than the usual average.

4-2 US Strategic Petroleum Reserve

The US Strategic Petroleum Reserve (SPR) has exceeded the 700 million barrels level for the first time in 2008; then it started to decline below that level since the third quarter 2011 to reach 696 million barrels since then until the first quarter of 2014. SPR has declined again in the second quarter of 2014 to reach 691 million barrels since then until the end of the fourth quarter of the year.

Since 2004, the US Administration has adopted a more flexible attitude towards releasing quantities of the SPR to compensate for any shortage of supply. This gave a more commercial aspect to the strategic reserve than previous policies, which regarded the SPR as a last resort to be used only at times of major crises, as shown in Table (1-14).

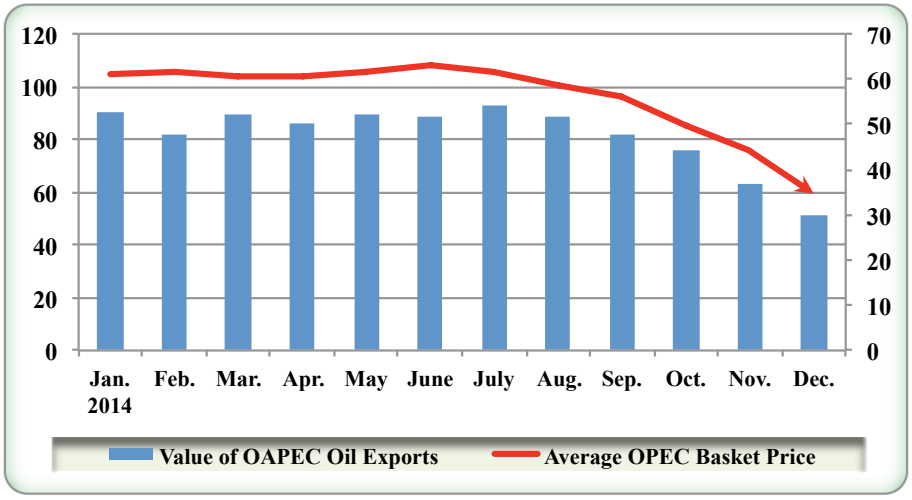
VALUE OF OAPEC MEMBER COUNTRIES OIL EXPORTS

Oil price rates in 2014 were reflected on the value of oil exports that are the main engine for social and economic development in the Arab oil producing countries. They are the mainstay for their central banks' foreign currency reserves, and the main source for their budget surplus.

Monthly data on the movement of oil prices and the estimated

monthly value of OAPEC member countries' oil exports may give a clearer picture of the negative effects of the prices movement during the year. In January 2014, when oil prices hit $104.7 per barrel, OAPEC member countries revenues were estimated at $52.5 billion. In July 2014, these revenues registered their highest rates during the year when reached $54.1 billion due to the increase in OAPEC member countries' exports as a result of resuming Libyan oil supplies with the prices hitting $105.6 per barrel. Since then, revenues started to decline in the following five months reaching their lowest rate of $30.1 billion in December as a result of the sharp decline in oil prices hitting $59.5 per barrel, as shown in Table (1-15) and Figure (1-12).

Figure 1-12
Comparison on Oil Price Rates and Value of OAPEC Oil Exports, January-December 2014



A year-on-year comparison shows that the value of OAPEC members' oil exports went down from $654.3 billion in 2013 to $570.8 billion in 2014 due to a drop in price in the second half of the year. This represents a decline of $83.5 billion or 12.8%. An analysis of individual member countries shows that he decline rate varied from one country to another; Libya achieved the lowest level of revenues due to the huge decline in its production of about 71.7% compared to the previous year as a result of its security situation.

UAE followed with a decline rate of about 19.1%, the Kingdom of Bahrain by 16.4%, State of Kuwait 15.6%, the Republic of Iraq 9.6%, the People›s Democratic Republic of Algeria by 9.5%, Arab Republic of Egypt 9.0%, and the Kingdom of Saudi Arabia 7.3%.

The value of crude oil exports for member countries measured by real prices for the year 2000, after being adjusted according to the GDP deflator in OECD countries, has decreased from $532.6 billion in 2013 to $458.3 billion in 2014, representing a decline of 14%, as shown in Table (1-16).

III. DEVELOPMENTS IN OIL AND ENERGY CONSUMPTION IN THE ARAB COUNTRIES

This section highlights energy consumption in the Arab countries during the period 2010-2014 in general. It also reviews the energy consumption of the Arab countries in general and OAPEC member countries in particular, depending on the data available for each.

1- Arab Countries' Total

1-1- Total and Per Capita Energy Consumption

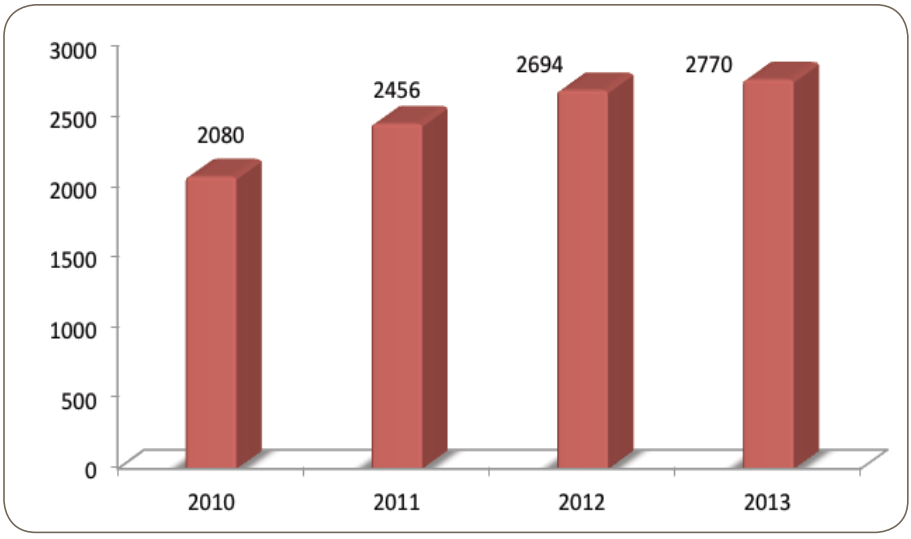
Change in energy consumption is affected by three main variables; GDP, population, and energy price. Change in energy consumption has a direct relationship with the change in GDP and population; and an inverse relationship with change in energy prices.

In 2014, energy consumption has been affected by the first two main variables; GDP and population. The third variable had a limited impact because no tangible change in energy prices has been registered in Arab countries domestic markets that year, except in Jordan, the UAE, and Egypt. The following sections highlight the development of the three variables.

1- GDP: The data published in the Joint Arab Economic Report for 2014 indicated that the GDP at current prices in Arab countries has risen by 2.8% in 2013 to reach about $2770 billion compared to

$2694 billion in 2012. This is the lowest rate registered since 2010. Figure (1-13).

Figure 1-13
GDP at Current Prices in Arab Countries, 2010-2013
($ billion)



Source: Joint Arab Economic Report, 2014

The GDP growth rates at constant prices for the period 2010-2013 witnessed big fluctuations, as the growth rate was 5.2% in 2010, and dropped to 2.8% in 2011, then jumped to 5.5% in 2012, then dropped again to 3.3% in 2013. Many factors stand behind these moderate rates. Most important factors include a drop in Arab oil exports size, the fall of crude oil prices in the world market, and the continuation of the economic repercussions resulting from the developments in dome Arab countries.

When looking into the sectoral structure of the Arab countries GDP, it is noticed that there has been a drop in the goods sector from 61.2% in 2012 to 59.4% in 2013; while the services sector's share has grown from 38.4% to 40.1%. The reason behind the drop of the goods sector is the drop of the upstream industries share from 39.3% to 37.1%, while the manufacturing industries remained unchanged at 9.1%.

The differences in the infrastructure and political situations in the Arab countries led to major discrepancies in GDP growth levels of these countries when looking at their economic performance individually. Arab countries can be classified according to GDP growth rates at constant prices in 2013 into 3 categories. They are:

Countries that suffered from economic deflation: two Arab countries registered economic deflation due to exceptional circumstances; they are Syria and Libya. The Syrian GDP deflated by 19%, while the Libyan GDP deflated by 2.5%.

Countries with a growth rate of no more than 5%, including 11 countries: Kuwait (0.8%), Lebanon (1.3%), Egypt (2.1%), Tunisia (2.7%), Algeria (2.7%), Jordan (3.3%), Comoros Islands (3.5%), Sudan (3.7%), KSA (3.8%), Yemen (4.2%), and Morocco (4.6%).

Countries with a growth rate over 5%, including 7 countries: Djibouti (5%), Oman (5.1%), UAE and Iraq (5.2%), Bahrain (5.4%), Qatar (6.1%), and Mauritania (6.7%).

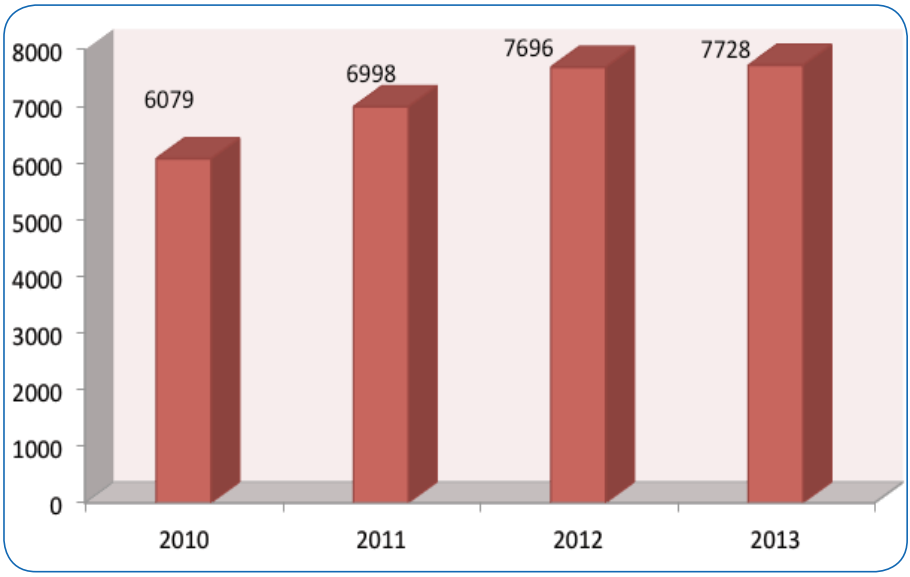
Arab countries vary widely when looking at the GDP growth rates. OAPEC GDP at current prices has risen averaging 18.4 in 2010, 20.1 in 2011, and has fallen to 10.1 in 2012. Other Arab countries witnessed a rise in their GDP of 10.2% in 2010 but fell to 6.2% in 2011 then 5.3% in 2012.

It is noted that that the Arab countries GDP per capita at current prices has risen by 1.1% in 2013 compared to 5.1% in 2012. The average the Arab countries GDP per capita at current prices has risen by 0.4% in 2013 hitting $7728 compared to $7696 in 2012. There are 7 countries where the GDP per capita exceeded the Arab countries' average GDP; they are: Qatar ($110628), Kuwait ($54245), UAE ($47151), Bahrain ($26126), KSA ($24847), Oman ($20130), and Lebanon ($11015). Figure (1-14).

Figure 1-14

GDP per Capita at Current Prices in Arab Countries, 2010-2013

($)



Arab countries where GDP per capita did not exceed the average GDP for Arab countries can be classified into two categories; the first includes countries where an individual's share of the GDP is below $2000, including 6 countries: Sudan ($1714), Syria ($1601), Djibouti ($1441), Yemen ($1424), Mauritania ($1153), and the Comoros ($792). The second category includes countries where GDP per capita exceeds ($2000) but still lower than the average rates of the Arab countries; they are 7 countries: Libya ($7533), Algeria ($5910), Iraq ($5569), Jordan ($5152), Tunisia ($4325), Egypt ($3207), and Morocco ($3196).

2- Population: The average population growth in the Arab countries during 2010-2014 has risen by 1.7% annually, when the population of the Arab countries increased from 352 million in 2010 to about 377 million in 2014.

3- Prices: three Arab countries have changed the prices of the petroleum products in their domestic markets; they are: Jordan, the UAE, and Egypt. Other Arab countries kept the 2013 petroleum product prices unchanged in their domestic markets in 2014.

1-2 Energy Consumption by Source

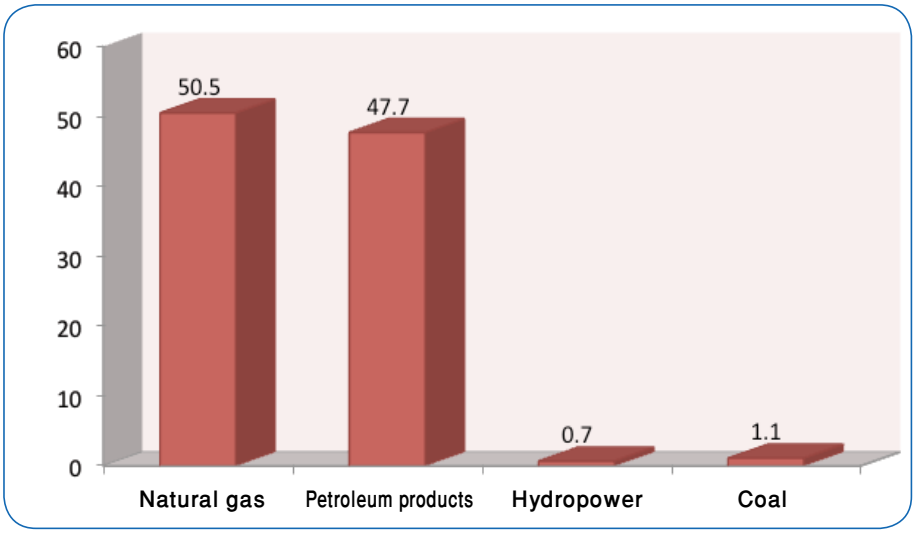
During the period 2010-2014, the average annual energy consumption growth rate reached 2.6%. Total consumption increased from 12.9 million boe/d in 2010 to 14.3 million boe/d in 2014. This average includes rate discrepancies, as consumption grew by 8.6% in 2010, 1.4% in 2011, 3.6% in 2012, and 1.1% in 2013. This average is expected to reach 4.3% in 2014, as initial estimations indicate that Arab countries' energy consumption in 2014 has reached about 14.3 million boe/d, as shown in Table (1-17).

Petroleum resources, i.e. oil and natural gas, are the main source for meeting energy demand in the Arab countries. These resources have been meeting more than 98% of the total energy demand in the Arab countries for the period from 2010 to 2014. Natural gas tops the resources used for meeting energy needs in the Arab countries. Its contribution has been increasing gradually from 49.4% of the total energy consumption in 2010 to 50.5% in 2014. At the same time, oil share has dropped from 48.9% to 47.7%. Other resources, i.e. hydroelectricity and coal, have maintained their share during the period 2010-2014. Their share together did not exceed 1.8%; 1.1% for coal and 0.7% for hydroelectricity.

Arab countries differ with regards to the degree of their reliance on the available resources to meet their energy needs. Natural gas has become the main resource to meet the needs of the member countries' economies due to these countries' policies to replace oil with natural gas in their energy uses in the domestic markets. Natural gas represents 53.1% of the total energy consumption in the member countries in 2014, while it does not exceed 28.8% in other Arab countries. Oil is the main resource for meeting energy needs for non member Arab countries representing 63.1% of the total energy consumption in these countries in 2014. Figure (1-15) and Table (1-17).

Figure 1-15

The Structure of Energy Consumption in Arab Countries in 2014 (%)



Source: OAPEC, Databank.

Energy consumption has increased by varied rates in the Arab countries during 2010-2014. The average annual growth rate of the total energy consumption in the member countries reached 2.5% compared to 3.4% in other Arab countries.

OAPEC Member countries consumed 89.3% of the total energy consumption among Arab countries in 2014 compared to 10.7% for other Arab countries. The disparity in energy consumption can be attributed to three main variables: the size of hydrocarbon reserves (oil and natural gas), the size and composition of the GDP, in addition to population.

- Oil and natural gas reserves: OAPEC member countries possess about 98.6% of the total proven crude oil reserves and 97.6% of total proven natural gas reserves, in the Arab countries by the end of 2014.

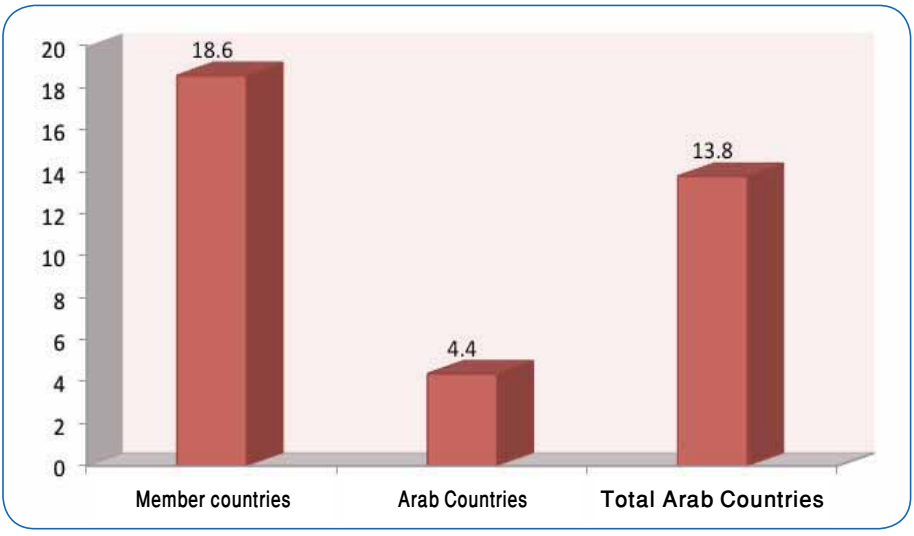
- GDP: OAPEC member countries GDP represents the biggest part of the Arab countries GDP as a whole. OAPEC member countries' GDP share has risen from 84.5% in 2010 to 86% in 2011, then 86.9% in 2012, then slightly dropped to 86.7 in 2013.

- Total population: OAPEC member countries embraced about 250 million people, or two thirds (66.3%) of the total population in the Arab World in 2014.

Average energy consumption growth rates in Arab countries have risen slightly by no more than 0.9% annually during the period 2010-2014. It hit 13.8 boe in 2014 compared to 13.3 boe in 2010. Figure (1-16) and Table (1-18) show the energy consumption per capita in the Arab countries in 2010 and 2014.

Figure 1-16

Energy Consumption Per Capita in the Arab Countries, 2014 (BOE)



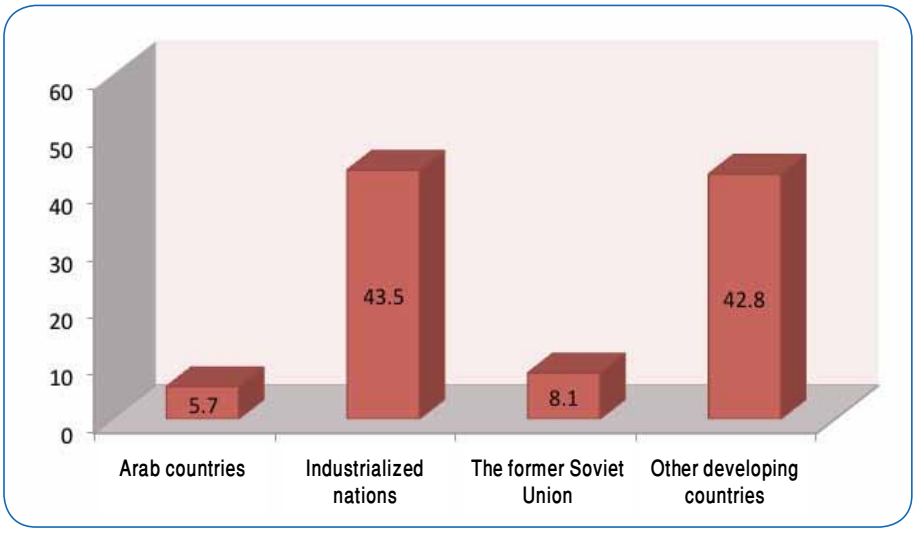
Source: OAPEC, Databank.

The Arab countries share of the world's total energy consumption in 2013 was 5.7%, while that of the OECD countries was 43.5%, the developing countries 42.8%, and the FSU countries 8.1%, as

shown in Figure (1-17).

Figure 1-17

Energy Consumption in Arab Countries and the World, 2013 (%)



Source: BP, Statistical Review of the World Energy, June 2014

1-2-1 Natural Gas

Policies on increasing the use of natural gas to replace oil in some fields especially power generation, which were adopted by many Arab counties, have led to a noticeable increase in natural gas consumption in these countries. Natural gas has become their prime source for meeting their energy needs. These policies have reflected on the growth of the natural gas consumption in the Arab countries by an annual rate of 3.2% during the period from 2010 to 2014; as it increased from 6.4 million boe in 2010 to 7.2 million boe in 2014.

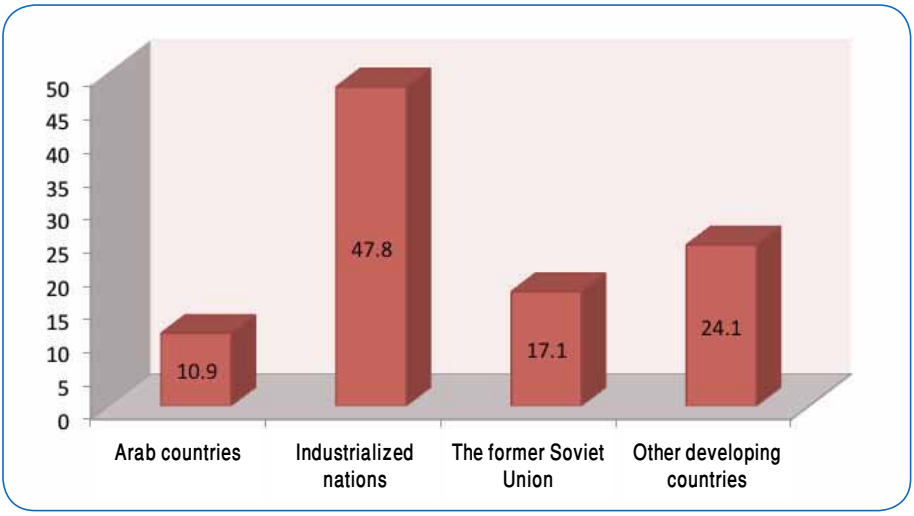
Natural gas is mainly consumed in OAPEC member countries, whose share hits 93.9% of the total Arab countries consumption in 2014. The member countries consumption grew by an annual rate of 3% during 2010-2014. Natural gas consumption in other Arab

countries has reached an annual rate of 5.9% during the same period. Natural gas consumption is very visible in Oman; while Morocco, Jordan, and Yemen consume moderate quantities of natural gas.

Arab countries accounted for 10.9% of the world's total natural gas consumption in 2013, while the OECD countries accounted for 47.8%, the FSU countries 17.1%, and the developing countries 24.1%, as shown in Figure (1-18).

Figure 1-18

Natural Gas Consumption in the Arab Countries and the World, 2013 (%)



Source: BP, Statistical Review of World Energy, June 2014

1-2-2 Petroleum Products

The period from 2010 to 2014 witnessed a gradual and slow decline of the petroleum products share in the total energy consumption in the Arab countries from 48.9% in 2010 to 47.7% in 2014. Petroleum products consumption in the Arab countries grew during this period by 2.5% annually to hit 6.8 million boe/d in 2014 compared to 6.3 million boe/d in 2010.

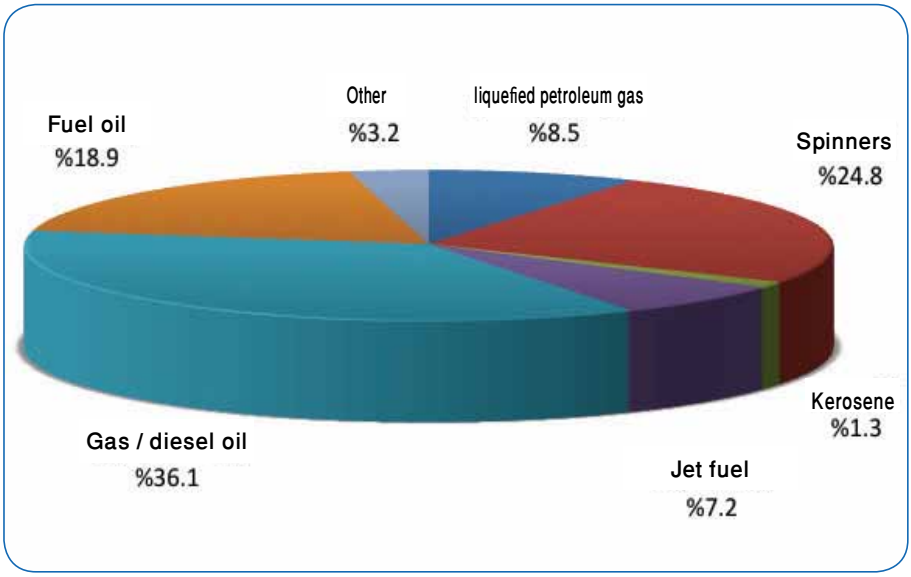
The biggest part of the petroleum products consumption is in the member countries, as their share hit 85.8% of the total petroleum products' consumption in the Arab countries in 2014.

The consumption of petroleum products in the Arab countries in 2014 was distributed as follows: gasoil/diesel came on top consumed products by (36.1%), followed by gasoline (24.8%), fuel oil (18.9%), LPG (8.5%), jet fuel (7.2%), and finally kerosene (1.3%). Figure (1-19) shows the distribution of the petroleum products consumption in the Arab countries.

Figure 1-19

Distribution of Petroleum Products Consumption in Arab Countries, 2014

(%)



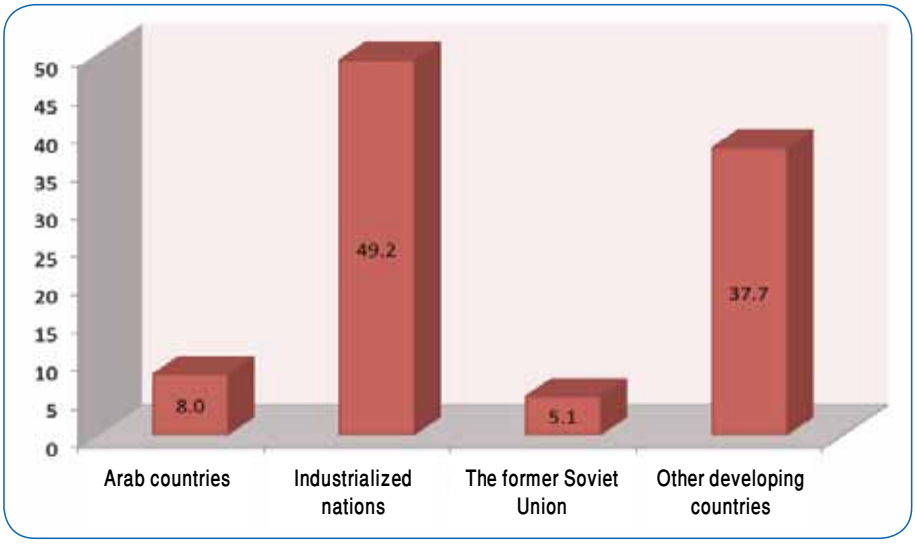
Source: OAPEC, Databank.

The Arab countries accounted for 8% of world petroleum products consumption in 2013, while the OECD countries acquired 49.2%, the developing countries 37.7%, and FSU countries 5.1%, as shown in Figure (1-20).

Figure 1-20

Oil Consumption in the Arab Countries and the World, 2013

(%)



1-2-3 Hydroelectricity

Due to the scarcity of water resources in Arab countries, the hydroelectric power contributes meagerly in meeting energy needs in these countries. Hydroelectric power accounted for only 0.7% of the total Arab countries energy consumption in 2014. The consumption of hydroelectric power in Arab countries has been close to about 99,000 boe/d in 2014. Very insignificant amounts are consumed in a very limited number of Arab countries. Egypt is the biggest Arab producer and consumer of hydroelectric power; it consumes about 60,000 boe/d.

The Arab countries accounted for 0.8% of the total world hydroelectricity consumption in 2013; 55% in the developing countries, 37.3% in OECD, and 6.9% in FSU countries.

1-2-4 Coal

Coal share did not exceed 1.1% of the total energy consumption in the Arab countries in 2014. Small quantities, of no more than

158,000 boe/d, have been consumed, 63,000 boe/d of which were in member countries.

The Arab countries accounted for less than 0.2% of the total world coal consumption in 2013, while developing countries accounted for 67.3%, the OECD countries for 27.9%, and the FSU countries for 4.7%.

2- Total Energy Consumption in OAPEC Member Countries

2-1 Total and Per Capita Energy Consumption

Primary estimations indicate that energy consumption in the OAPEC member countries has risen at a rate of 4.4% in 2014 hitting 12.7 million boe/d compared to 12.2 million boe/d compared to 12.2 million boe/d in 2013. There is an obvious disparity with regard to the growth rates in energy consumption among member countries; as some countries witnessed a noticeable growth while other shrank. 6 member countries are expected to register relative high growth rates in energy consumption; they are: Qatar (6.5%), Egypt (6.1%), KSA (5%), UAE (4.4%), Algeria (4.1%), and Kuwait (4.1%). Consumption is also expected to grow at moderate rates in Iraq (3.8%) and Bahrain (3%). Energy consumption in Tunisia is expected to rise by no more than 0.5%, while it shrank in Syria and Libya as energy consumption dropped by 4.2% and 1.5% respectively.

The picture looks slightly different when looking at energy consumption in OAPEC member countries during the period from 2010 to 2014, as consumption grew by an annual rate of 2.5%. These countries may be identified by three categories according to their growth rates as follows:

1. Countries with an annual growth rate exceeding 4%: including 3 countries, Iraq (6.2%), the UAE (4.8%), and Saudi Arabia (4.4%).

2. Countries with an annual growth rate that did not exceed 4%: including 5 countries, Bahrain (3.1%), Egypt (2.9%), Algeria (2.8%), Qatar (1.3%), and Tunisia (0.5%).

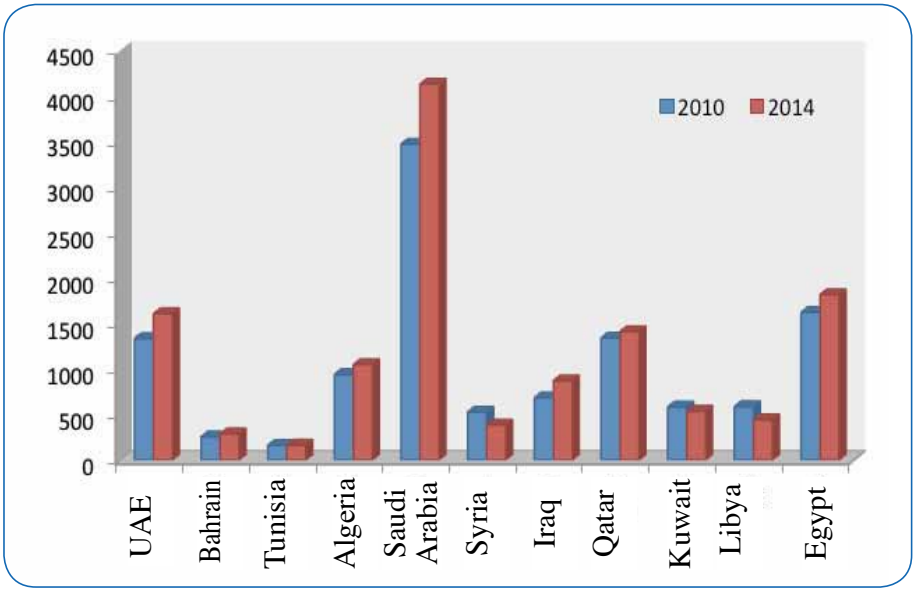
3. Countries that registered negative growth rates in consumption, including 3 countries, Syria (-7.5%), Libya (-6.8%), and Kuwait (-2%).

The rise in energy consumption in the OAPEC member countries in 2014 is estimated at 538,000 boe/d, where 197,000 boe/d from Saudi Arabia, 105,000 boe/d from Egypt, 87,000 boe/d from Qatar, and 69,000 boe/d from UAE. The increase in energy consumption in these four member countries represents 85.1% of the total increase of OAPEC member countries as a whole. Other member countries' energy consumption was as follows: Algeria (41,000 boe/d), Iraq (32,000 boe/d), Kuwait (21,000 boe/d), and Tunisia (1,000 boe/d). However, energy consumption shrank by about 17,000 boe/d in Syria and 7,000 boe/d in Lybia. Figure (1-21) and Table (1-19) compare OAPEC members' energy consumption in 2010 to 2014.

Figure 1-21

Energy Consumption in OAPEC Member Countries, 2010 and 2014

(Thousand boe/d)



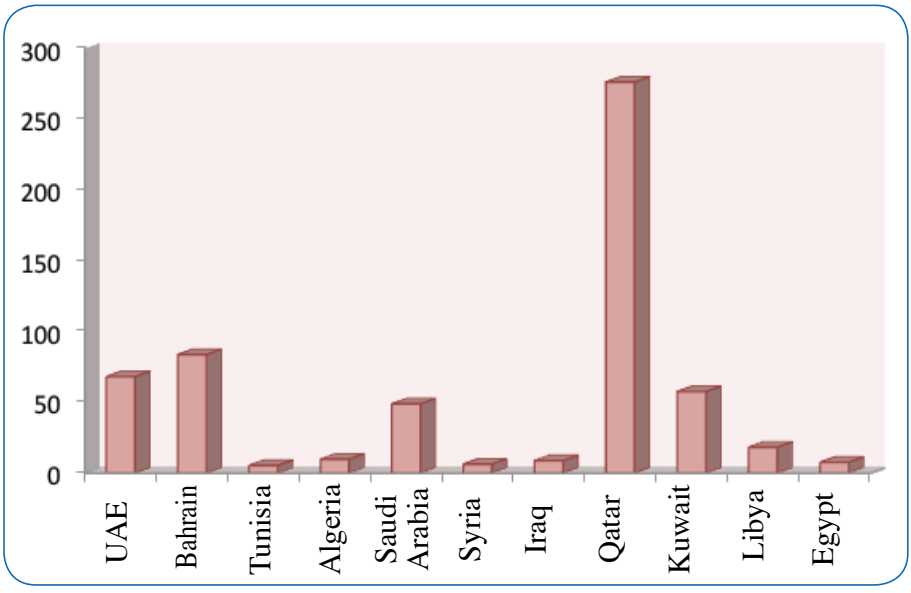
Source: OAPEC, Databank.

The average per capita energy consumption in OAPEC member countries rose slightly by no more than 0.2% per annum in the period 2010-2014. The average reached 18.6 boe in member countries compared to 18.5 boe in 2010. There are noticeable disparities with regard to this average among member countries. The average per capita energy consumption in the OAPEC member countries in 2014 was as follows: Qatar (276.2 boe), Bahrain (83.7 boe), UAE (68.2 boe), Kuwait (57.6 boe), KSA (49 boe), Libya (18.4 boe), Algeria (9.8 boe), Iraq (8.9 boe), Egypt (7.7 boe), Syria (6.4 boe), and Tunisia (5.5 boe). Figure (1-22), and Table (1-18) show the average per capita energy consumption in the OAPEC member countries.

Figure 1-22

Per Capita Energy Consumption in OAPEC Member Countries, 2014

(boe)



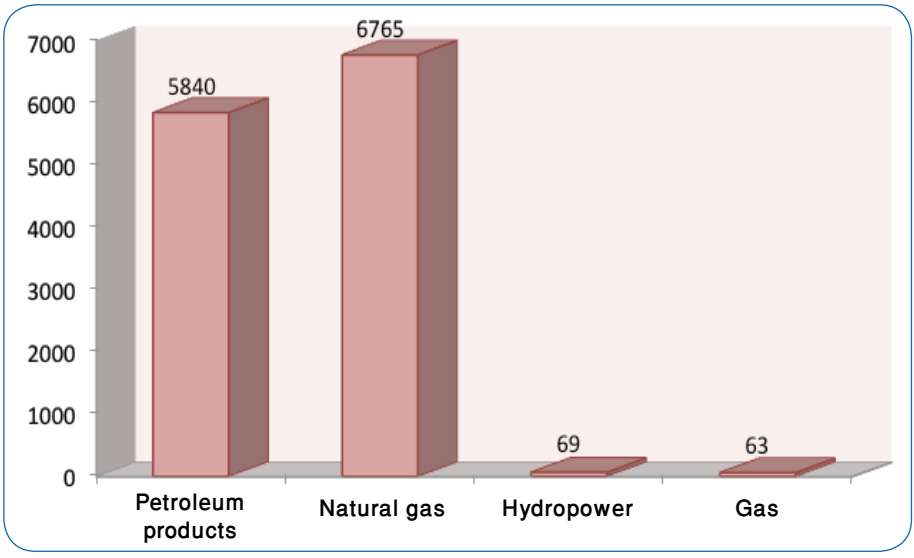
Source: OAPEC, Databank.

2-2 Energy Consumption by Source

Natural gas topped the energy mix in OAPEC member countries as whole in the past years. It represented 53.1% of the total energy

consumption in the member countries in 2014 compared to 52% in 2010. At the same time, petroleum products share has dropped from 47% in 2010 to 45.9% in 2014. Also, hydroelectricity share has dropped from 0.6% in 2010 to 0.5% in 2014. Coal's share has increased slightly to hit 0.5% in 2014 from 0.4% in 2010. Figure (1-23) and Table (1-20) show energy consumption in OAPEC member countries in 2014 by source.

Figure 1-23
Energy Consumption in OAPEC Member Countries by Source, 2014
(Thousand boe/d)



Source: OAPEC, Databank.

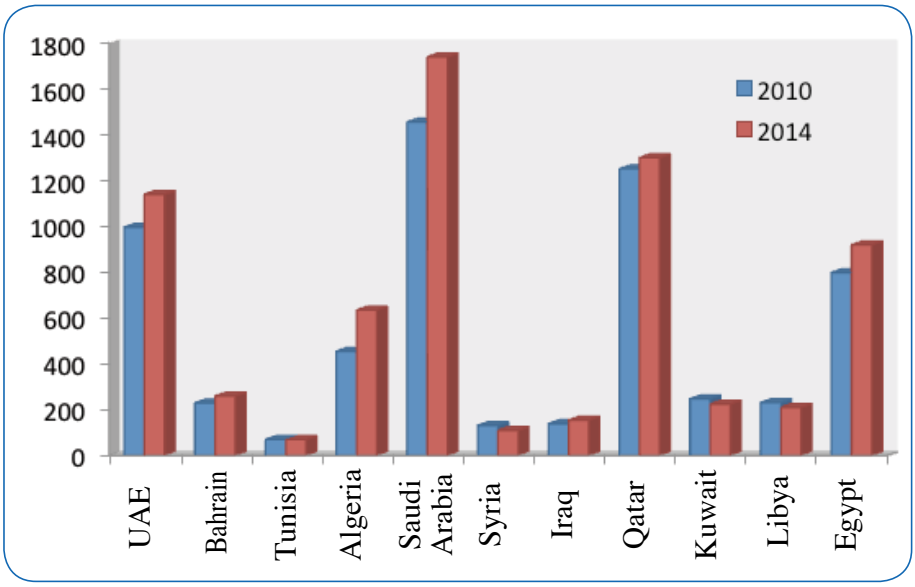
2-2-1 Natural Gas

Natural gas consumption has increased at an annual rate of 3% during the period 2010-2014 in the member countries; which exceeds total natural gas consumption average increase rate of 2.5% for the same period. Natural gas consumption has from 6 million boe/d in 2010 to reach about 6.8 million boe/d in 2014.

There are five countries with significant consumption of natural gas: KSA, Qatar, UAE, Egypt, and Algeria. Their share of the total

OAPEC consumption of natural gas in 2014 was 84.8%. Their shares were: KSA 25.7%, Qatar 19.2%, UAE 16.9%, Egypt 13.6%, and Algeria 9.4%, as shown in Figure (1-24) and Table (1-21).

Figure 1-24
Natural Gas Consumption in OAPEC Member Countries, 2010 and 2014
(Thousand boe/d)



Source: OAPEC, databank.

There is a noticeable disparity among member countries in terms of their reliance on natural gas to meet their energy needs. They can be classified into three categories according to the shares of natural gas in their total energy consumption. These categories are:

Countries that depend primarily on natural gas to meet their energy requirements. These are the countries where the share of natural gas exceeds 50% of energy use. Five countries fall into this category: Qatar, Bahrain, the United Arab Emirates, Algeria, and Egypt. The share of natural gas in total energy consumption in 2014

in these countries was 91.9% in Qatar, 89.7% in Bahrain, 70.8% in the United Arab Emirates, 60.4% in Algeria, and 50.5% in Egypt.

Countries that depend mainly on natural gas to meet 33% to 50% of their energy needs. There are four member countries in this category, Libya, Tunisia, KSA, and Kuwait. The share of natural gas in the total energy consumption in these countries was 47.2% in Libya, 42.2% in Tunisia, 42.1% in KSA, and 41.7% in Kuwait.

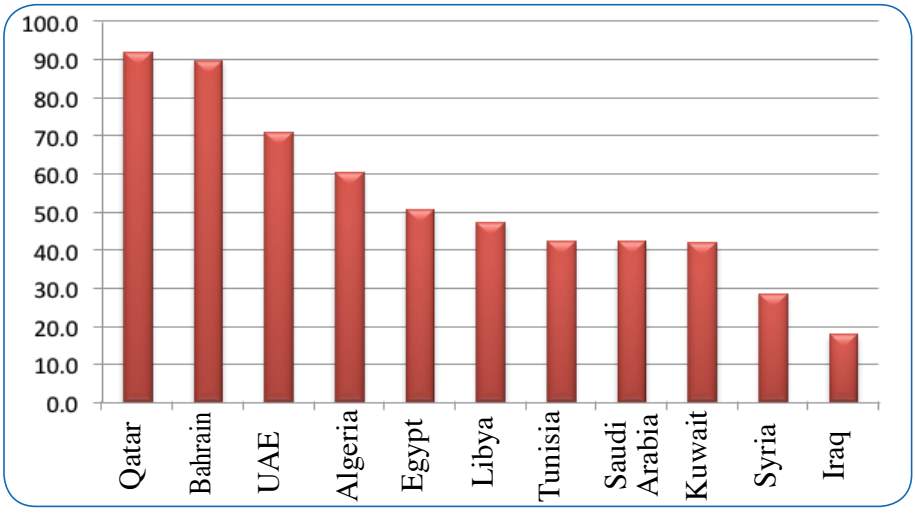
Countries that rely moderately on natural gas to meet less than 33% of their energy requirements. This category includes Syria and Iraq whose natural gas consumption is 28.4%, and 17.7% respectively of the country's total energy consumption.

Figure (1-25) shows the degree to which OAPEC member countries depend on natural gas to meet their energy requirements.

Figure 1-25

Natural Gas Consumption as a Percentage of Total Energy Consumption in OAPEC Member Countries, 2014

(%)



Source: OAPEC, Databank.

2-2-2 Petroleum Products

Consumption of petroleum products in the OAPEC member countries has increased by 1.9% per annum during the period 2010-2014. This consumption has risen from 5.4 million boe/d in 2010 to 5.8 million boe/d in 2014. This relatively moderate rate has been a result of interaction of high growth rates in four member countries: UAE, Iraq, Qatar, and KSA, in addition to moderate growth in three member countries: Egypt, Bahrain, and Tunisia with the falling rates in four member countries where petroleum products consumption has shrunk: Libya, Syria, Algeria, and Kuwait. The consumption growth rates of countries that fall under the first category were as follows: UAE (7.5%), Iraq (7.1%), Qatar (5.6%), and KSA (4.4%). The rates in the second category were: Egypt (2.3%), Bahrain (2.2%), and Tunisia ((1%). The falling rates in third category were: Libya (-10%), Syria (-8.9%), Algeria (-3.9%), and Kuwait (-1.7%).

The increase in the petroleum products consumption rates in the member countries has reached 236,000 boe/d in 2014, 123,000 boe/d of which in KSA, 32,000 boe/d in Egypt, 26,000 boe/d in Iraq, and 20,000 boe/d in Algeria. Table (1-22).

Petroleum products still play a decisive role in the energy balance in Iraq and Syria in 2014, as they meet 82.3% and 69.7% of the these countries' total energy consumption respectively. Petroleum products also play a main role in Kuwait, KSA, Tunisia, and Libya. Petroleum products share in the total energy consumption is estimated to have reached the following percentages: Kuwait (58.3%), KSA (57.9%), Tunisia (57.2%), and Libya (52.8%). Petroleum products share in other member countries was: Egypt (45%), Algeria (39%), Bahrain (10.3%), and Qatar (8.1%).

2-2-3 Hydroelectricity and Coal

Arab countries generally do not have abundant waterfalls that qualify them to generate power tangibly. Many of them suffer from huge groundwater shortages necessary for providing drinking water.

Due to this huge rarity, the hydroelectric power production and consumption have been limited to a few member countries; they are: Egypt, Syria, Tunisia, and Algeria. These countries' consumption did not exceed 69,000 boe/d in 2014, 60,000 boe/d of which in Egypt. The share of the hydroelectricity power does not exceed 0.54% of the total energy consumption in the member countries in 2014. Table (1-24).

Coal plays a marginal role in meeting energy requirements in the member countries with no more than 0.5% of the total energy consumption in the member countries in 2014. Coal is mainly consumed in the UAE with about 36,000 boe/d, and Egypt with 21,000 boe/d. Table (1-24).

3- Domestic Prices

As mentioned earlier, three Arab countries have changed their petroleum products prices in their domestic markets; they are: Jordan, UAE, and Egypt. In general, Jordan is the only Arab country that adopts the policy of amending the energy prices in the domestic market, especially petroleum products prices in response to the international petroleum market developments. Jordan has a specialized committee to study and fix energy prices. It is considted of the Ministry of Energy and Mineral Resources, the Ministry of Finance, and Jordan Petroleum Refinery Co. LTD. The committee aims at amending prices to reflect the current prices in international markets on the one hand, and to lift subsidies on the other hand. Prices have dropped in Jordan to be as follows as of January 2015:

Product	Jordanian Fils/Liter
Regular Gasoline	590
Premium Gasoline	735
Diesel	460
Kerosene	460
Jet Fuel –Local Companies	410
Jet Fuel – Foreign Companies	415
Jet Fuel – for emergency flights	430
Gasoil for ships	590 Dinars/Ton
Fuel Oil	330 Dinars/Ton
Fuel oil for ships	371 Dinars/Ton
Asphalt	315 Dinars/Ton
Gas	670
LNG	8.75 Dinars (12.5kg cylinder)
Bulk LNG	700 Dinars/Ton

The UAE has amended the prices of gasoline, jet fuel, kerosene, gasoil/diesel and fuel oil. Egypt has amended the prices of gasoline, kerosene, and gasoil/diesel.

Table (1- 25) shows current prices in OPAEC member countries in 2014.

TABLES

CHAPTER ONE

Table 1-1

Total & Annual Changes in World Oil and NGLs Supply, 2010 - 2014
(Million b/d)

	2010	2011	2012	2013	2014*
Total Supply					
OPEC	34.2	35.5	38.0	37.2	36.3
Rest of the World	52.3	52.4	52.9	54.2	56.2
World total	**86.5**	**87.9**	**90.8**	**91.4**	**92.5**
Annual Change					
OPEC	1.2	1.3	2.5	(0.8)	(0.9)
Rest of the World	1.2	0.1	0.5	1.3	0.2
World total	**2.4**	**1.4**	**3.0**	**0.6**	**1.1**
Percentage Change (%)					
OPEC	3.6	3.8	7.0	(2.0)	(2.4)
Rest of the World	2.3	0.2	0.9	2.5	3.7
World total	**2.9**	**1.6**	**3.4**	**0.6**	**1.2**

* Estimated data.

Notes:
- Parentheses denote negative figures.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-2

Growth in the World Economy and Oil Demand by Region, 2010-2014
(%)

	2010	2011	2012	2013	2014*
OECD countries **					
GDP	3.1	1.7	1.2	1.4	1.8
Oil demand	1.3	(1.1)	(1.1)	(0.2)	(0.4)
Rest of the World					
GDP	7.5	6.2	5.1	4.7	4.4
Oil demand	4.9	3.2	3.1	3.3	2.7
World total					
GDP	**5.4**	**4.1**	**3.4**	**3.3**	**3.3**
Oil demand	**2.9**	**0.9**	**0.9**	**1.5**	**1.1**

* Estimated data.
** Include the newly industrialized Asian countries are Hong Kong, South Korea, Singapore,

Note:
Parentheses denote negative figures.

Sources:
- IEA, Oil Market Report (various issues).
- IMF, World Economic Outlook (various issues) .
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-3

World Economic Growth, 2010-2014 (%)

	2010	2011	2012	2013	2014*
OECD	3.1	1.7	1.2	1.4	1.8
Of which: USA	2.5	1.6	2.3	2.2	2.2
Japan	4.7	(0.5)	1.5	1.	0.9
Euro Area	2.0	1.6	(0.7)	(0.4)	0.8
Rest of the World	**7.5**	**6.2**	**.1**	**4.7**	**4.4**
Eastern and Central Europe	4.7	5.5	1.4	2.8	2.7
Countries in transition (CIS)	**5.0**	**4.8**	**3.4**	**2.2**	**0.8**
Of which: Russia	4.5	4.3	3.4	1.3	0.2
Asian developing countries **	**9.5**	**7.7**	**6.7**	**6.6**	**6.5**
Of which: China	10.4	9.3	7.7	7.7	7.4
India	10.3	6.6	4.7	5.0	5.6
Latin America and the Caribbean	**6.0**	**4.5**	**2.9**	**2.7**	**1.3**
Of which: Mexico	5.1	4.0	4.0	1.1	2.4
Brazil	7.5	2.7	1.0	2.5	0.3
Middle East and North Africa	**5.5**	**4.5**	**4.8**	**2.3**	**2.6**
Sub-Saharan African countries	**6.9**	**5.1**	**4.4**	**31**	**5.1**
World	**5.4**	**4.2**	**3.4**	**3.3**	**3.3**

* Estimated data.
** Excludes Pakistan and Afghanistan.

Note:
Parentheses denote negative figures.

Source:
- IMF, World Economic Outlook, October 2014.

Table 1-4

Total & Annual Change in World Oil Demand, 2010-2014 (Million b/d)

	2010	2011	2012	2013*	2014*
World total demand	**87.3**	**88.1**	**88.9**	**90.2**	**91.2**
Annual Change in World Oil Demand (Million b/d)	2.5	0.8	0.8	1.3	1.0
Change (%)	2.9	0.9	0.9	1.3	1.1

* Preliminary data.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-5

World Oil Demand by Region, 2010-2014
(Million b/d)

	2010	2011	2012	2013	2014*
OECD countries	47.0	46.5	46.0	45.8	45.7
Rest of the World**	40.3	41.6	42.9	44.3	45.5
World total	**87.3**	**88.1**	**88.9**	**89.9**	**91.2**

* Estimated data.
** Includes all of the developing countries and transition countries.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-6

Total & Annual Change in Oil Demand in OECD Countries, 2010-2014 (Million b/d)

	2010	2011	2012	2013	2014*
North America	24.1	24.0	23.7	23.9	24.2
Western Europe	14.7	14.3	13.7	13.6	13.4
Pacific	8.2	8.2	8.6	8.4	8.1
Total OECD	**47.0**	**46.5**	**46.0**	**45.9**	**45.7**
Annual Change in demand	**0.6**	**(0.5)**	**(0.5)**	**(0.2)**	**(0.2)**
Change (%)	**1.3**	**(1.1)**	**(1.1)**	**(0.2)**	**(0.4)**

* Estimated data.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-7

Total & Annual Change in Rest of the World Oil Demand (Excluding Countries that joined the OECD), 2010-2014 (Million b/d)

	2010	2011	2012	2013	2014*
Developing countries	**35.5**	**36.7**	**37.9**	**39.1**	**40.2**
Arab countries	**6.1**	**6.2**	**6.3**	**6.5**	**6.7**
Of which: Member countries	5.2	5.2	5.4	5.6	5.8
Other Arab countries	0.9	0.9	0.9	0.9	0.9
Other countries in the Middle East and Africa	**4.5**	**4.5**	**4.7**	**4.8**	**5.1**
Total Middle East and Africa	**10.6**	**10.7**	**11.0**	**11.4**	**11.8**
Asian developing countries	**19.0**	**19.8**	**20.6**	**21.2**	**21.7**
Of which: China	8.8	9.4	9.7	10.1	10.4
India	3.4	3.2	3.3	3.7	3.8
Other countries	6.8	7.2	7.5	7.4	7.5
Latin America	**6.0**	**6.3**	**6.3**	**6.5**	**6.7**
Of which: Brazil	2.8	2.9	3.0	3.1	3.2
Other countries	3.2	3.4	3.3	3.4	3.5
Countries in transition (CIS)	**4.8**	**4.9**	**5.1**	**5.2**	**5.3**
Of which: Russia	4.2	4.3	4.4	4.5	4.5
Total Rest of the World	**40.3**	**41.6**	**42.9**	**44.3**	**45.5**
Annual Change in demand of Rest of the World	**1.9**	**1.3**	**1.3**	**1.4**	**1.2**
Change (%)	**4.9**	**3.2**	**3.1**	**3.3**	**2.7**

* Estimated data.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-8

Spot Price of OPEC Basket of Crudes, 2009-2014 ($/barrel)

	2009	2010	2011	2012	2013	2014
January	41.5	76.0	92.8	111.8	109.3	104.7
February	41.4	73.0	100.3	117.5	112.8	105.4
March	45.8	77.2	109.8	123.0	106.4	104.2
April	50.2	82.3	118.1	118.2	101.1	104.3
May	57.0	74.5	109.9	108.1	100.7	105.4
June	68.4	73.0	109.0	94.0	101.0	107.9
July	64.6	72.5	111.6	99.6	104.5	105.6
August	71.4	74.2	106.3	109.5	107.5	100.8
September	67.2	74.6	107.6	110.7	108.7	96.0
October	72.7	79.9	106.3	108.4	106.7	85.1
November	76.3	82.8	110.1	106.9	105.0	75.6
December	74.0	88.6	107.3	106.6	107.7	59.5
First quarter	42.9	75.4	101.0	117.4	109.5	104.7
Second quarter	58.5	76.6	112.3	106.8	100.9	105.9
Third quarter	67.7	73.8	108.5	106.6	106.9	100.8
Fourth quarter	74.3	83.8	107.9	107.3	106.5	73.4
Annual average	**61.0**	**77.4**	**107.5**	**109.5**	**105.9**	**96.2**

Sources:

- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-9

Average Spot Prices of the OPEC Basket,Brent,WTI and Selected Arab Crudes, 2010-2014 ($/barrel)

Crudes	2010	2011	2012	2013	2014	The increase in 2014
OPEC Basket Of which:	77.4	107.5	109.5	105.9	96.2	9.7-
Algeria - Saharan Blend	80.4	112.9	111.5	109.4	99.6	9.8-
Arabian Light	77.8	107.8	110.3	106.6	97.1	9.5-
UAE - Murban	79.9	109.8	111.8	108.3	99.3	9.0-
Kuwait - Export	76.3	105.6	109.0	105.1	95.2	9.9-
Libya - Es Sider	79.1	111.9	111.9	108.6	98.4	10.2-
Qatar-Marine	78.2	106.5	109.3	105.4	96.3	9.1-
Iraq-Basrah	76.8	106.2	108.0	103.7	94.4	9.3-
Other crudes						
Brent	78.1	106.2	109.1	105.5	96.6	8.9-
UAE - Dubai	79.6	111.3	111.6	108.7	99.0	9.7-
WTI	79.4	94.9	94.2	97.9	93.2	4.7-

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-10

Nominal and Real Prices of Crude Oil, 2000-2014 ($/barrel)

	Nominal Price	Index* 2000=100	Real 2000 Prices
2000	27.6	100.0	27.6
2001	23.1	101.9	22.7
2002	24.3	103.5	23.5
2003	28.2	105.2	26.8
2004	36.0	107.3	33.5
2005	50.6	109.5	46.2
2006	61.0	111.8	54.6
2007	69.1	114.2	60.5
2008	94.4	116.4	81.1
2009	61.0	117.2	52.0
2010	77.4	118.4	65.4
2011	107.5	120.0	89.6
2012	109.5	121.4	90.2
2013	105.9	122.8	86.2
2014**	96.2	124.5	77.3

* The index represents the GDP Deflator of industrial countries as published by the IMF.
** Estimated data.

Sources:
-IMF, International Financial Statistics Yearbook , October 2014.
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-11

Average Monthly Market Spot Prices of Petroleum Products, 2013-2014 ($/barrel)

	Market	Unleaded Gasoline	Gasoil* (50 ppm Sulfur)	Fuel Oil** (1 % Sulfur)
99.7 Average 2013	Singapore	119.3	124.7	97.6
	Rotterdam	122.6	124.0	95.9
	Mediterranean	122.7	114.4	96.7
	US Gulf	129.7	121.8	99.7
Average 2014	Singapore	112.5	115.2	89.6
	Rotterdam	117.0	114.2	88.5
	Mediterranean	112.5	114.8	89.4
	US Gulf	120.8	113.1	91.7
First quarter 2014	Singapore	119.0	123.2	95.9
	Rotterdam	119.1	122.0	96.7
	Mediterranean	115.0	122.9	97.5
	US Gulf	125.1	120.5	101.3
Second quarter	Singapore	122.2	123.1	95.4
	Rotterdam	128.6	121.7	98.5
	Mediterranean	123.7	122.4	99.5
	US Gulf	133.0	120.7	99.7
Third quarter	Singapore	114.6	117.0	93.0
	Rotterdam	121.7	115.9	89.6
	Mediterranean	117.2	116.3	90.9
	US Gulf	125.2	115.0	93.4
Fourth quarter	Singapore	94.0	97.4	74.2
	Rotterdam	98.5	98.3	69.2
	Mediterranean	94.1	97.5	69.7
	US Gulf	100.0	96.3	72.2

* Singapore gasoil contains 2.0 % sulfur.
** US Gulf fuel oil contains 0.05 % sulfur.

Source:
OPEC, Monthly Oil Market Report (various issues).

Table 1-12

Share of Tax in Gasoline Prices in some OECD countries, 2013-2014
($/liter)

	October 2013				October 2014			
	Price without Tax	Tax	End-User Price	Tax (%)	Price without Tax	Tax	End-User Price	Tax (%)
USA	0.77	0.11	0.88	12.50	0.72	0.11	0.83	13.56
Canada	0.82	0.38	1.20	31.83	0.74	0.35	1.09	32.38
Japan	0.98	0.65	1.63	39.73	0.88	0.63	1.51	41.90
Spain	0.95	0.97	1.92	50.34	0.84	0.89	1.73	51.44
Italy	0.94	1.42	2.35	60.22	0.84	1.32	2.16	61.07
France	0.86	1.17	2.03	57.65	0.77	1.09	1.86	58.60
Germany	0.90	1.23	2.13	57.85	0.78	1.14	1.92	59.18
United Kingdom1	0.83	1.29	2.12	60.74	0.75	1.27	2.02	62.82

Source:
- IEA, Oil Market Report (various issues).

Table 1-13

Spot Tanker Freight Rates, 2013 - 2014
(World scale)

	Arabian Gulf - East *	Arabian Gulf -West **	Mediterranean - Mediterranean ***
Average 2013	**41**	**26**	**81**
January 2013	39	25	80
February	33	20	85
March	35	20	88
April	33	20	85
May	40	24	72
June	42	25	74
July	42	27	82
August	33	22	82
September	35	25	71
October	41	28	70
November	60	38	72
December	63	39	107
Average 2014	**47**	**30**	**110**
January 2014	57	36	172
February	56	35	85
March	43	31	94
April	41	30	93
May	36	26	82
June	40	27	82
July	49	30	104
August	49	30	95
September	39	23	88
October	47	26	93
November	56	33	168
December	56	33	138

* Vessels of 230-280 dwt.
** Vessels of 270-285 dwt.
*** Vessels of 80-85 dwt.

Source:
- OPEC, Monthly Oil Market Report (various issues).

Table 1-14

OECD Oil Inventories at Quarter End, 2013 & 2014 (Million barrel)

	First quarter		Second quarter		Third quarter		Fourth quarter	
	2013	2014	2013	2014	2013	2014	2013	2014*
North America	**1349**	**1257**	**1377**	**1381**	**1360**	**1410**	**1298**	**1423**
Of which: USA	1097	1057	1123	1123	1137	1144	1065	1139
Europe	903	883	873	882	884	887	866	881
Pacific	413	347	409	392	411	421	377	409
Total OECD	**2665**	**2487**	**2659**	**2655**	**2655**	**2718**	**2541**	**2713**
Rest of the World	**2216**	**2489**	**2274**	**2377**	**2255**	**2467**	**2363**	**2535**
Other Inventories	**4881**	**4976**	**4933**	**5032**	**4910**	**5185**	**4904**	**5248**
Total Commercial	**1022**	**1034**	**1011**	**993**	**958**	**1052**	**989**	**1037**
Strategic :	**1838**	**1874**	**1724**	**1758**	**1915**	**1759**	**1952**	**1755**
US Strategic Petroleum Reserves	696	696	696	691	**696**	**691**	**696**	**691**
OECD Commercial (days supply)	7741	7884	7886	7783	**7783**	**7996**	**7845**	**8040**
OECD Strategic (days supply)	58.8	56.7	58.6	59.1	**59.1**	**59.5**	**55.6**	**58.2**

* Estimated data.
** Oil At Sea and Independent storage.

Sources:
- EIG Inc., Oil Market Intelligence (various issues).

Table 1-15

Value of Oil Exports in OAPEC Member Countries, 2010-2014 ($ Million)

	2010	2011	2012	2013	2014*
Algeria	28089	37289	34662	29807	26976
Bahrain	4664	6305	7269	7216	6034
Egypt***	2593	4689	4770	4590	4175
Iraq	54248	83768	92685	90411	81740
Kuwait	53029	79646	99735	97025	81923
Libya	38764	7391	41705	27659	7821
Qatar	20553	27328	21014	18162	21511
Saudi Arabia	184421	289518	307119	284906	264207
Syria	6689	2994	**	**	**
Tunisia	**	**	**	**	**
UAE	57900	85900	93613	94495	76447
Total	**450950**	**624827**	**702573**	**654271**	**570834**

* Estimated data.
** Preliminary data indicate that oil consumption exceeds oil production.
*** Official sources for 2008.

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-16

Value of OAPEC Oil Exports in Current and Real Prices, 2000-2014 ($ Billion)

Year	At Current Prices	Expressed in Real 2000 Prices
2000	177.2	177.2
2001	148.6	145.8
2002	142.0	137.2
2003	159.5	151.6
2004	219.0	204.1
2005	305.8	279.2
2006	375.1	335.6
2007	410.2	359.1
2008	585.3	502.9
2009	352.8	301.0
2010	450.9	380.8
2011	624.8	520.8
2012	702.6	578.7
2013	654.3	532.6
2014 *	570.8	458.3

* Estimated data.

Note: Real revenues are obtained by deflating current prices by the GDP Deflator of industrial countries as published by the IMF.

Source:

- OAPEC - Economics Department.

Table 1-17

Energy Consumption in the Arab Countries, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014
Petroleum products					
Member countries	6006	6122	6539	6466	6765
Other Arab countries	349	372	371	414	440
Total Arab countries	**6355**	**6494**	**6910**	**6879**	**7205**
Natural gas					
Member countries	5420	5392	5443	5604	5840
Other Arab countries	876	940	929	941	965
Total Arab countries	**6296**	**6332**	**6372**	**6546**	**6805**
Hydroelectricity					
Member countries	68	68	73	67	68.5
Other Arab countries	32	24	23	29	30
Total Arab countries	**100**	**92**	**95**	**95**	**99**
Coal					
Member countries	42	52	62	62	63
Other Arab countries	82	91	88	92	95
Total Arab countries	**124**	**142**	**150**	**154**	**158**
Total Energy					
Member countries	11535	11633	12117	12199	12737
Other Arab countries	1339	1427	1410	1475	1530
Total Arab countries	**12875**	**13060**	**13528**	**13675**	**14267**

* Estimated data.
Note : The total may not add up due to rounding.

Source:
- OAPEC - Databank.

Table 1-18

Per Capita Energy Consumption in the Arab Countries, 2010 and 2014
(Boe/year)

	2010	2014*
Algeria	9.6	9.8
Bahrain	76.2	83.7
Egypt	7.5	7.7
Iraq	7.7	8.9
Kuwait	80.0	57.6
Libya	27.7	18.4
Qatar	286.0	276.2
Saudi Arabia	46.0	49.0
Syria	9.4	6.4
Tunisia	5.6	5.5
UAE	59.0	68.2
OAPEC member countries	**18.5**	**18.6**
Other Arab countries	**3.9**	**4.4**
Total Arab countries	**13.3**	**13.8**

* Estimated data.

Source:
- OAPEC - Economics Department.

Table 1-19

Energy Consumption in OAPEC Member Countries, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014*
Algeria	943	992	1003	1011	1052
Bahrain	257	255	265	282	290
Egypt	1625	1702	1751	1716	1821
Iraq	687	739	777	843	875
Kuwait	586	531	538	519	540
Libya	590	319	459	452	445
Qatar	1344	1345	1391	1328	1415
Saudi Arabia	3475	3653	3890	3938	4135
Syria	530	541	418	404	387
Tunisia	163	155	159	165	166
UAE	1337	1401	1467	1542	1611
Total	**11535**	**11633**	**12117**	**12199**	**12737**

* Estimated data.
Note : The total may not add up due to rounding.

Source:
- OAPEC - Databank.

Table 1-20

Energy Consumption in OAPEC Member Countries by Source, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014*
Natural gas	6006	6122	6539	6466	6765
Petroleum products	5420	5392	5443	5604	5840
Hydroelectricity	68	68	73	67	69
Coal	42	52	62	62	63
Total energy	**11535**	**11633**	**12117**	**12199**	**12737**

* Estimated data.
Note : The total may not add up due to rounding.

Source:
- OAPEC - Databank.

Table 1-21

Natural Gas Consumption in OAPEC Member Countries, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014*
Algeria	455	517	576	615	635
Bahrain	229	229	237	253	260
Egypt	798	883	899	849	920
Iraq	139	137	131	149	155
Kuwait	248	249	259	219	225
Libya	231	72	205	220	210
Qatar	1251	1243	1277	1223	1300
Saudi Arabia	1455	1536	1663	1666	1740
Syria	132	148	136	122	110
Tunisia	70	57	65	70	70
UAE	997	1051	1091	1081	1140
Total	**6006**	**6122**	**6539**	**6466**	**6765**

* Estimated data.
Note : The total may not add up due to rounding.

Source:
- OAPEC - Databank.

Table 1-22

Petroleum Products Consumption in OAPEC Member Countries, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014*
Algeria	481	468	420	390	410
Bahrain	28	26	28	29	30
Egypt	748	741	767	788	820
Iraq	547	602	646	694	720
Kuwait	338	282	279	300	315
Libya	359	247	254	232	235
Qatar	92	103	113	106	115
Saudi Arabia	2020	2117	2227	2272	2395
Syria	391	386	275	275	270
Tunisia	91	97	93	94	95
UAE	325	324	341	426	435
Total	**5420**	**5392**	**5443**	**5604**	**5840**

* Estimated data.
Note : The total may not add up due to rounding.

Source:
- OAPEC - Databank.

Table 1-23

Hydroelectricity Consumption in OAPEC Member Countries, 2010-2014
(Thousand boe/d)

	2010	2011	2012	2013	2014*
Algeria	0.1	0.6	0.7	0.2	0.5
Egypt	59.3	58.8	64.0	58.8	60.0
Syria	7.1	7.1	7.0	7.0	7.0
Tunisia	1.2	1.0	1.0	1.0	1.0
Total	**67.7**	**67.5**	**72.7**	**67.0**	**68.5**

* Estimated data.

Source:
- OAPEC - Databank.

Table 1-24

Coal Consumption in OAPEC Member Countries, 2010-2014 (Thousand boe/d)

	2010	2011	2012	2013	2014*
Algeria	6.9	6.0	6.0	6.0	6.4
Syria	0.1	0.1	0.1	0.1	0.1
Egypt	20.0	19.4	20.9	20.9	20.9
Total	**41.9**	**51.6**	**62.2**	**62.2**	**63.0**

* Estimated data.

Source:
- OAPEC - Databank.

Table 1-25

Domestic Prices of Petroleum Products in OAPEC Member Countries, 2014 (Local curvrency/liter)

	Currency	Gasoline		Household Kerosene	Gas oil/ Diesel	LPG
		Premium	Regular			
Algeria	Dinar	23.00	21.20	-	13.70	9.00
Bahrain	Dinar	0.100	0.080	0.025	0.100	1.200*
Egypt	Pound	6.25	2.60	1.80	1.80	8.00*
Iraq	Dinar	-	450	150	400	160
Kuwait	Dinar	0.065	-	0.055	0.055	0.75*
Libya	Dinar	0.15	-	0.080	0.170	0.054
Qatar	Riyal	0.80	0.70	0.55	0.70	15.00*
Saudi Arabia	Riyal	0.60	0.45	0.44	0.25	0.72
Syria	Lira	55.00	50.0	40.0	20	250**
Tunisia	Dinar	0.998	0.998	0.180	0.357	158
UAE	Dirham	1.83	1.72	3.25	2.35-3.42	** 120-75*

* Per cylinder.

Source:
- OAPEC - Annual Statistical Report 2014.

CHAPTER TWO

ARAB AND WORLD DEVELOPMENTS IN THE EXPLORATION, RESERVES AND PRODUCTION OF ENERGY RESOURCES

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I. OIL AND GAS

1. Exploration and Production in Arab Countries and the World: An Overview

2014 was characterized by focusing on shale oil and gas around the world in 2014. The US Energy Information Administration (EIA) estimated the volume of technically recoverable shale oil reserves at 345 billion barrels around the world. While Advanced Resources International (ARI) estimated these reserves at 335 billion barrels. The diffirence between the two estimations resulted from the difference in estimating the size of US resources, as EIA sees them around 58 billion barrels, while ARI confirms they cannot exceed 48 billion barrels.

As a result of differences in definitions and differentiation in estimating the role of uncertainty, it has been noted that some have presented higher figures. UCL Energy Institute for example stated that the size of these resources could be up to 1465 billion barrels. It has also been noted that EIA has reduced its estimations on the size of recoverable shale oil reserves at Monterey Formation in California by about 96%, explaining that recovering oil from what is considered the largest formation in the country would be more difficult than what has been expected earlier. EIA estimated in 2013 that Monterey Formation could yield about 13.7 billion barrels of oil, but later reduced its estimations sharply to only 600 million barrels in May 2014. This could mean that other estimates in other parts of the world could also be far less than estimated currently.

EIA estimations included some Arab countries (Table A). It estimated that resources for shale oil in Tunisia could be 29 billion barrels, with 1.4 billion barrels technically recoverable.

In Algeria, resources have been estimated at about 121 billion barrels distributed over five basins. Technically recoverable resources have been estimated at 5.7 billion barrels. In Libya, resources of shale oil have been estimated at about 614 billion barrels. Technically recoverable resources have been estimated at 26 billion barrels. In Egypt, resources of shale oil have been estimated at about 114 billion barrels. Technically recoverable resources have been estimated at 4.6 billion barrels. In Jordan, EIA estimated resources of shale to be at 4 billion barrels. Technically recoverable resources have been estimated at 0.1 billion barrels, and can be found in Batra Formation extends across Hamad basin and Sirhan Valley. EIA study did not include any estimation on KSA's shale resources, although it mentioned the organic-rich shale Qusaiba Formation from the Silurian Period in Saudi Arabia, which equals Petra element in Mudawarah Formation eastern Jordan, and Tanezzuft Formation in Libya and Algeria. Qusaiba Formation is known to be extending across the UAE and Bahrain. Syria's Tanaf, Qatar's Sharawra, and Oman's Safiq equal Qusaiba. Oil- generating Qaseebah Formation has also been proven in four wells drilled in The south Rub' al Khali basin in Yemen. Its TOC is estimated at about 1.25% in Hathout-2 well.

Table A: Estimations of Shale Oil Resources Distribution in Arab Countries

Country	Basin	Formation	Resources (Billion Barrels)	Technically Recoverable Resources (Billion Barrels)
Tunisia	Ghadames	Tanezzuft	1	0
		Frasnian	28	1.4
Total			**29**	**1.4**
Algeria	Ghadames/Berkine	Frasnian	78	3.9
		Tanezzuft	9	0.5
	Illizi	Tanezzuft	13	0.5
	Ahnet	Frasnian	5	0.2
	Reqqan	Frasnian	6	0.2
		Tanezzuft	8	0.3
	Tindouf	Tanezzuft	2	0.1
Total			**121**	**5.7**
Lybia	Ghadames	Tanezzuft	104	5.2
		Frasnian	26	1.3
	Sirte	Sirte/Reshma	406	16.2
		Itil	51	2
	Marziq	Tanezzuft	27	1.3
Total			**614**	**26**
Egypt	Shushan/Matruh	Khatatba	17	0.7
	Abu Al Ghradiq		47	1.9
	Alamayn		14	0.6
	Natour		36	1.4
Total			**114**	**4.6**
Jordan	Hamad	Petra	0	0
	Wadi Al Sarhan		4	0.1
Total			**4**	**0.1**

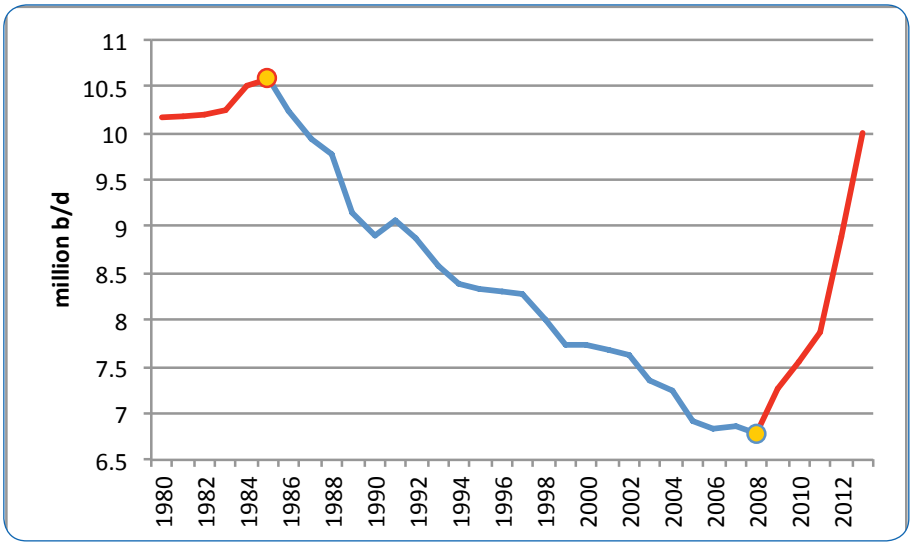
(Table A) shows that the recovery factor (RF) according to the shown estimations is very low; it is 4.8% in Tunisia, 4.7% in Algeria, 4.2% in Libya, 4% in Egypt, and no more than 2.5% in Jordan.

The USA has led the shale oil production by 3.22 million b/d in the 4th quarter of 2013. In the first quarter of 2014, the EIA said that this rate has pushed the total US production to about 7.84million b/d, representing 10% of the world's total production according to EIA.

In February 2014, shale oil production has hit 1.21 million b/d from Eagle Ford play, and 0.9 million b/d from Bakken Shale play. EIA said that the production of these two plays represented 63% of the shale oil production in the USA at that period, which means that USA shale oil production was 3.35 million b/d.

(Chart A) shows the impact of the shale oil production on the daily production in the USA between 1980- 2013. It is clear that the country's daily production has hit its peak in 1985, with an average that exceeded 10.8 million b/d. It then started a continuous decline to its lowest rates in 2008 hitting about 6.8 million b/d. after that the impact of the shale oil production started to be more and more visible.

Chart A: Shale Oil Production Rates in the USA between 1980- 2013



North Dakota production has increased exceeding 1 million b/d between April and May 2014, due to the increasing production rates from Bakken Shale Formation in Williston basin, as well as, the Three Forks Formation stretching between North Dakota and East Montana. Production rates have also increased from Eagle Ford Formation in June 2014 to 1.4 million b/d, which represents an increase of 37.6% compared to June 2013. API of the Bakken Shale Formation oil is about API 42º for sweet crude oil with less than 0.2% of sulfur content, while it is API 47º in Eagle Ford Formation.

EIA estimated the average maximum reserve at any single well from the Eagle Ford Formation drilled between 2008 and mid 2013 to be about 168,000 b/well. This reserve significantly differs from one area to another. Usually, it stables after three years of the start of production. (Table B) shows the estimations of the average maximum reserve for any single well at the Eagle Ford Formation during the period from 2008 to 2013.

Table B: The Maximum Reserves per Well at the Eagle Ford Formation 2008- 2013

Year	Number of Wells	The average maximum reserve thousand barrels / well
2008	33	36
2009	75	57
2010	514	117
2011	1627	153
2012	2717	191
2013	418	169
Totel	**5384**	**168**

The year 2014 witnessed noticeable activities by companies interested in shale oil and gas in the USA, for example Encana Oil & Gas acquired a license for acquired developing 185 sq km in Eagle Ford Formation, South Texas, at a cost of $3.1 billion. The mentioned area's oil production was 40,000 b/d in the first quarter of 2014.

As for production outside the USA, **Canada** and **Russia** were the only countries that produced shale oil in commercial quantities. Canada's production- mainly from the country's western regions, was 340,000 b/d in 2013. While Russia produced about 120,000 b/d of shale oil from west Siberia basin in the same year. Shell, in collaboration with Gazprom Neft, has launched a drilling programme in the beginning of 2014, including the drilling of 5 horizontal wells in two years to appraise hydrocarbon potentials in Bazhenov Formation, west Siberia. Gazprom Neft announced by the end of April 2014 that it succeeded in producing shale oil from a well in Krasnoleninskoye field, at a primary production rate of about 300 b/d. Exxon Mobil decided in the same year to invest $300 million to launch a pilot drilling programme in the same Formation in cooaperation with Rosneft.

In **Argentina**, with the end of the first quarter of 2014, YPF, Argentina's biggest shale oil producing company, has signed two contracts worth $1.2billion to rent 15 rigs to be added to its current 65 rigs. The two contracts extend for 5 years with an option for extension for extra 3 years. This step comes in line with the company's plans to invest $37 billion until 2018 to develop the Vaca Muerta Shale Formation, whose oil reserve is estimated at about 27 billion barrels, ranking it among the world's largest shale oil deposits. YPF has also signed an agreement with Petronas in August 2014 to invest in Vaca Muerta shale oil in Neuguen basin. The project is divided into 3 phases. The first phase includes an appraisal project to develop shale oil in La Amarga Chica sector over an area of 187 sq km. Work in this phase starts in the first quarter of 2015. It will include drilling 30 horizontal and vertical wells, as YPF will operate this phase by a share of 50%. Petronas is scheduled to present $475 million of total investments worth $1 billion in the next five years. In 2012, the EIA has estimated recoverable reserves of that area at about 741 million barrels of shale oil.

In April 2014, YPF pointed out to plans under study in cooaperation with Chevron to develop the 389 sq km Loma Campana license in Neuguen basin.

While having an increasing interest in its potential tight gas and shale gas resources, since mid 2013, Australia called upon interested

companies to offer their bids on exploration of 6 offshore and onshore blocks west of the country, with a total area of more than 21,000 sq km. L13-3 is among these sectors, which is located in Perth basin south eastern the country. An oil and gas transport pipeline stretches across that land. This basin is considered a potential source of shale gas and tight gas in the western area. Governmental estimations indicated that there are 8.5 trillion cubic meters of shale gas and tight gas, 2 trillion cubic meters of which exist in the northern part of the basin. 8.4 trillion cubic meters also projected in Cannin basin north western Australia. This has coincided with the release of Australian Council of Learned Academies report that mentioned that the country's unexploited reserve of shale gas is about 28.3 trillion cubic meters.

In **China**, the hike in production, hand in hand with the governmental exploration companies' developments, showed that China is on the right track towards achieving its goal on producing shale gas. PetroChina has laid plans to produce 2.6 billion cubic meters of shale gas in 2015 instead of its earlier plan to produce 1.5 billion cubic meters. The company has earmarked about $1.5 billion for drilling and hydraulic fracturing in 2014. Some research centers estimated the breakeven point for producing shale gas in China to be around $7.7 per 1000 cubic foot. Sinopec has made a big shale oil discovery in Chongquing, south east China. Fu-Ling field reserves are estimated at about 2.1 trillion cubic meters. The new discovery's production rate is expected to reach 10 billion cubic meters per annum in 2017. The company spent about $322 by the end of the first quarter of 2014. The same company made another shale gas discovery in Guizhou near the mentioned field, through a well drilled to a depth of 4417 meters. When tested, the well produced an average of 105,000 cubic meters per day. On another note, researchers see it difficult for China's plans in this field to be successful due to economic and technical obstacles.

In the **UK**, a report released by Ernst and Young said that the deposits for shale gas in the country could create 64,000 new job opportunities, and inject about $55billion of investments if 4000 horizontal wells were drilled as planned between 2016 and 2032. The British Geological Survey has estimated the (GIIP) Gas initially in Place reserve of shale gas in Bowland- Hodder basin stretching from north England to

Yorkshire to be about 38 trillion cubic meters. To encourage work done on shale gas, the British Government has endorsed a 30% tax reduction on shale gas production from onshore wells.

In **Poland**, PGNIG and Chevron signed a cooperation agreement on shale gas exploration in southern areas. The agreement states that the two companies evaluate shale gas deposits in 4 exploration licenses south east the country. Poland was distinguished among the European countries by its sincere efforts in developing its shale deposits in 2013; where 44 wells have been drilled targeting shale gas, as well as, its granting of more than 100 exploration licenses. However, there are some indications of some hinderance in this field following the withdrawal of ExxonMobil, which drilled 2 dry wells in the country during 9 months, and most importantly its announcement that it has withdrawn from exploring shale gas in Poland due to the absence of feasible economic incentive for continuing the exploration.

Talisman Energy has follow followed ExxonMobil. It has sold its license shares in Poland mid 2013. It was followed by Marathon Oil that started selling its Polish licenses in 2014.

In **India**, a policy on unconventional resources has been approved. The country has endorsed a new policy allowing granting shale oil and gas exploration licenses to companies working in areas licensed for conventional hydrocarbon exploration. The Governmental Committee for Economic Affairs has approved the proposal submitted by the Oil Ministry in this regard. The new policy allows for companies to work through three appraisal phases. Each phase lasts for three years, while maintaining the government's royalties and other taxes similar to those of the conventional resources.

In the same vein, **Mexico** started work on reforming its policies governing investments in the country. It has taken the first step to open the energy sector for private investments in an attempt to exploit its unconventional hydrocarbon resources. In this regard, some constitutional amendments have been made in December 2013, to relax restrictions on foreign investments and tax system related to its governmental petroleum company "Pemex" to give opportunity to

foreign investments for the first time since 75 years. This is a step to develop the shale plays in the country in order to boost its production rates to 3 million b/d in 2018. The EIA has ranked Mexico sixth in terms of the size of its potential shale gas resources which has been estimated at about 15.4 trillion cubic meters, and eighth globally in terms of the size of its technically- recoverable shale oil resources estimated at about 13 billion barrels.

Eagle Ford shale play is one of the most prospected areas in Mexico. It is an extension of the same play in Texas, the USA, and extends to Burgos basin in Mexico. According to observed regulations, Pemex was the only side responsible for developing the oil and gas reserves in Mexico. It has previously drilled 4 exploration wells to test the shale play, including Emergente-1 late 2010, a few kilometers away from the US borders. The vertical depth of the well reached 2500 meters, with a 2550 meter long horizontal track. The company has fractured the well over 17 stages. It has initially produced 78,000 cubic meters of gas, and only 27 barrels of shale oil. The well's drilling and fracturing costs were between $20 and $25 million. The company has laid later plans for drilling 75 exploration wells in the shale play within the Burgos basin in 2015.

In **Colombia**, that is interested in shale plays, a consortium of Canacol Energy abd ConocoPhillips has started to drill the exploration well Oso Pardo-1 to test the possibility of finding oil in a conventional formation of sand stone of the Triassic Period, in addition to testing other deeper reservoirs consisting of fractured clay and carbonates of the Cretaceous Period, 12 km west Mono Arana-1 where conventional oil has been discovered within the same formations targeted by the new well.

On another note, various challenges have been facing the shale oil and gas industry whether in the USA or other countries. Many European countries have shown reserve over the hydraulic fracturing associated with developing the shale plays, including **France** where its Supreme Court in late 2013 supported a legislation issued back in 2011 totally banning such kind of operations; to become the second country after **Bulgaria** in this regard.

In the **USA**, Colorado's Air Quality Department issued a statement referring to the results of a study prepared by its engineers, which showed that the emissions of light organic compounds, especially from oil and gas reservoirs and pipelines caused air pollution. The study clarified that the growing oil and gas production associated with the development of drilling and hydraulic fracturing techniques to produce shale oil and gas, have contributed to increase the quantities of volatile organic compounds over the earth surface, which led to many health problems including asthma.

A study by the Roads Committee in Texas has confirmed that many roads in DeWitt were not convenient for very heavy vehicle, which caused a noticeable increase in maintenance cost by more than fourfold from $3.7 million in 2012 to $15.3 million in 2014, which would call for imposing tax on maintenance. Shale oil production in this province has gone up from 440 barrels/day in 2009 to reach more than 80,000 barrels/day until the first half of 2014.

In 2007, Texas issued 69 drilling licenses, which went up to 449 licenses in 2012. Texas Transport Department released a report that showed that drilling and putting one well on production requires 1200 different loads via vehicle with payload weight of 57 to 68 tons.

Moreover, BP America announced in the beginning of the second quarter of 2014 that it will not continue development work in its 400 sq km licensed area at Utica Shale plays in Ohio.

In the first quarter of 2014, the company has written down its assets related to this area by a $521 million.

It is clear that the necessity of hydraulic fracturing in shale wells requires using huge amounts of water, which in turn could mean an obstacle facing the development of shale oil and gas resources in some countries. A World Resources Institute report issued in September 2014 indicated to:

1. 38% of the hydrocarbon resources in shale rocks are either in deserts or arid areas.
2. 19% of the resources are in areas with severe seasonal water changes.

3. 15% of the resources are in areas highly exposed to severe drought.

The report added that 386 million people lived in areas where shale plays existed, 40% of which depend on irrigated agriculture which creates great competition for water resources between agriculture and hydraulic fracturing.

However, the above mentioned obstacles did not hinder many firms from drawing different scenarios for the growth of shale oil production in the USA, and what might follow of growth in infrastructure; for example Douglas Westwood that issued a report in the beginning of 2014, in which it mentioned that the production of shale oil has contributed to creating stable investments in pipelines infrastructure market. The firm's database identified to plans to invest $22 billion between 2014- 2020 in constructing more than 37,000 km of pipelines, 1600 km of which to transport oil produced by the relatively far Bakken Shale Plays from the processing centers. These pipelines are scheduled for establishing in 2016. This will contribute to lowering price reduction rates for the oil produced by these plays, especially that 70% of the oil produced in North Dakota is transported by trains.

As for Arab countries, shale oil and gas activities are still very limited. In July 2014, **Algeria** announced plans to drill 4 shale gas wells to appraise the economic feasibility of the gas following studies showing that Algeria is ranked third worldwide with regards to its shale gas resources estimations after China and Argentina. The wells will be drilled in Illizi basin south east Algeria and Ahnet basin south west the country. The announcement came after the government's decision to drill 11 shale gas wells in the country in 7 to 13 years, as Algeria's Sonatrach plans to produce 30 billion cubic meters of shale gas by 2020 in case it succeeded.

In **Jordan**, that has oil shale rocks, the government approved an electrical power generation project by using oil shale in Atarat Umm Al Ghadran area, 110 km south west the capital Amman. The project's costs are estimated at about $2.4 billion. It will be executed by Atarat Energy, a joint venture between Estonia's Enefit (65%), Malaysia's YTL Power, and the Near East Investments Co. (5%). The planned power generation plant's capacity is scheduled to be 470 megawatts.

In general, in spite of the increasing importance of the unconventional resources like shale oil or gas and tight oil, conventional oil and gas resources continue to dominate the world's petroleum reserves and supplies. In this domain, the International Energy Agency (IEA) expected that the different kinds of unconventional oil resources would not meet more than 13% of the world's demand for oil in 2035. As for the unconventional gas resources (tight gas, shale gas, coal seams gas), they can cover 26% of the world demand in the same year. A study published by Oil and Gas Journal mentioned that most oil supplies would come from the remaining reserves and the reserves growth in giant fields whether discovered or not.

The exploration and production market has flourished significantly in 2014. Among positive signs that have been mentioned in a study examining the subsea equipment subsurface market was its projection that the amount of capital to be spent in this field would hit $117 billion between 2014 and 2018, which practically represents an increase of 80% compared to the past five years. This field has been negatively affected by the 2009 economic crisis and the Gulf of Mexico oil spill in 2010. The study attributed this anticipated flourish to the circumstances related to new deep waters discoveries on the one hand and the start of the development of many fields in Africa, Latin America and North America on the other hand. The study showed that 44% of the ttal expenditure would be allocated for offshore production equipment. In the same vein, on 2/12/2014, Douglas- Westwood Consultancy Chief mentioned that meeting the world demand for oil and gas in the next four years requires investments worth about $1.4 trillion.

2014 witnessed the signing of many contracts in the Arab countries on the exploration, production, and developing of the conventional resources, including for example:

Member Countries

In the **UAE**, Japan's Inpex got the UAE government's approval to extend its Upper Zakum Field license until 2041. The said field is developed through artificial islands to upgrade its production rate from 550,000 b/d to 750,000 b/d in 2017. ABB group has been awarded a $175 million contract to upgrade the power generation capacity at

the field's oil and gas processing facilities. The order, which covers engineering, procurement and construction (EPC), was awarded by Zakum Development Company (ZADCO). Petrofac, the international oil and gas services provider has been awarded a US$21 million front end engineering design (FEED) contract by Abu Dhabi Company for Onshore Oil Operations (ADCO). This project, in the Thamama production zone, forms part of ADCO's Bab Integrated Facilities Project, located 150 km south-west of Abu Dhabi city.

Zora Gas Field upgrading work is rapidly progressing, as Dana Gas awarded most required development contracts. Gas production is expected to commence in 2015 at a rate of 1.1 million cubic meters per day. The Zora gas field, which was discovered in 1979, is located in the Sharjah Western Offshore Concession off the United Arab Emirates covering an area of 1000 sq km. The field extends within a geological reservoir between Sharjah and Ajman over an area of 25 sq km. A gas pipeline will transport gas from the platform to shore for processing and distribution inside the UAE.

In line with its plans to develop Al Jalilah B field, 90 km offshore Dubai in water depths of up to 60 m, Dubai Petroleum Establishment (DPE) has awarded Technip an engineering, procurement, construction, and installation contract. The work scope includes construction and installation of the Jalilah B platform, and laying 110 km of pipelines ranging in diameter from 6-24-inch. DNO has also announced that it has connected Saleh-8 well to its surface facilities offshore Ras Al Khaimah in a step before the well starts production in order to observe the amount of pressure in it.

In **Algeria**, the Ministry of Energy and Mines/ The National Agency for Valorisation of Hydrocarbon Resources announced on 22 January 2014 the fourth bidding round including 92 onshore blocks over an area of 463,000 sq km in Tindouf, Ellizi, Ghadames, Atlas, and Ghararah basins.

In mid 2014, The National Agency for Valorisation of Hydrocarbon Resources awarded three licenses to Eni for the exploration of oil and gas over an area of 46,837 sq km in El Guefool, Tinerkouk, and Terfas concessions southern the country. The licenses are valid for two years.

The work includes carrying out the required studies, drilling exploration wells to appraise the concessions' hydrocarbon potentials.

Algeria announced three bidding rounds earlier including 16 blocks back in 2008, 4 of which have been awarded; and 8 sectors in 2009, 3 of which have been awarded; and 10 sectors in 2010, 2 of which have been awarded. The current bidding round is considered the first of its kind in Algeria since the hydrocarbon law has been reviewed in 2012 and endorsed in the beginning of 2013. The law revision aimed at improving the financial conditions for foreign investors without changing the condition on Sonatrach's share that has to be 51%. However, the amendments to the law included tax amendments and better financial incentives for companies investing in offshore or unconventional resources exploration sectors.

In September 2014, The National Agency for Valorisation of Hydrocarbon Resources has awarded four licenses within an area of more than 33,500 sq km. the following tavle shows some details of these licenses:

License	Block	Size(KM^2)	Company	Obligations
Timissit	210	2,732.35	Statoil Sigma Netherlands BV Shell Exploration New Ventures One GmbH	Seismic survey and drilling of 2 wells
Tinhert North	223b, 244d, 235b	2,907.77	Dragon Oil (Algeria Alpha) Limited Enel Trade SpA	Seismic survey and interpretation of data to dig 3 wells
M'Sari Akabli	332a, 341a3, 339a1	8,096.38	Enel Trade SpA Dragon Oil (Algeria Alpha) Limited	Seismic survey and interpretation of data to dig 3 wells
Boughezoul	104b, 117, 133c, 135b, 137b	19,788.90	Repsol Exploration Algeria Shell Exploration New Ventures One GmbH	N/A

In **Tunisia**, ADX Energy announced that it won the approval of the Hydrocarbon Consultation Committee on extending the exploration period for the Kerkovane permit for two years until 21 February 2016. The Tunisian concession neighbours the is continguos with the prolific Italian Pantelleria concession.

In **KSA**, Saudi Aramco said in its annual report that exploiting unconventional gas has become an important strategic step for the continuation of the Saudi economic development as it would help in meeting domestic demand for energy, especially for electrical power generation and water distillation plants. This would help increase the crude oil and diesel quantities allocated for exports. The company confirmed in its report that Aramco's unconventional gas programme has stepped into full operation in 2013, two years after launching the company's unconventional gas programmein the north area. The company said it was ready to commit to providing shale gas to develop an electrical power generation plan with a capacity of 1000 megawatt to feed phosphate recovery and processing in the KSA. Hence, the KSA would be one of the pioneer countries outside North America that uses shale gas for domestic power generation. The report showed that Saudi Aramco is exploring unconventional gas resources in three areas in the KSA which include the West Northern area, South Ghawar, and the Empty Quarter.

KSA has also announced plans to invest $40 billion annually for the next 10 years to maintain the oil production stability and duple gas production. Aramco's CEO said that the most important focus will be on the exploration and production sectors, and increasingly on offshore fields in order to maintain the Kingdom's oil production capacity at 12 million b/d.

In **Syria**, Stroytransgaz has been contracted to execute the northern midlands gas project at a cost of 290 million Euros ($377 million) and 4 billion Syrian pound. 9 fields in the northern middle area have been developed through the construsting a system for gas gathering and a plant for gas processing in Twinan site with a capacity of 3.4 million cubic meters/day of crude gas producing 3 million cubic meters/day of clean gas, 53 tons/day of sales gas and 2000 barrels/day of condensates.

In **Iraq**, Lukoil has started commercial production from West Qurna-2 Field at an average of 120,000 barrels/day on 28 March 2014. The service contract signed with the company states that production has to be sustained for 90 days before the company can make revenues on its investments.

West Qurna-2 Field is one of the world's largest oil fields. It is located 65km from Basra southern Iraq. The field's STIIP is estimated at 35 billion barrels of oil distributed between Mishrif and Yamama formations. The field's developing project consists of 3 phases:-

- Early production from Mishrif formation targeting 400,000 b/d

- Full developing of Mishrif formation targeting 550,000 b/d

- Yamama formation developing to hit a total field production of 1.2 million b/d. This production rate has to be sustained for more than 19 years.

DNO International ASA started natural gas production from Semil field in Iraq's Kurdistan at a rate of 1.7 million cubic meters per day, 20% more than planned. Produced gas is transported to an electrical power generation plant in Duhok according to an agreement signed with the region's government. The company announced earlier its plans for starting production from a new well in June 2014, followed by a third well later, which would increase the field's daily production to about 2.8 to 3.4 million cubic meters per day.

In addition to that, Gazprom Neft started oil production from Badra in Wast governorate eastern Iraq. The company said in June2014 that the central gathering station tests were planned to be completed within three months, after which the field would be ready for commercial production at a rate of 15,000 b/d. Production is expected to hit 170,000 b/d by 2017. The first gathering line has been completed with a capacity of 60,000 b/d. The field actually started production in August 2014 at a rate of 15,000 b/d to be increased to 60,000 b/d in 2015. The field is scheduled to provide Al Zubaidiyah Electrical Power plant with gas.

Production has also started in the second phase of the giant Al Halfaya Field as confirmed by CNPC. This phase included setting up a 272km long pipeline, building a crude oil processing plant with a capacity of 5 million tons per annum, and the drilling and completion

of 43 wells. The company said that the field's average production rate was 200,000 b/d until August 2014. The first phase of the upgrading has raised the field's production rate to about 100,000 b/d, and about 2.6 million cubic meters of gas per day. The field's production rate is projected to hit 400,000 b/d by the end of 2016.

In addition to that, in Q3 of 2014, JSG Gazprom Neft has started exploration drilling in Shakal block in south western Iraq's Kurdistan. The plan included drilling two wells to a depth of 3500 meters each, to examine and appraise two reservoirs in the block. The two wells should be completed and tested by the beginning of 2015. Earlier on, a 1000km 2D seismic survey in the said block has been carried out, and then a 3D seismic survey has been done later and covered 290 sq km.

Technip and China Huanqiu Engineering Corp and Contracting (HQC) acquired a contract to present engineering designs for the natural gas liquids production project "Al Artawi" northern Rutba in Basra province. It is scheduled to produce about 15 million cubic meters per day of gas. South Korea's STX for Heavy Industries has acquired a contract worth $99million to build Al Gharraf gas processing unit in Iraq. It mentioned that the unit will be completed by the end of 2015.

In **Qatar**, Qatar Petroleum (QP) has announced plans to invest over 40 billion Qatari Riyals (about $10.8 billion) in the re-development of the existing Bul Hanine offshore oil field located about 120 kilometers to the east of the Qatari coastline. The project includes new offshore central production facilities and a new onshore gas liquids processing facility at Mesaieed. This will be marked by a massive drilling campaign of about 150 new wells between now and the year 2028. It is scheduled that the new wells will be drilled through existing and upgraded rigs, in addition to 14 new rigs. All produced quantities will be processed through rigs in a new onshore central hub including production and compressor facilities, as well as services and living rigs. Produced oil is scheduled for exporting via Haloul Island, while acid gas, estimated at about 25.5 million cubic meters, will be transported on a daily basis through a 150km long pipeline under the sea to a new gas processing plant in Mesaieed. From there, light sweet gas will be re- sent after

being processed via a new pipeline under the sea to a new offshore compressor and injecting facility.

In **Kuwait**, Kuwait Oil Company (KOC)'s annual report for the fiscal year 2013-2014 showed that the company has completed the primary engineering designs for the pumping and injecting of associated water. It launched a bid for this project at an estimated cost of KD 1.37 (about $4.7). Also, in the same year, a 2D seismic survey was launched in the Kuwaiti regional waters, except for Kuwait Bay (Jun Al Kuwayt) and the divided area. 25% of the project has been completed while the offshore seismic survey is expected to be completed during the fiscal year 2015-2016.

KOC has also completed about 90% of the full aerial surveying of gravity and magnetism for all the areas of Kuwait (land and sea) during the years 2013-2014. The project is expected to be completed during Q2 of the fiscal year 2014-2015.

In **Libya**, Foster Wheeler and its partner Taknia Libya Engineering have won an advanced engineering contract to develop the field known as "Area 47" within Ghadames Basin located 200km southern the capital Tripoli. The project consists of 34 producing wells, including 11existing wells and 23 new wells to be drilled, flow-lines and a common gathering trunk-line. It also includes a proposal on building a central gas oil separation facility for primary treatment with a capacity of 50,000 b/d of oil and 2.5 million cubic meters of gas.

In **Egypt**, following a bidding round announced by EGAS in the end of 2013 offering 7 blocks for exploration in the Mediterranean and Nile Delta, EGAS announced the inclusion of an eighth block in the aforementioned round.

Dana Gas acquired an agreement by which it can work in block 6 in North Arish concession in the Nile Delta. It is the first offshore block acquired by the company in Egypt covering an area of 2980 sq km. The block is in an area where water depth varies between 20- 1000 meters. A number of potential plays have been defined in preparation for exploration that will take 4 years according to the agreement clauses. Exploration will include carrying out seismic surveys and drilling at

least one exploration well.

In **Egypt**, Eni started gas production from Denis-Karawan Field within the offshore Nile Delta concession. Production started from Denis- South-6 in Timsah concession in waters with a depth of 100 meters, 65km to the north of Port Saeed. The well's production hit 1.8 million cubic meters of gas per day, and expected to hit 6.5 million cubic meters of gas per day in 2015.

In this context, BP Egypt has committed to invest $240 million in two exploration block acquired from EGAS; they are: North Matariya block in north east Nile Delta and 57km to the west of Port Saeed. It will co-operate with Dana Gas that possesses equal shares to BP Egypt. The second block is "Karawan" in the Mediterranean with the Egyptian regional waters, 220km to the north east of Alexandria, and 170km north west Port Saeed. The company has equal shares to Eni. The Action Plan includes conducting a 3D seismic survey, drilling 3 exploration wells in both blocks during a period between 6 and 8 years. BP sees hope in gas discoveries in the two blocks.

Non-member Countries

In **Jordan**, it was decided that the National Petroleum Co NPC should continue exploration in Al Risha Gas Field after BP had stopped exploration early 2014 due to discouraging results while exploring deep formations and Al Risha gas producing formation. In 2009, BP signed an agreement with the Jordanian government to explore the said field and appraise it at a cost of no less than $237 million. On another note, Jordan's Energy and Mineral Resources Ministry announced a bidding round for Sarhan and Al Azraq area in Al Mafraq Province, 80 km north eastern the capital Amman.

In August 2014, Jordan's Energy and Mineral Resources Ministry announced a bidding round for three exploration blocks with an area of about 20,000 sq km, the table below shows some details about these sectors:

Block	Size (KM^2)	Type of Agreement	Previous 2D Seismic Survey (KM^2)	Previous 3D Seismic Survey (KM^2)	Previously drilled wells
Azraq	9665	production partnership	7174	300	35
Sirhan	9886	production partnership	7333	225	16
Explorating development area	400	Discoveries Development	7333	225	16

In September 2014, **Sudan** signed an agreement to explore and develop block 26 including Rawat field across the White Nile Province, with parts in North Kurdufan Province, and other parts in Sinar Province. According to the agreement, the block's shares are distributed as follows: State Oil Company Canada (50%), Nigeria's Express Petroleum (20%), and the national Sudapet (30%).

In **Oman,** Petrofac has been awarded a $1 billion worth engineering and procurement contract by Petroleum Development Oman (PDO) as part of the development of the Rabab Harweel block southern Oman. The project includes sour gas processing facilities, gathering and injecting systems, and export pipelines. Oil and gas produced from Harweel Field reservoirs, where miscible gas injecting technology is used, and gas and condensates that will be produced from Rabab reservoir through the partial recycling of the sour gas will be processed. It is planned that 4.9 million cubic meters/day of sweet gas and 9700 cubic meters/day of condensates will be produced with the injection of 16000 cubic meters/day of acid gas. Earlier data issued in March 2014 by the Oil and Gas Ministry projected that the country's average oil production in the next 5 years would be between 950,000 and 960,000 barrels/day, and gas production average of about 120 million cubic meters/day. The Ministry also showed that the total expenditure on the oil and gas exploration and production sector in 2013 hit about $10 billion distributed as follows: 72% for capital investments and 28% for

operational costs. Total oil sector expenditure hit about $7.7 billion while total gas sector expenditure hit about $2.3 billion. Enhanced oil barrel production cost is between $10 and $12 compared to $4 and $5/ barrel for the primary production.

BP Oman has awarded two long term drilling contracts for the Khazzan project worth $730 million. KCA Deutag has been awarded the first contract worth $400 million for the construction and operation of five newbuild land rigs for Khazzan. The second contract worth $330 million has been awarded to Abraj Energy Service to supply three drilling rigs. The field development of the Khazzan Project include a programme to drill 300 wells over a period of 15 years to reach a production rate of more than 28 million cubic meters/day.

Omani Oil and Gas Ministry has announced on 3 August 2014 a bidding round for five block covering an area of 76416 sq km; two offshore and three onshore as explained in the following table:

Block	Locahion	Size (KM^2)	Previous 2D Seismic Survey (KM^2)	Previous 3D Seismic Survey (KM^2)	Previously drilled wells
18	Offshore	21,140	10,000	2,048	3
59	Offshore	40,488	8.000	-	-
54	Onshore	5,632	7,000	400	7
43 A	Onshore	6,879	12,000	-	1
58	Offshore	2,277	2,500	-	1

In **Morocco**, San Leon acquired 1.5% of Sidi Moussa License offshore Morocco. While General Energy. The operator started drilling the first exploration well "SM-1" 60km offshore Morocco in waters with a depth of 990 meters in July 2014. The well's drilling costs were estimated at about $50 million.

In Lebanon, the Ministry of Energy and Water has extended for the fifth time the deadline for accepting exploration biddings for five offshore blocks on 14 August 2014.

In Palestine, the Palestinian Authority's Ministry of National Economy has announced in March 2014 a bidding round for the 432 sq km Rantis-1 block in the north west of the West Bank. The announcement did not include compulsory conditions for bidders, however, it introduced guidelines which are:

The exploration period should extend over the first three years and should include the drilling of two wells to a depth of 4500 meters, and a 2D seismic survey over 200km. This should be followed by another conditional extension for two years including the drilling of two wells to a depth of 4500 meters and conducting production tests.

Contracting conditions include a contract for 25 years, while taxing and government's royalties (ownership) depend on the field's daily production once a commercial discovery is made.

The World

2014 has been characterized with an obvious activity on exploration biddings launched by a number of countries worldwide, including for example:

Afghanistan announced in January 2014 a bidding round to explore and develop Totimaidan Block south eastern Amu Darya basin northern the country at the Turkmenistan borders. The block includes two wells: Juma and Bashikurd, discovered during the Soviet era.

Also, one of the main features in 2014 has been the discovery of oil in commercial quantities in Kenya. Interest grew in this country during 2013-2014 after the announcement of Tullow and Africa Oil of the first commercial oil discovery in Kenya within the block 10BB/13T in South Lockichar basin. This block is expected to bring revenues of about $10 billion over 30 years based on the regional geological characteristics and the results of the said well tests. This means, according to global analysis, that Kenya's GDP could grow by 0.83% per annum. Kenya has decided to announce an exploration bidding round in the beginning of 2014 but amended it later to be in Q4 of 2014 with the hope that more explorations could be made which in turn would increase the companies' interests in the bids. Kenya plans to invest in the said discovery in 2016

through building temporary facilities for oil production, which means that production can be made on a low scale until the required facilities for higher production rates are completed.

Angola announced an exploration bidding round for 10 onshore blocks over an area of more than 10,000 sq km. Angola is the second biggest African oil producer after Nigeria. Most of its production is from offshore fields; therefore, it is trying to develop its onshore production. **Australia** has announced five sectors over an area of more than 11,500 sq km together for exploration.

Bangladesh has signed an agreement to explore a block in shallow waters with Santos (with a share of 45%), Kris Energy (45%), and BAPEX (10%).

Canada launched many licenses for sale in 2014; the latest of which were 6 licenses with a bidding deadline in December 2014. The announcement had a condition that the bidding should not be less than 10 million Canadian Dollars for each license. The winning bid would get an exploration agreement for 9 years.

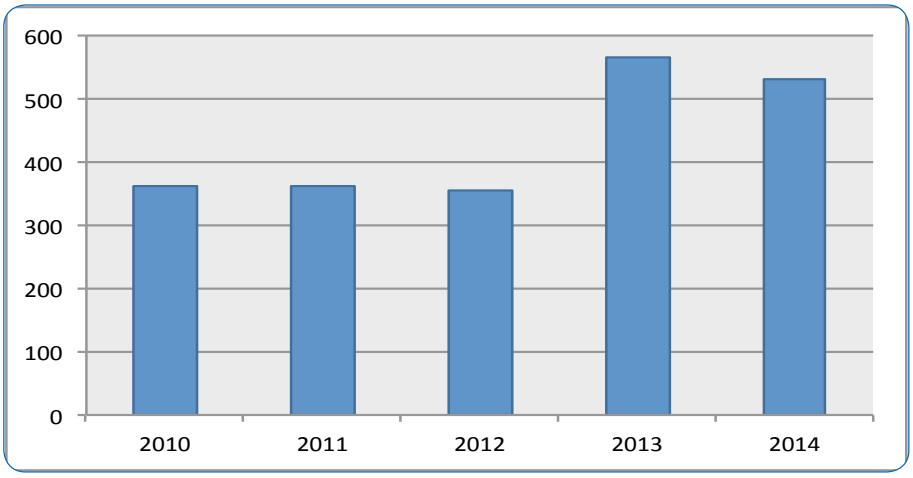
In a distinguished step in **China**, CNOOC announced an opportunity for foreign investors to co-operate 33 blocks offshore China coasts over an area of more than 128,000 sq km together. Also, **Denmark** announced 110 exploration licenses for interested companies.

The above shows clearly the increasing interest worldwide in developing oil and gas resources, as well as, the important role of the world's oil companies in drawing up the petroleum industry policies in most countries.

1- 1 Seismic Surveys:

The average number of seismic survey crews around the world has reached 531 crews/month- representing a decline of 6% compared to 565 crews/month in 2013. Available data show that 41% of these crews were working in Russia and the CIS, 21.7% in the Far East, 11.7% in the USA, 9.8% in Africa, 4% in the Middle East and Latin America, and 2.3% in Canada. Figure (2-1)

Figure 2-1
Seismic Surveying Activity in Different Parts of the World, 2010-2014
(Crew/month)



1- 2 Exploration and Development Drilling:

The number of operating rigs worldwide increased by 5% in 2014 compared to 2013 to 3580 rigs, 1860 rigs of which in the USA, representing 52% of the world's total operating rigs. Figures (2-2), (2-3) and Table (2-2).

Figure (2-2)
Average Number of Operating Rigs Worldwide 2010-2014
(Rig)

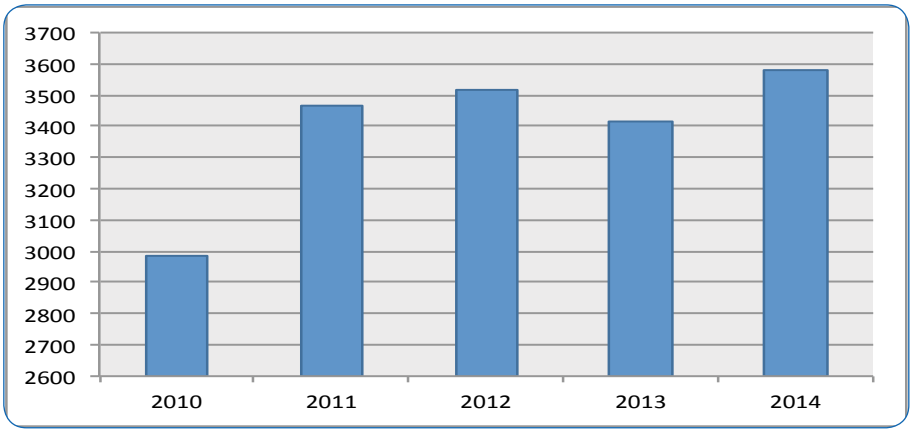


Figure (2-3)
Rigs Distribution Worldwide 2014
(%)

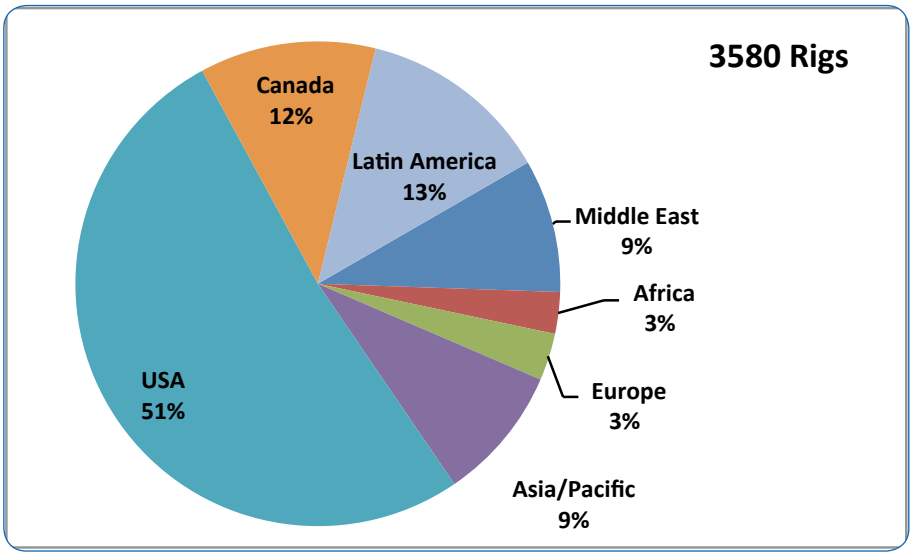


Figure (B) shows that the number of operating rigs in some Arab countries has risen like in the UAE, Algeria, Libya, Egypt, Oman and Yemen; but dropped in Syria, Iraq, and Qatar. It remained unchanged in the KSA and Kuwait.

OPEC data show that the number of wells that have been completed Figure (C) has declined in the UAE to 277 wells in 2013 compared to 304 in 2012. The same case happened in Algeria where the number dropped from 258 wells in 2012 to 191 in 2013; and in Qatar from 87 wells in 2012 to 32 in 2013.

The number of completed wells has increased in KSA, Iraq, Kuwait, and Libya. The number of wells that have been completed worldwide has increased by about 3% from 101,757 wells in 2012 to 104,888 wells in 2013.

Figure B
Number of Operating Rigs in Some Arab Countries 2009-2013

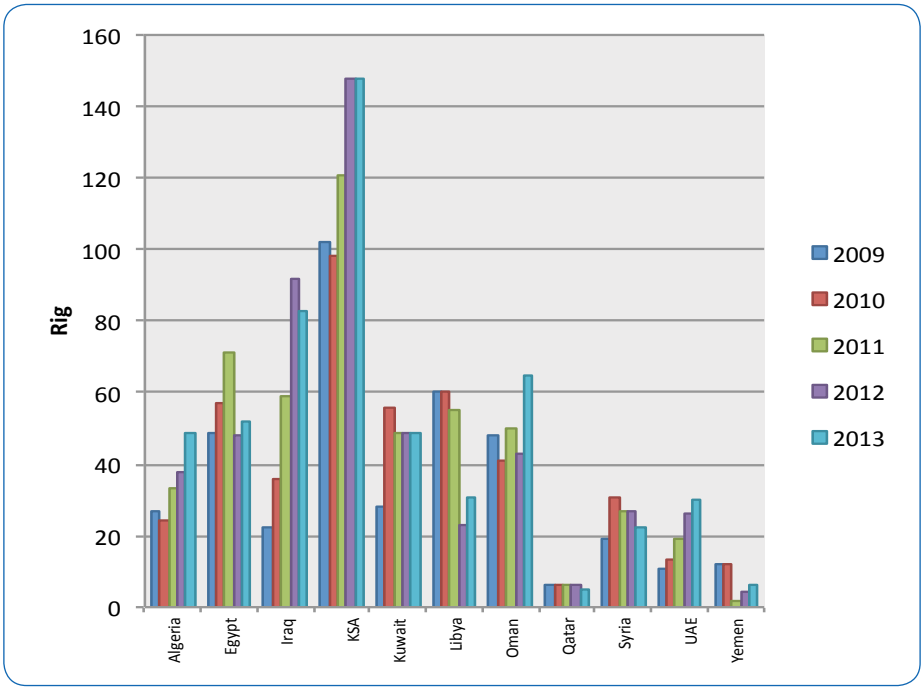
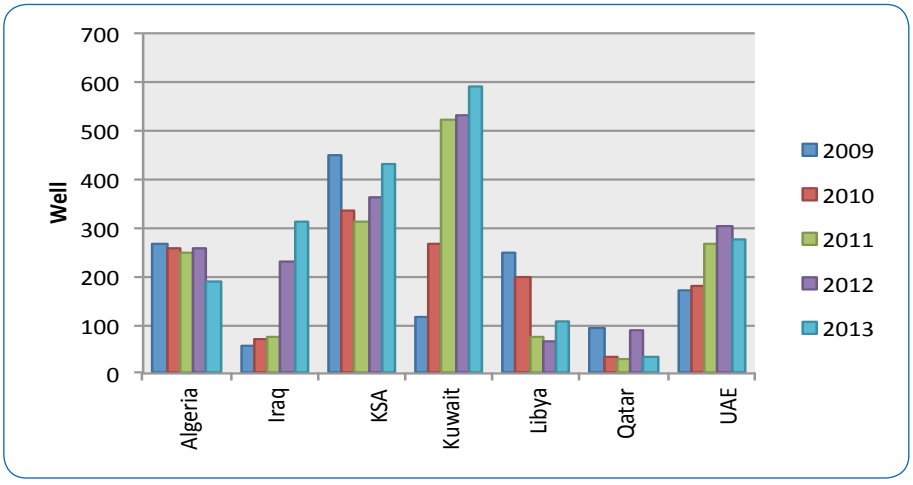


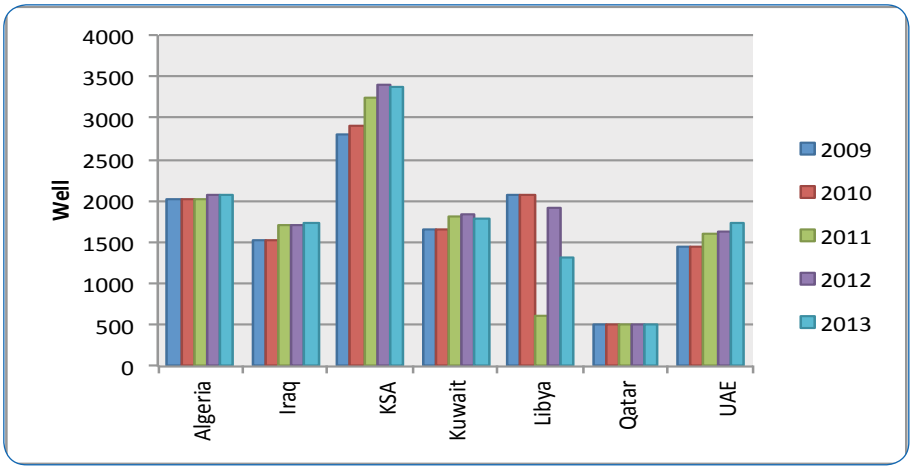
Figure C
Completed Wells in Some Arab Countries 2009- 2013



The number of producing wells has increased very slightly by 98 wells worldwide from 981,598 wells in 2012 to 981,696 wells in 2013. As for Arab counties Figure (D), this number has increased in the UAE from 1640 wells in 2012 to 1722 wells in 2013, and in Iraq from 1700 wells in 2012 to 1735 wells in 2013. The number dropped slightly in KSA, Kuwait and Qatar; and sharply (by 31.5%) in Libya from 1910 wells in 2012 to 1308 wells in 2013.

Figure D

Producing Wells in Some Arab Countries 2009- 2013



A study prepared by Douglas- Westwood Consultancy said that the world drilled about 80,000 wells in 2013, 2500 of which were offshore. It clarified that the world might need to drill 106,000 wells in 2020 to meet the increasing demand for oil and gas. The study said that 113 wells have been drilled in deep waters in 2013, and projected that the number would increase to 400 wells in 2020 to contribute to increase the production from deep water from 6 million BOE/d in 2013 to 9 million BOE/d in 2020.

Exploration drilling has contributed to making many discoveries including:

In Arab Countries

In the UAE, Dubai Petroleum Company (DPC) has made a new gas

discovery in its T-02 deep gas exploration well located at Fateh field, Dubai . The company said that the T-02 deep gas exploration well was drilled to 5,562 metres into the Pre Khuff formation and is Dubai's deepest well to date. Indications are that the gas is largely methane with no H_2S content.

The T-02 well has been wireline logged to evaluate the potential of gas formations. There are about 119 metres of gas rich zones. The company said it was hard to define the size of the reserves or projected production due to the need for special equipment before conducting the required tests. DPC said it expected to have the test results of the T-02 deep gas exploration well by summer 2015.

Algeria made a new oil discovery in El Assel area within Berkine basin in block B263, 500km to the south of the capital Algeria, via a deep well drilled to 4120 meters.

In **Iraq**, Oryx Petroleum announced its fourth oil discovery through the exploration well "BAN-1" in the Hawler license area in the Kurdistan Region of Iraq. Oryx Petroleum is the operator and has a share of 65% in the Hawler license area. The drilling took place in the down-dip of the crest of the Banan structure because the crest was outside the Hawler license area boundaries at the time of BAN-1 planning. The Corporation agreed to a boundary extension with the Kurdistan Regional Government later.

The drilling started in mid-September 2013 and reached total depth of 4,000 metres in the Kurra Chine formation. The BAN-1 well targeted oil potential in the Cretaceous, Upper and Lower Jurassic and the Triassic. Due to challenging control conditions experienced in the Triassic, where the well encountered and flowed hydrocarbons to surface, BAN-1 was plugged back to 3,400 metres in preparation for testing operations in the Cretaceous and Jurassic formations.

Testing Program Results Oryx Petroleum successfully flowed oil in two of six cased-hole drill stem tests ("DSTs") in BAN-1. DST#1 conducted over a 106 metre interval in the Butmah formation. The sustained flow rate achieved was 3,500 b/d of light oil. Small quantities of natural gas and hydrogen sulfide were encountered. The DST #6

conducted over a 123 metre interval in the Shiranish and Top Kometan formations. The sustained flow rate achieved was 820 b/d of oil. The other DSTs were conducted separately in the Kometan, Najmah, and Mus and Base Alan, and Adayiah formations. Logging results of each formation indicated the presence of hydrocarbons. During the tests 1,000 and 2,000 b/d of water were produced.

Based in the test results, the company was preparing for the drilling of BAN-2 to further appraise the new discovery.

A consortium of Kuwait Energy and Dragon Oil Kuwait announced that it has made a new oil discovery at 'Block 9'. The 'Faihaa-1' well in Mishref Formation was drilled to a depth of 2,700 meters.

Preliminary tests of the Faihaa-1 resulted in oil flow rates of circa 2,000 b/d of 20º API crude.

Gas Plus Khalakan (GPK) made a discovery of light oil of 45ºAPI in Khalakan Block in the Kurdistan Region of Iraq, through the Shewashan-1 well. This is the second well that is drilled by the company in the region.

In **Egypt**, Apache Corporation said that recent drilling results, approval of three new development leases agreed with the Egyptian government and expanded natural gas processing facilities in the West Kalabsha area have set the stage for continued growth and investment in Egypt›s Western Desert in 2014. Successful wells included the deepest well drilled in the Western Desert and the first well in a horizontal drilling program targeting tight conventional and unconventional resources.

New field discoveries included:

- The Apries-1X, located in the Khalda Offset Concession within the Shushan Basin, tested 4,389 barrels of oil and 400,000 cubic meters of gas per day, with penetration of 26.5 meters from Paleozoic sand. The well cost approximately $5 million to drill and complete.
- The NTRK-H-1X, located in the North Tarek Concession within the Matruh Basin, tested 566,000 cubic meters of gas and 250 barrels of condensate per day from 18.3 meters of fracture-stimulated Jurassic Lower Safa pay. The well was a follow-up to

the previously announced NTRK-G-1X Upper Safa discovery. This deep gas-condensate well was drilled to 4788 meters and cost about $7 million to drill and complete.

Also, IPR made a new oil discovery in its concession of southwest Gabal El-Zeit area of the Gulf of Suez. The well was drilled using jack up rig. The well took 43 days to drill, test, and complete to a total depth of 2444 meters in the basement of the Precambrian age.

The well encountered a total of 32.6 meters of net hydrocarbon pay in Late Cretaceous age Nubia and Matulla formations. When tested, oil and gas flowing was at rates of 3,611 b/d of oil, and about 82,000 cubic meters of gas per day.

In **Tunisia**, Circle Oil has started in June 2014 the drilling of EMD-1 well in the Mahdia Permit, in a water depth of 270 metres, 120 km east of the port of Sousse, neighbouring many producing fields like Tathkara, Birsa, Owda, Halq El Manzel, and Al Maamourah gas field. It was planned for the well to appraise petroleum potentials of plays including Birsa sand formation as primary target and the Upper Ketatna carbonates secondary target. P50 pre-drilling estimation of the reserves were at 46 million barrels of oil in Birsa formation, significantly higher from the commercial reserve limit of 10 million barrels in the region. In August, the company announced that the wel was drilled to a depth of 1200 meters and showed encouraging results conforming to the primary studies as the strong hydrocarbon shows encountered in over a combined interval of 133 metres in the Birsa and Ketatna carbonates. During the drilling, many mud losses were faced and multiple attempts to open hole logging by wireline and tough logging conditions equipment failed. Ultimately the decision was taken to terminate further efforts and suspend the well. The losses incurred within the target formations give further confirmation of high quality permeability, which encouraged the company to obtain an extension of the concession of the Mahdia permit to January 2015. It then has the right to opt for two additional renewals of the permit for 3 years each with a commitment of one well per period.

2014 also witnessed the installation of the first electrical submersible pump (ESP) in the Didon field offshore in an attempt to optimize

production to compensate for the field's natural decline and to extend its life as production has been stopped late 2013 to examine the field's floating storage and discharge units. The ESP results would help determine the infill drilling.

In **Oman**, Masirah Oil Limited (Masirah) announced in February 2014 the successful reach of the well target depth in the second exploration well in Block 50 Oman to its final depth of about 3,000 meters into the Cambrian formation. Hydrocarbons were discovered in several formations with good oil sample extracted. The discovery is the first of its kind eastern Oman. In March, the company announced that the results were encouraging, when tested, the well produced 3000 b/d of light oil, without any formation water. The results will contribute to the planning of more exploration in the said block size is more than 17,000 square km.

In **Morocco**, Cairn Energy Plc announced the results of the drilling of JM-1 well offshore Morocco which started early 2014. The said well was drilled to evaluate Upper Jurassic and Middle Jurassic objectives, reached a total depth of 3711meters TVDSS and has been plugged and abandoned without testing. In the Upper Jurassic section, the well has confirmed the presence of heavy oil over a gross interval of 110 metres as originally tested in the MO-2 well, some 2km from the JM-1 well.

Also, Circle Oil plc announced that a gas discovery has been made at the CGD-12 exploration well on the Sebou Permit, onshore Morocco. The CGD-12 well encountered approximately 9.7 meters of gas-carrying net pay. Two zones have been tested, the first produced at a rate of 130,000 cubic meters/day and the second produced at a rate of 62,000 cubic meters/day.

In **Mauritania**, Tullow Oil Plc made a gas discovery through the drilling of its first exploration well according to a plan targeting deep plays offshore Mauritania. The Fregate-1 well discovered about 30 meters of net gas condensate and oil accumulation after drilling to a depth of 5,426 meters in C-7 Block. The company stressed that the discovery opened a new technical revolution through finding the deep offshore turbiditie oil play from the Upper Cretaceous. The company

announced earlier its plans to integrate these results with the 3D seismic surveys in the region. It is also following up on the processing and interpretation of 4000 km^2 of 3D seismic surveys targeting the drilling in the deep waters of Fatala.

Figure 2-4

Oil Discoveries in OAPEC Members and Other Arab Countries

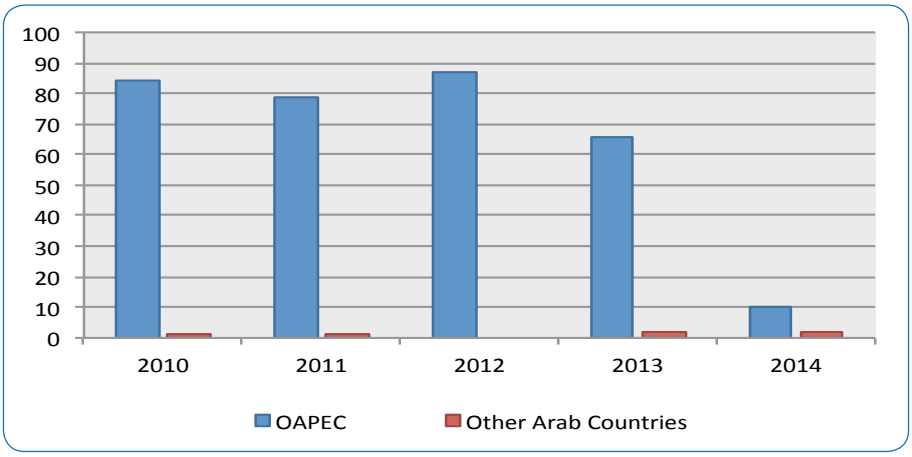
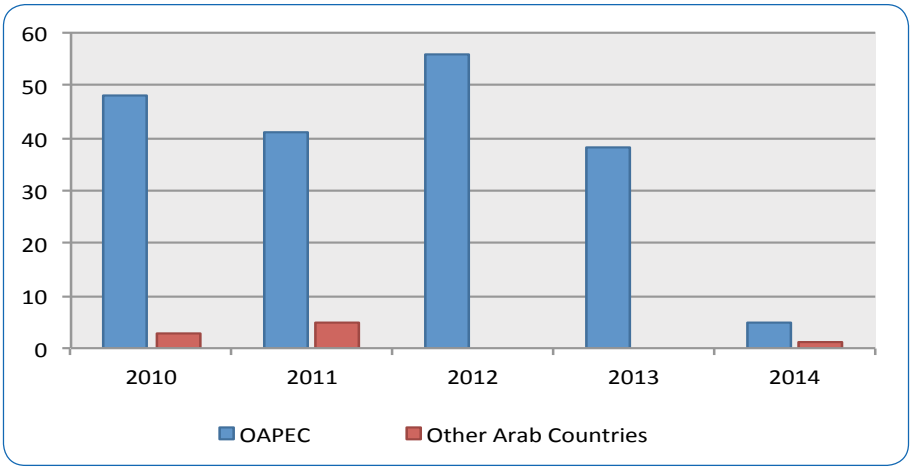


Figure 2-5

Gas Discoveries in OAPEC Members and Other Arab Countries



The World

In **Australia**, a consortium of Beach Energy Ltd., and Drillsearch Energy Ltd. has made two new discoveries in the western flank of the Cooper basin in permit PEL 91 in South Australia. Stunsail-1 gross reserve value is estimated at 1.6 million barrels; and 2.7 million barrels for the second discovery the Pennington-2 well. The Stunsail-1 wildcat has been drilled in about the center of the permit, encountered a 6-m oil column in the primary Namur sandstone target plus an additional 4-m column in the mid-Namur section and shows within the Birkhead formation. When tested, the well produced 250 b/d. The well has been cased and suspended as a future oil producer. The field is likely to be developed in the 2014-2015 fiscal year. Pennington-2 appraisal well lies 10 km south of Stunsail. A DST flowed the 125 boe/d. This well is scheduled for production in mid 2015. Also, a joint venture of Beach Energy Ltd. and Senex Ltd reported that a new oil discovery was made in the Namur Sandstone at Martlet-1, a wild cat well in PEL 104 of the Eromanga Basin in South Australia. Martlet-1 intersected 6 meters of net oil pay at a depth of 1,454 meters measured depth.

In **Pakistan**, MPCL announced a significant oil discovery in Jhelum through Ghauri X-1 Well, which was drilled to a depth of 3800 metres. In final testing, the Ghauri X-1 Well flowed oil 22 Api gravity at flow rate of 5500 barrels/day with well head pressure of 75 atm. The company estimated reserves of this well at 22 million barrels.

In **Tanzania**, Ophir Energy made a new offshore gas discovery through the appraisal well Taachui-1. The Taachui-1 well was drilled by a drillship to a total depth of 4215 metres. The well encountered gas in a single gross column of 289 metres within the targeted reservoir interval. Net pay totalled 155m. Estimates for the mean recoverable resource from the discovery are 28 billion cubic metres of gas.

In **Kazakhstan**, KazMunaiGas Exploration Production Joint Stock Company (KMG EP) made a new oil and gas discovery in the Bashkirian tier's sediments of the Carboniferous period in the Rozhkovskoye field. Reserves of Rozhkovskoye field are estimated at about 7.9 mt (about 58 million barrels). When tested, U-24 produced 1900 barrels of light oil per day, and about 170,000 cubic metres of gas per day.

In **Vietnam**, The Vietnam-Russia Oil and Gas Joint Venture Enterprise (Vietsovpetro) has announced it discovered oil from Oligocene sediments at Sturgeon well of Lot 09-3/12 off Vietnam's continental shelf. Lot 09-3/12, at a depth of 60m below sea level, is about 160 km off Vung Tau coast.

In **Nigeria**, the biggest oil producer in Africa, Afren and its partners have secured approval for their plan to develop the Aje field offshore Nigeria. The Nigerian Department of Petroleum Resources has sanctioned development of the Cenomanian oil reservoir with a first phase based on two subsea production wells tied back to a leased FPSO. First oil should flow in late 2015. Its reserves are estimated at 32.4 billion barrels, and analysis of new 3D seismic surveys could lead to identification of further prospects.

At the Ebok field, oil production has been averaging 29,300 b/d. Drilling started for four additional North Fault Block wells from the West Fault Block (WFB) platform, comprising three producers and one dual-zone water injector wells. Ebok field was discovered in shallow waters in 2012 with reserves estimated at about 38 million barrels. It produced at a rate more than 23,000 barrels per day in the beginning of 2013.

In the **USA**, many deep water and ultra-deep water discoveries have been made. Stone Energy Corp. has reported success on the deepwater Cardona South well at Mississippi Canyon 29 in the Gulf of Mexico. The Cardona South well encountered more than 84 metres of net oil pay in three separate sections of the well.

Chevron Corporation made a new oil discovery at the Guadalupe prospect in the deepwater of the US' Gulf of Mexico. The well is located approximately 290km off the Louisiana coast and was drilled to a depth of 9197 metres.

Also, Repsol has made a new oil discovery in the United States' Gulf of Mexico. The find was made 352 kilometres from the Louisiana coast in an ultra-deep water well, located in the Keathley Canyon 642 block. The well found more than 150 metres of net oil pay. The well was drilled to reach a total depth of 1865 metres.

2- Oil and Natural Gas Reserves

2-1 Oil Reserves

Primary estimates indicate a rise in global oil reserves from 1281.85 billion barrels in the end of 2013 to 1292.9 billion barrels by the end of 2014; representing a slight rise of 0.86%. These estimates do not cover unconventional oil reserves like tar sands and oil shale in Canada. They also exclude bitumen, heavy and extra heavy oils in Venezuela.

2-1-1 Member Countries and Other Arab Countries

Oil reserves of OAPEC and non- OAPEC Arab countries remained with no significant change since 2013. Oil reserves of OAPEC members in 2014 were estimated at about 703 billion barrels, while total Arab oil reserves reached about 713 billion barrels. However, OPEC reports between 2012 and 2013 have mentioned a slight drop in Saudi reserves of no more than 0.03%, and in Libya with 0.08%.

Figure (2-6), shows the contribution rate of OAPEC members and other international groups in global oil reserves by the end of 2014.

Figure 2-6
World Oil Reserves by the End of 2014
(%)

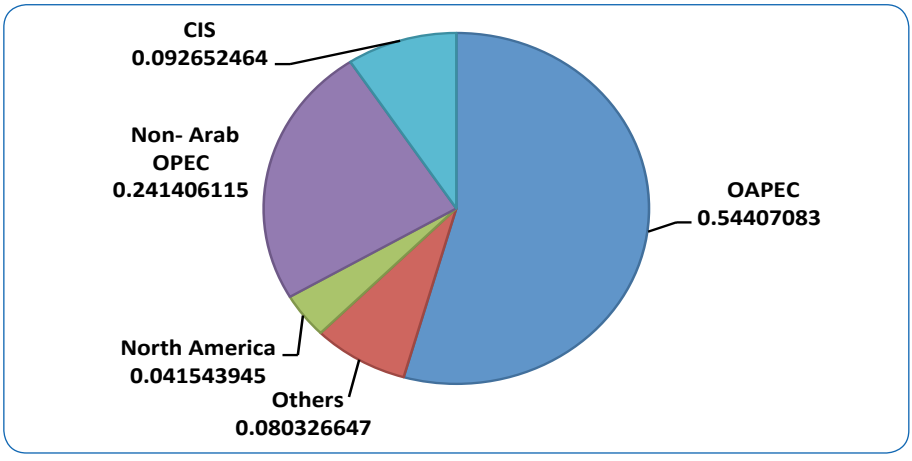
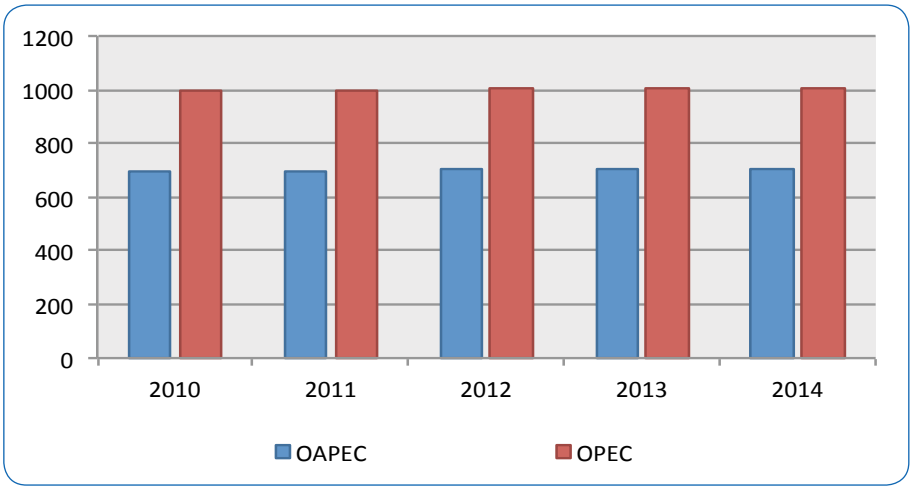


Figure (2-7) shows OAPEC and OPEC members' proven oil reserves evolution between 2010 and 2014.

Figure 2-7
The Evolution of Oil Reserves in OAPEC and OPEC Member Countries, 2010- 2014
(Billion barrel)



2-1-2 International Groups and Other Countries:

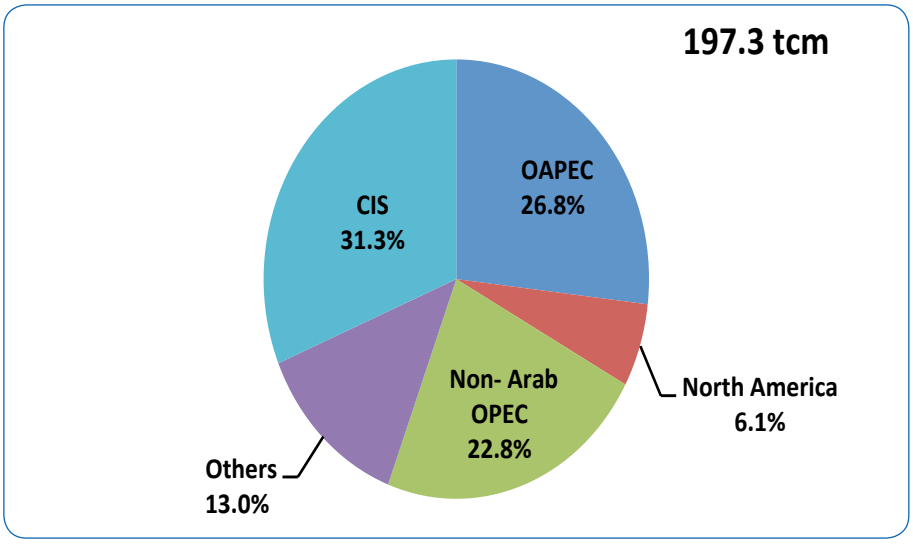
During 2014, it was noted that reserve estimates have dropped in some countries including some OPEC members like Angola, Nigeria, and Ecuador. They were very slight drops of 0.5%, 0.2%, and 0.4% respectively, representing no more than 121 million barrels in the three countries together. Oil reserves in Norway dropped by 5.6% from 5.83 billion barrels in 2013 to 5.5 billion barrels in 2014.

Reserves estimates also dropped in Mexico from 10.07 billion barrels in 2013 to 9.81 billion barrels in 2014. On another note, USA reserve estimates increased for the fifth consecutive year to hit 37.9 billion barrels in 2014 compared to 33.4 billion barrels in 2013, representing more than 13.5%. It is clear that the estimates hike is correlated to shale oil especially that no significant discoveries have been made in the USA for the past five years. Table (2-4).

2-2 Natural Gas Reserves:

Natural gas reserves estimates increased by 0.4% compared to 2013 estimates of 196.6 trillion cubic meters in 2013, hitting more than 197.3 trillion cubic meters in 2014. Figure (2-8) and Table (2-5).

Figure 2-8
The World's Natural Gas Reserves, by end of 2014
(%)

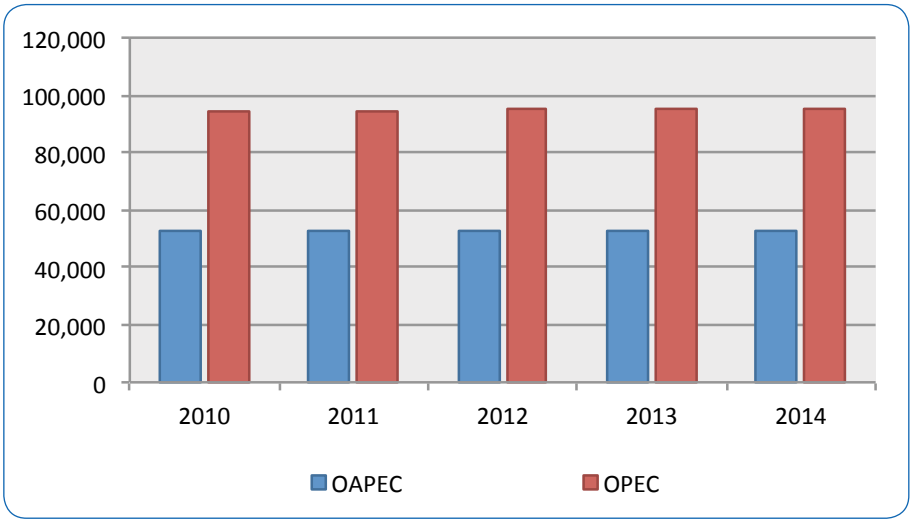


2-2-1 OAPEC Members and Other Arab Countries

OAPEC gas reserves estimates have increased by 0.2% from 52868 billion cubic meters in 2013 to 52950 billion cubic meters in 2014. It is correlated to the increase of the natural gas reserves estimates in Saudi Arabia by 82 billion cubic meters in 2014. Other member countries and Arab countries have not witnessed any changes in their natural gas reserves estimates. OAPEC members' natural gas reserves represented 26.8% of the world's total reserves, while the Arab countries together accounted for about 27.5% of the world reserves at the end of 2014. Figure (2-9) shows the evolution of natural gas reserves in member countries and OPEC members in the period 2010- 2014.

Figure 2-9
The Evolution of Natural Gas Reserves in OAPEC and OPEC Member Countries, 2010-2014

(Billion cubic meters by the end of the year)



2-2-2 International Groups and Other Countries

Natural gas estimates increased in many countries around the world, like Iran whose gas reserves estimates increased from 33780 billion cubic meters in 2013 to 34020 billion cubic meters in 2014. Also, Venezuela's gas reserves estimates increased from 5562 billion cubic meters in 2013 to 5581 billion cubic meters in 2014. Natural gas estimates increased too in the UK by 1.2%, Norway by 2%, Canada by 7.6%, and China by 5.5%. As for the USA, gas reserves estimates have increased by 10% from 8723 billion cubic meters in 2013, to 9595 billion cubic meters in 2014. These volumes include increases resulting from adding the shale gas to the natural gas reserves.

On the other hand, natural gas reserves estimates declined in Mexico by 3.1% from 484 billion cubic meters in 2013 to 469 billion cubic meters in 2014.

3. Hydrocarbon Liquids and Natural Gas Production

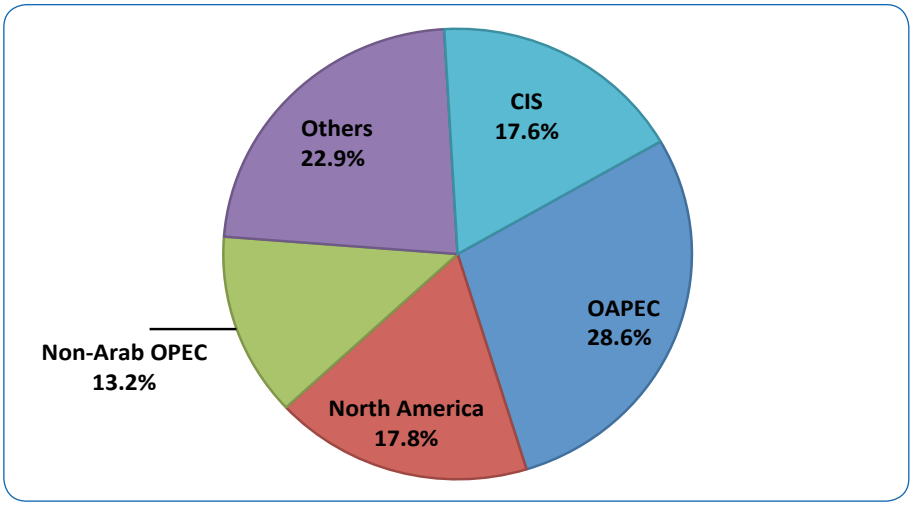
3-1 Hydrocarbon Liquid Production

Hydrocarbon liquids production covers crude oil, condensates and natural gas liquids (NGLs), while oil production covers both crude oil and condensates production.

3-1-1 Oil Production

The world's oil production reached more than 76.2 million b/d in 2014 compared to about 74.9 million b/d in 2013, representing an increase of 1.7%. Natural gas liquids production[1] in 2013 was estimated at about 8.7 million b/d, representing an increase of 1.2% when compared to 2012, which reached 8.6 million b/d. The average world production of hydrocarbon liquids in 2014 was estimated at about 83.6 million b/d, compared to 82 million b/d in 2013. Figure (2-10) and Table (2-6).

Figure 2-10
World Oil Production Distribution in 2014
(%)



[1] NGL production data are always a year behind oil production data. Their value is projected when used along with the concerned year's oil data without eventually affecting the final data since NGL production changes are very slight.

3-1-1-1 OAPEC Members and Other Arab Countries

Available figures show that total crude oil production in member countries has declined between 2013 and 2014. Crude oil production dropped by 1% in the UAE, 11.5% in Tunisia from 62.7 thousand b/d to 55.5 thousand b/d, while Algeria's production dropped from 1.2 million b/d in 2013 to 1.19 million b/d in 2014, and during the same period Syria's production dropped by circa 67.7% from 31,000 b/d in 2013 to about 10,000 b/d in 2014. Data also show that production dropped in Qatar by 2.9% from 724,000 b/d in 2013 to 703,000 b/d in 2014, in Kuwait from 2.92 million b/d to 2.86 million b/d, and in Libya by 43.6% from 993.3 thousand b/d to 560 thousand b/d in 2014.

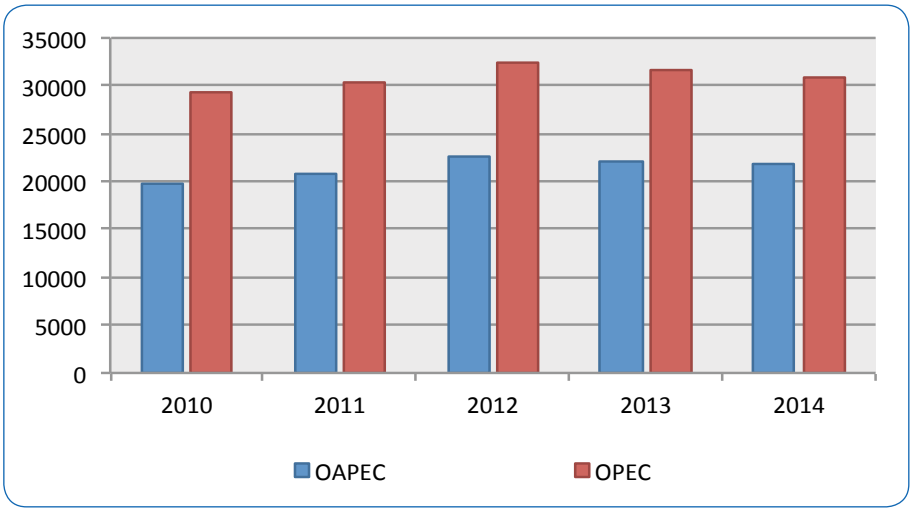
On another note, Bahrain's crude oil production has increased by 1.3% from 197,000 b/d in 2013 to 199,500 b/d in 2014. Saudi production has also increased from 9.64 million b/d in 2013 to 9.7 million b/d in 2014. Iraq's production rates have increased from 2.98 million b/d in 2013 to 3.07 million b/d in 2014. Egypt's production has also increased from 581,000 b/d in 2013 to 666,400 b/d in 2014. In general, OAPEC members' average production rate has dropped from 22.1 million b/d in 2013 to 21.8 million b/d in 2014, representing a drop of 1.6%.

As for the rest of the Arab countries, the Sudanese oil production has increased from 117,800 b/d in 2013 to about 122,000 b/d in 2014. Oman's oil production has increased by 1.9% from 841,000 b/d in 2013 to 857,000 b/d in 2014. However, Yemen's crude production has dropped from 158,800 b/d in 2013 to 140,400 b/d in 2014. Therefore, Arab countries' total production rate has dropped from about 23.3 million b/d in 2013 to about 22.9 million b/d in 2014, or by 1.5%. Figures (2-10), (2-11) and Table (2-6).

Figure 2-11

Oil Production Rates in OAPEC and OPEC Member Countries, 2010- 2014

(Million b/d)



3-1-2 NGL Production in OAPEC Members and the World

OAPEC natural gas liquids production has declined by 1.6% from 3.36 million b/d in 2012 to 3.3 million b/d in 2013. NGL production has slumped in Algeria, Syria, Kuwait, Libya, and Egypt while it increased in the UAE, Tunisia, Iraq, and Qatar, as well as Oman by 9.3% from 97,000 b/d in 2012 to 88,000 b/d in 2013. The Arab countries' total NGL output has dropped from 3.47 million b/d in 2012 to 3.41 million b/d in 2013. OAPEC member countries' NGL production rates have dropped to 38.1% of the world's production in 2013 compared to 39.2% in 2012.

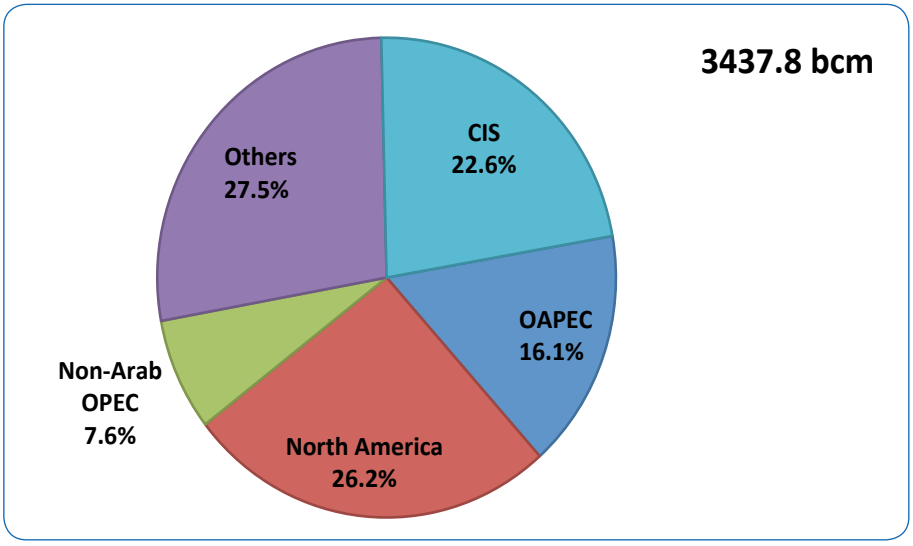
3-2 Marketed Natural Gas

The marketed natural gas worldwide increased by 0.4% from 3422.8 billion cubic meters in 2012 to 3437.8 billion cubic meters in 2013. Figure (2-12) and Table (2-8).

Figure 2-12

The World's Marketed Natural Gas Distribution in 2013

(%)



3-2-1 OAPEC Members and Other Arab Countries:

The volume of marketed natural gas in OAPEC members has dropped from 563.56 billion cubic meters in 2012 to 555 billion cubic meters in 2013, or by about 1.5%.

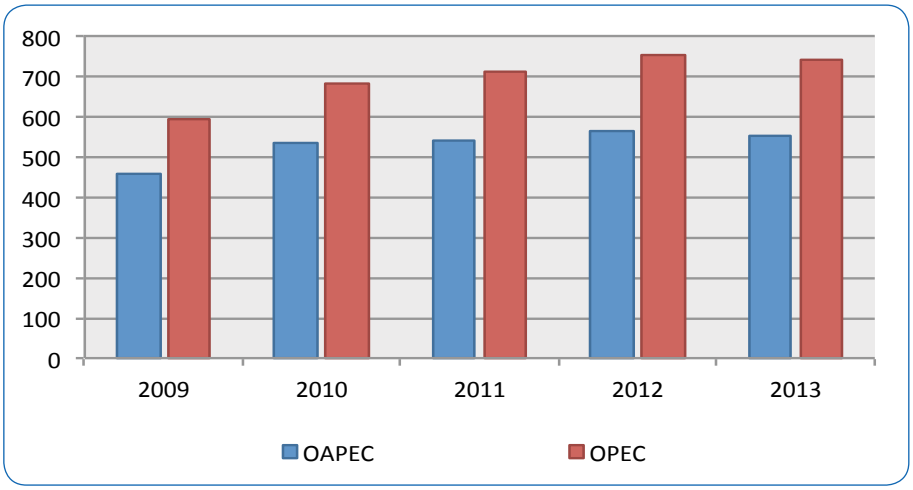
Rates dropped in Algeria by (3.5%), Syria (8.6%), Kuwait (15.4%), and Egypt (11.2%). While marketed natural gas rates increased in the UAE by (0.6%), Bahrain (6.5%), Tunisia (1.1%), KSA (0.7%), Iraq (13.2%), Qatar (0.3%), and Libya (1.1%). OAPEC members' total share of the world's marketed natural gas was 16.1% in 2013, compared to 16.5% in 2012.

As for non-OAPEC countries, data show that marketed natural gas increased in Oman by 4.4% from 28.7 billion cubic meters in 2012, to about 30 billion cubic meters in 2013. Arab countries' collective share of the world's marketed natural gas was about 17% in 2013 compared to about 17.3% in 2012. Figures (2-12), (2-13) and Table (2-8).

Figure 2-13

The Evolution of Marketed Natural Gas in OAPEC and OPEC Member Countries, 2009-2013

(Billion Cubic Meters/Year)



II. COAL

1- Coal Reserves

The world's coal reserves were estimated at more than 891.5 billion tons in the beginning of 2014 with an increase of 31 billion tons compared to earlier estimations in the beginning of 2013. These reserves are divided into 45.2% of anthracite and 54.8 of lignite. More than half of the world's coal reserves (57.1%) are concentrated in three countries only; they are the USA, Russia, and China, which together possess about 509 billion tons. The USA has the largest coal reserves in the world by more than 237 billion tons, representing about 27% of world's total reserves. It is followed by Russia with more than 157 billion tons, representing 17.6% of the world's reserves, then China with 114.5 billion tons, representing 12.8% of the world's total reserves. The rest of the world's total coal reserves are distributed among more than 30 countries; the Middle East reserves do not exceed 1.12 billion tons, representing only about 0.13% of the world's total reserves.

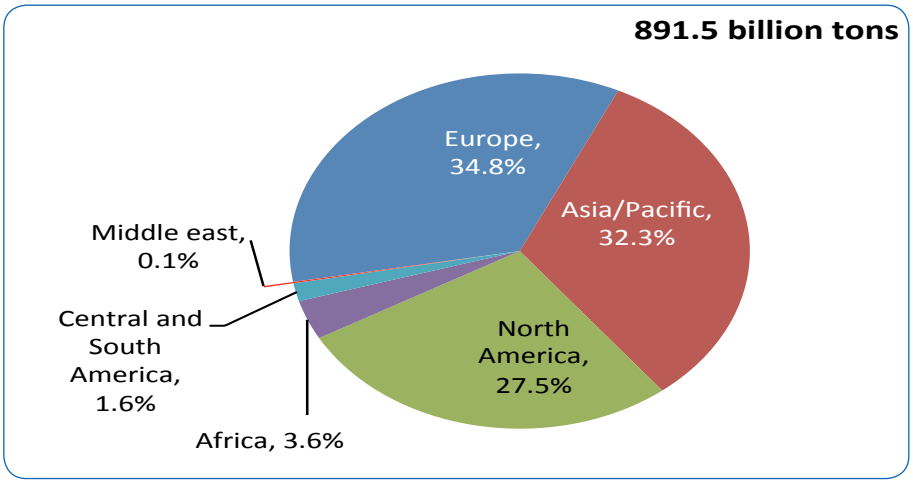
As for world groupings Figure (2-14), it is noted that the Europe and Eurasia's reserves have dropped compared to the world's total from 35.4% in the beginning of 2013 to 34.9% in the beginning of 2014, due to a hike in the world's reserves estimations. This is although the total of this group's reserves has practically increased by about 5.9 billion tons as a result of the hike in Turkey's reserves estimations.

For the very same reason, North America's reserves have declined from 28.5% to 27.5%. The Pacific and Asia's reserves have jumped from 30.9% in the beginning of 2013 to 32.3% in the beginning of 2014 with the increase in Indonesia's reserves estimations by more than 22.4 billion tons.

Figure 2-14

The World's Coal Reserves, at the beginning of 2014

(%)



Asia and the Pacific Group is the largest consumer of coal worldwide. Its coal consumption in 2013 exceeded 70.5% of the world's total consumption; China's share was 50.3%. It is expected that China's coal demand growth would slow down between 2014 and 2015, following China's National Energy Department's plans to reduce coal's share in the energy mix from 70% to 65% in 2014. The Chinese Government has also imposed ban on importing Indonesian high-sulfur coal of low

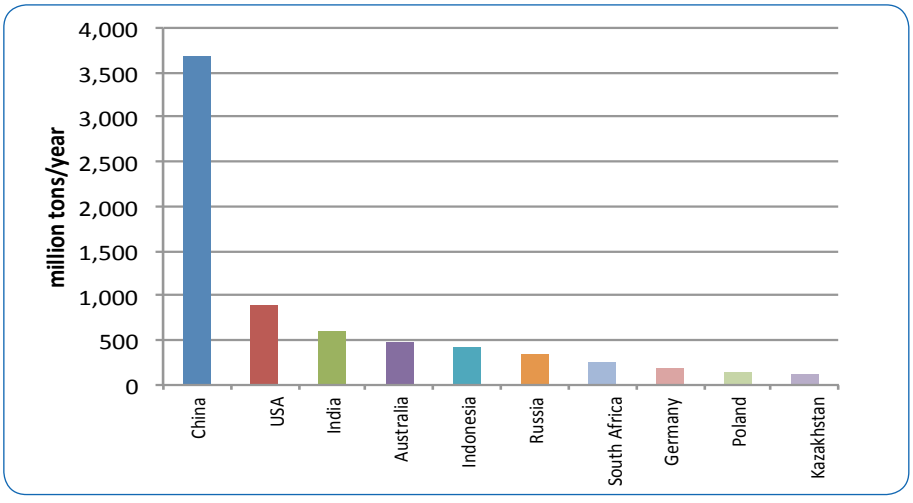
thermal content. In the USA, demand for coal has increased in the first four month of 2014 due to cold weather in that time, then demand dropped again after that.

2- Coal Production

According to BP statistics, coal production reached about 7896.4 million tons by the end of 2013, only 0.8% higher than the production by the end of 2012 which reached 7893.3 million tons. 10 countries alone produce about 92% of the world's coal as shown in Chart (H) as China ranked on top for producing 3680 million tons in 2013, or 47.7% of the world's production.

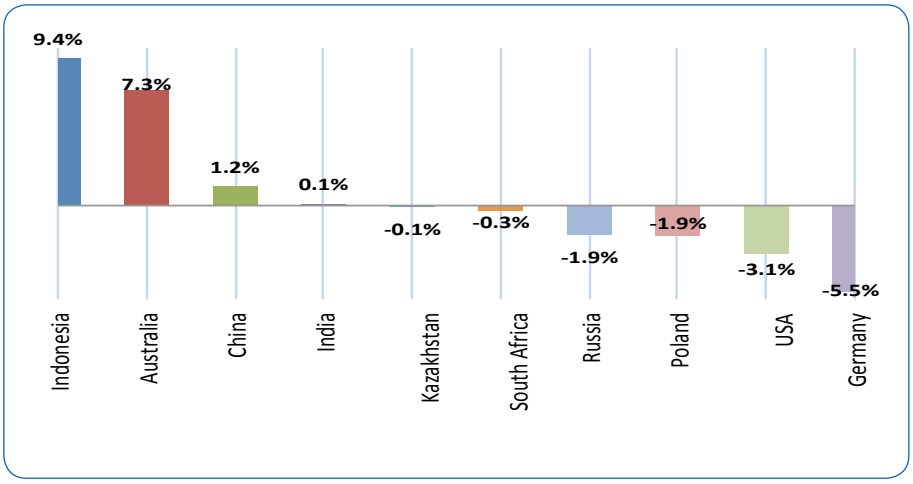
The EIA sees that the USA's production would drop even further in 2015 to hit 884 million tons. It attributes this to the drop in coal stocks price in the US energy market by 30% in the first quarter of 2014, in addition to the restrictions imposed by the US Environmental Protection Agency, which would limit the role of coal in the energy mix. The Agency expects that coal's share would not exceed 30% of the generated electricity power in the USA by 2030.

Chart (H): The World's 10 Largest Coal Producers by the end of 2013



Compared to the end of 2012 production, it is noted that 6 out of the 10 largest producers have seen a drop in their production in varied rates, while the 4 others including: Indonesia, Australia, China and India saw an increase in their production as shown in Chart (W).

Chart (W): The Change Rate in Some Countries' Coal Production during 2013



As for international groupings Figure (2-15), it is noted that Asia and Pacific produced about 69% of the world's production, followed by North America (14%), Europe and Eurasia (11.6%), while Africa and South and Central America's production did not exceed (5.4%) of the world's total production in 2013. When comparing these data with the 2012 values, it shows that production has declined in all international groups, except for Asia and the Pacific, whose production jumped from 5243.6 million tons in 2012 to 5336 million tons in 2013.

China's production accounted for 70% of the Asia and Pacific group production in 2013, as it produced 3680 million tons by the end of the year. China has started a project recently to produce syn gas (coal gas) from closed mines in Henan territory which contains about 21 million tons of coal deposits, as part of a plan to produce 1.44 million cubic meters of gas per day in 2014, to reach 21 million cubic meters per day in a later stage.

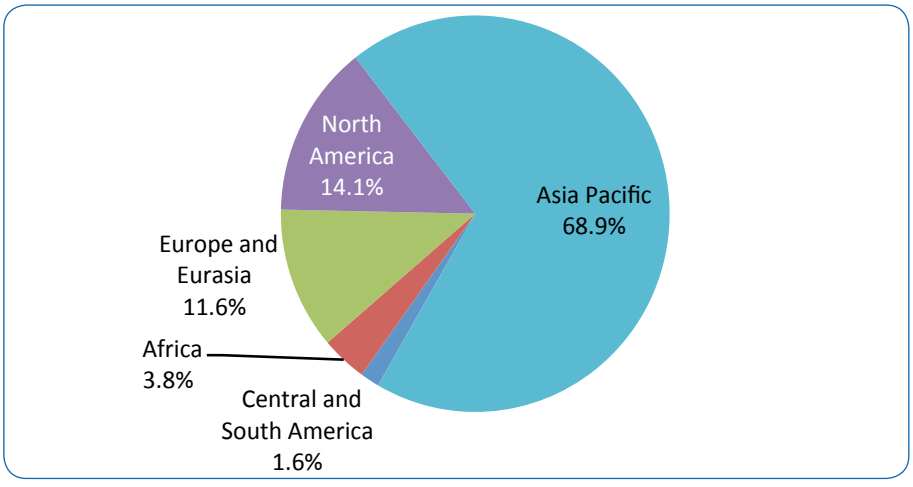
Russia has produced 347 million tons of coal in 2013, representing 28% of the total production of Europe and Eurasia group. In September 2014, it signed a MoU with Shenhua and Rostec to explore and develop coal deposits in Siberia's Gerbikan- Ogodzhin basin, as part of a plan including the investment of about $10 billion to cover the development of infrastructure, and the establishment of high voltage power lines to China. The two companies expect that the coal deposits in the said basin would be 1.6 billion tons. They are planning to produce 30 million tons per annum by 2019.

South Africa is Africa's largest coal producer whose 2013 production reached about 257 million tons. It is expected to add about 200,000 tons/month to its production by the end of 2015 following the kick-off of production in Elandspruit mine in Mpumalanga northeastern the country.

Figure 2-15

Distribution of World Production of Coal by International Groups by the end of 2013

(%)



Coal production in the Middle East is very limited with no more than 1.2 million tons in 2013, or about 0.015% of the world's production; mainly produced in Iran.

Coal use is also very limited in the Arab countries. The EIA's data indicate that Algeria's consumption was less than 0.5 million tons in 2012, the UAE consumed more than 3 million tons, Egypt consumed about 1.81 million tons, Lebanon consumed 0.35 million tons, and Morocco consumed 5 million tons in 2012, which accounted for about 21.9% of its energy mix.

Dubai Electricity and Water Authority in the UAE announced a bid for the first stage of "Hassyan" project for power generation by clean coal. It has received 17 biddings for executing the project in May 2014; 8 developers were chosen to submit their bids for the project whose production capacity in the first stage will be 1200 megawatts. It will start operation by 2020. The project comes in line with "Green Economy for Sustainable Development" Initiative and embodies Dubai's Integrated Energy Strategy 2030 launched by Dubai's Higher Council for Energy, which aims at diversifying energy resources by 2030 to be as follows: natural gas 71%, nuclear energy 12%, clean coal 12%, and solar energy 5%.

In Morocco, Safi Energy Company has secured $2.6 billion in financing to build a 1,386-megawatt coal-fired power plant in southern Morocco. The project includes the construction and operation of two 693 MW coal-fired units.

Safi Energy is a joint venture between Morocco's Nareva, France's GDF Suez GSZ.PA and Japan's Mitsui. The plant, to be built in the coastal city of Safi, would be the second-largest coal-fired power station in Morocco and would fulfill around 25 percent of the country's power demand. The plant, which will start operating in 2018, will increase Moroccan coal imports by 3.5 million tons annually.

III. NUCLEAR ENERGY

Identified uranium resources have increased by 7% since 2011, which added about 10 extra years to the currently existing reactors in the world. However, most increases came from high-cost resources. Assured and inferred uranium resources estimated at 5,902,900 tons of uranium at a cost of more than $130/kg; while they reached 7,635,200 tons at a cost of more than $260/kg.

Estimations for the new resources came after the world's total spending increased on exploring and developing uranium mines by 23% between 2011 and 2012, hitting $1.29 billion in 2012.

On countries' level, spending on exploration and development has declined in light of the drop in uranium prices. In Canada for example, total spending has dropped while spending on exploration hiked by 3.5% between 2011 and 2012. Spending has also dropped in Australia during the same period. Spending has gone up in Brazil, China, Ethiopia, Iran, Kazakhstan, Poland, Spain, Tanzania, Turkey, Ukraine, USA, and Zambia.

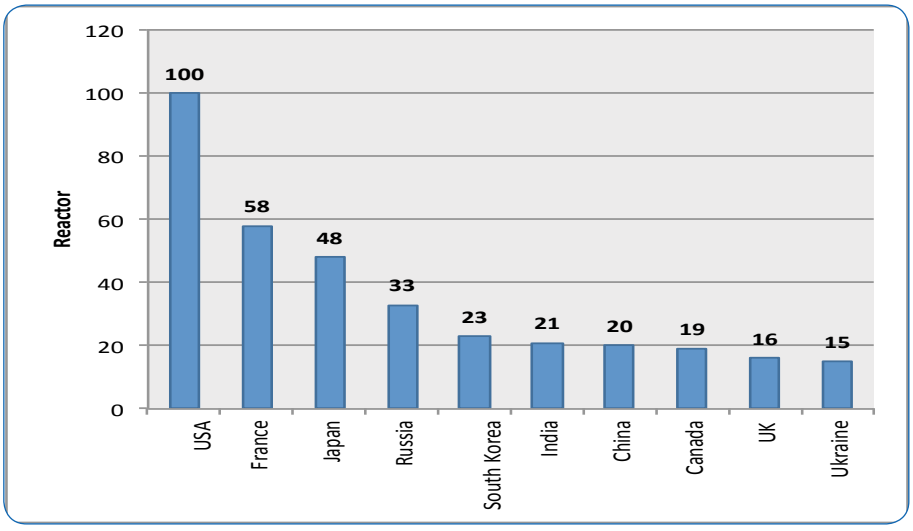
Kazakhstan, Canada, and Australia are considered the world's largest uranium producers, as they are accounted for 63% of the world's production. The following table shows the changes in these countries' production between 2010 and 2012.

Changes in Uranium Production in Some Countries Worldwide between 2010 and 2012

Country	2010	2012
Kazakhstan	17803	20981
Canada	9775	8998
Australia	5900	7009
Niger	4197	4822
Namibia	4503	4653
Russia	3563	2862
China	1350	1450
Malawi	681	1103
Ukraine	837	1012
South Africa	582	467
Brazil	148	326

The International Atomic Energy Agency (IAEA) mentioned in its 2014 report that the total number of operating nuclear reactors in the world has reached 434 reactors until the end of 2013, more than 81% (353 reactors) of which are located in 10 countries as shown in **Chart (Z)**. The total design capacity of these reactors has reached 371733 MW. Table (2-11)

Chart Z: Top 10 Countries in terms of Operating Nuclear Reactors by the End of 2013

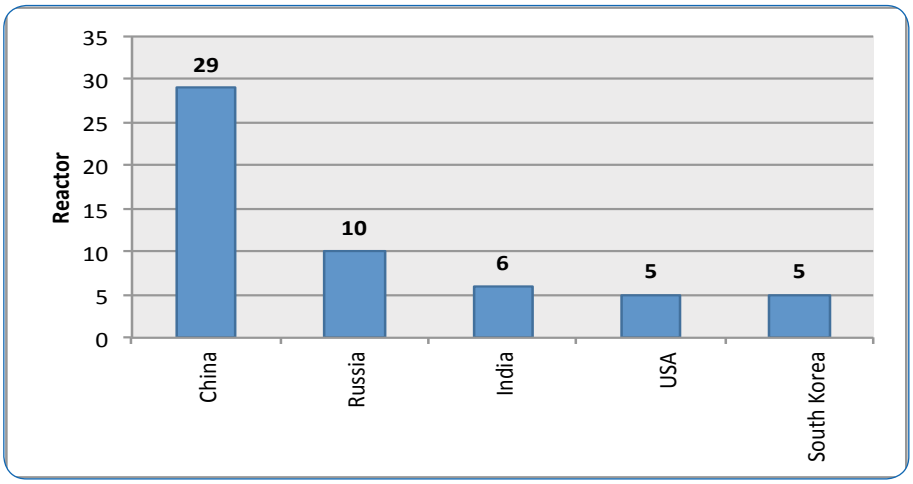


It can be noted from Table (2-11) that the nuclear energy has helped generating more than 73% of France's electricity in 2013, followed by Belgium (52.1%), Slovakia (51.7%), and Hungary (50.7%). As for the amounts of nuclear-generated electricity worldwide, which reached 2359 TW/H in 2013, the USA tops the list with more than 790 TW/H, followed by France (405.9 TW/H), Russia, South Korea, and China (161.7, 132.5, and 104.8 TW/H) respectively. The amount of electricity produced in the rest of the world was less than 100 TW/H in each of them.

IAEA's report also showed that work is underway to construct 72 new reactors with a total design capacity of 69367 MW, spread across 16 countries worldwide; 55 reactors of which are being constructed in 5 countries as shown in Chart (H). Two reactors are being constructed

in each of the following countries: Japan, Ukraine, Taiwan, Slovakia, Pakistan, and the UAE. One reaetor is under conrstructoin in France, Finland, Argentine, Brazil, and Armenia.

Chart H: 5 Top Countries in terms of the Number of Reactors under Construction by the end of 2013



As for Arab countries in this aspect, Jordan's Energy and Mineral Resources Ministry said that the Jordanian Cabinet has endorsed an agreement to develop a nuclear plant with Russia's Rosatom Corporation. The agreement includes studies related to the environmental impact, infrastructure, roads, the state of the electricity power network, and the ability of the National Electric Power Co (NEPCO) to embrace the power output, as well as, conducting detailed studies on the location, the generated electricity costs, and the selling price to the national network. The duration of the agreement is two years, during which detailed studies on the nuclear plant's construction costs would be conducted. The costs of the studies during the agreement period are estimated at about 46 Jordanian Dinars (about $90 million).

Jordan has selected Russia's Rosatom as its preferred bidder for building the country's first two nuclear reactors at a cost of $10 billion. Amra site has been identified to construct its plants, 60km east of Sharq El Zarqa. The company is scheduled to build 1,000-megawatt (MW) nuclear power reactors. Rosatom has agreed to undertake 49% of the

plants' construction and operation costs, with the Jordanian government owning the remaining 51%; with the possibility to negotiate with investors or governments in the region to buy a stake of this share.

IV. RENEWABLE ENERGY SOURCES

Many countries worldwide are working on developing their renewable energy sources, however, risks resulting from connecting with electrical power distribution networks led to a slowdown in using renewable, especially in OECD countries. In this regard, an IEA report indicated that generating electricity from renewable resources will grow by 5.4% per annum to reach 7310 TW/H by 2020, less by 0.6% from earlier IEA estimations. The report said that despite the accelerated growth of using clean energy in OECD countries in the past decade, it is expected to pass through an interim period where growth rates would be lower than before, although the growth would continue until 2020. This sector will be more active in non member countries that are expected to posses 70% of the total renewable energy in 2020.

Many factors contributed to the slowdown; most important of which was the uncertainty on future demand variables, for example the report said that the world needs to double its fossil fuel production 22 times from current levels to meet the transportation climate perspective in 2025.

Some countries have been working on increasing energy efficiency and reducing demand on electricity, including Britain that announced allocating £10 million (more than $16 million) as funding for businessmen, industries, and organisations to launch programmes contributing to reducing the demand for electricity or increasing energy efficiency. The UK's The Department of Energy and Climate Change (DECC) said that raising energy use efficiency could contribute in reducing 9% of electricity demand by 2030.

In the same pattern, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and United Nations Development Programme (UNDP), in collaboration with the Asian Development Bank, announced the establishment of a hub targeting

motivating investments and creativity to distribute using the clean energy in Asia and the Pacific. The Asian Development Bank will be in charge of administering sustainable energy affairs for countries under this hub. The bank's report confirmed that demand for energy by Asian and Pacific developing countries will form 56% of the world's total energy demand by 2035, compared to 34% in 2010.

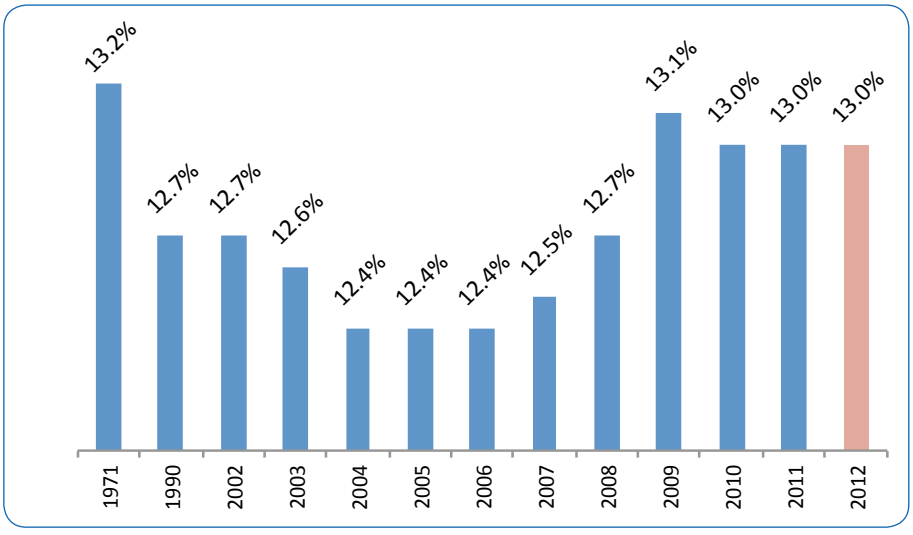
IEA estimated investments required for the energy sector in Eastern Asia and the Pacific at about $200 billion by 2030.

In spite of all this attention given by the world to renewable energy resources, the contribution of these resources in the total generated power volumes worldwide has not changed since more than 40 years according to OECD data.

The contribution was about 13.2% in 1971, and remained around the same percentage to be 13% in 2011 as shown in Charts (T) and (Y). as for EU countries, renewable energy resources contribution did not exceed 10.2% of the total generated power until 2011.

Chart T:

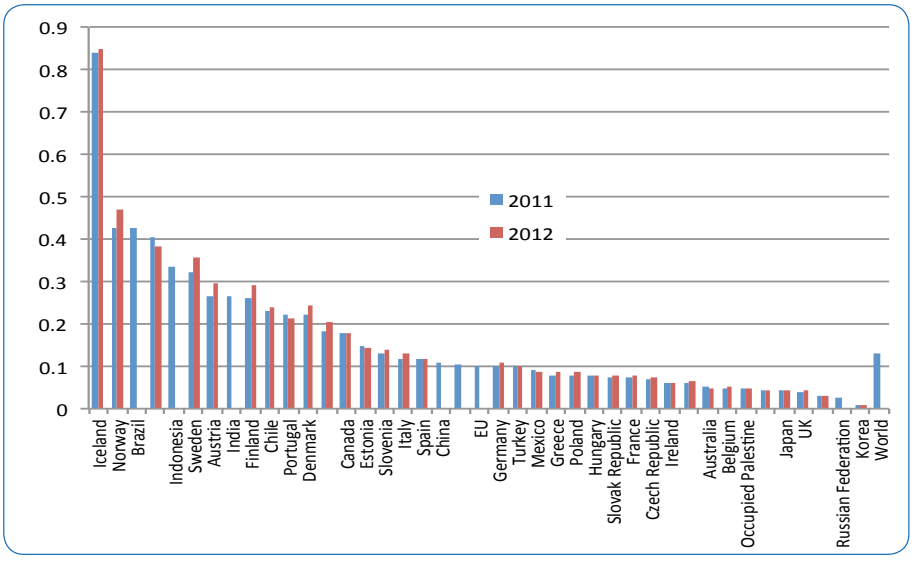
The Contribution of Renewable Energy Resources in the Total Generated Power Worldwide, 1971-2012



Source: OECD, 2014

Chart Y:

The Contribution of Renewable Energy Resources Compared to the Total Generated Power in some Countries Worldwide, 2011-2012



Source: OECD, 2014

It is noted that out of the 40 countries whose data are available, 27 countries of which had their renewable energy resources contribution at less than 15%. Iceland is a special case due to the abundance of its hydropower and geothermal energy, with a population of no more than 315,000 people by the end of 2012. Data issued by the National Resources Authority in Iceland indicated that the total electricity generated in 2011 reached 17210 GW/H, 12507 GW/H of which have been generated using hydropower resources, 4701 GW/H using geothermal energy, and only 2 GW/H using conventional fuel.

1. Hydropower

1-1 Hydropower in the World

Hydropower is one of the important resources that contributes by about 15% of the total produced electricity worldwide. China, Brazil, USA, Russia, and Canada are the top five countries in terms of relying on

water resources, followed by India, Norway, Japan, France, and Turkey. There are countries that use the hydropower resources to generate more than 50% of their electricity including Iceland, Brazil, Canada, Nepal, and Mozambique. It is estimated that 27- 30 GW of the new hydropower copacity have been added to the world's capacity in 2012, in addition to 2-3 GW of pumped storage hydropower. IEA has estimated the world's hydropower capacity at about 1135 GW/H in 2013.

It is noted that installed hydropower growth has concentrated clearly in the emerging markets like Asia and South America, especially China that added 15GW to its hydropower in 2012, and 31 GW in 2013. Installed hydropower in China is scheduled to reach 284 GW at the end of 2015. Pumped storage capacity in China is expected to reach 41 GW during the same year. Until 2011, installed hydropower capacity in China had reached 249 GW contributing to generating 714000 TW/H of electricity in that year.

Brazil, whose operatinal installed hydropower capacity reached 82458 MW in 2011, has generated 428571 GW/H of electricity that year. In the beginning of 2012, there was 21100 MW of additional capacity that was under construction in the country and which is expected to contribute in generating 41 TW/H of electricity.

Canada possesses huge hydropower potentials as the Canadian Hydropower Association estimated the country's unexploited total hydropower resources in 2011 at 163 GW, almost half of which are located in Quebec, Alberta, and British Colombia. Total installed hydropower in Canada reached about 75104 MW in the beginning of 2012. The total electricity produced using hydropower until the end of 2011 reached about 348 TW/H.

In the Middle East, gross theortical hydropower potentioal of 179 TW H/Y, 50 TW H/Y of which are considered economically feasible. Total installed hydropower in Iran has reached 8746 MW until the beginning of 2012, while working on constrcting hydropower plants with a capacity of 5083 MW. It is worth mentioning that the Iranian expertise in this field has allowed the country to contribute in building a hydropower generation plant in Tajikistan. In September 2014, Iran

started building the second unit of Sangtuda 2 on the river Vakhsh, with a capacity of 220MW at a cost of $180 million.

In Africa, Nigeria started working on the rehabilitation of two hydropower plants on the river Niger with installed capacity of 1.3 GW. Burundi too started working on a project to build two hydropower plants at a cost of $270 million, with a capacity of 48 MW together.

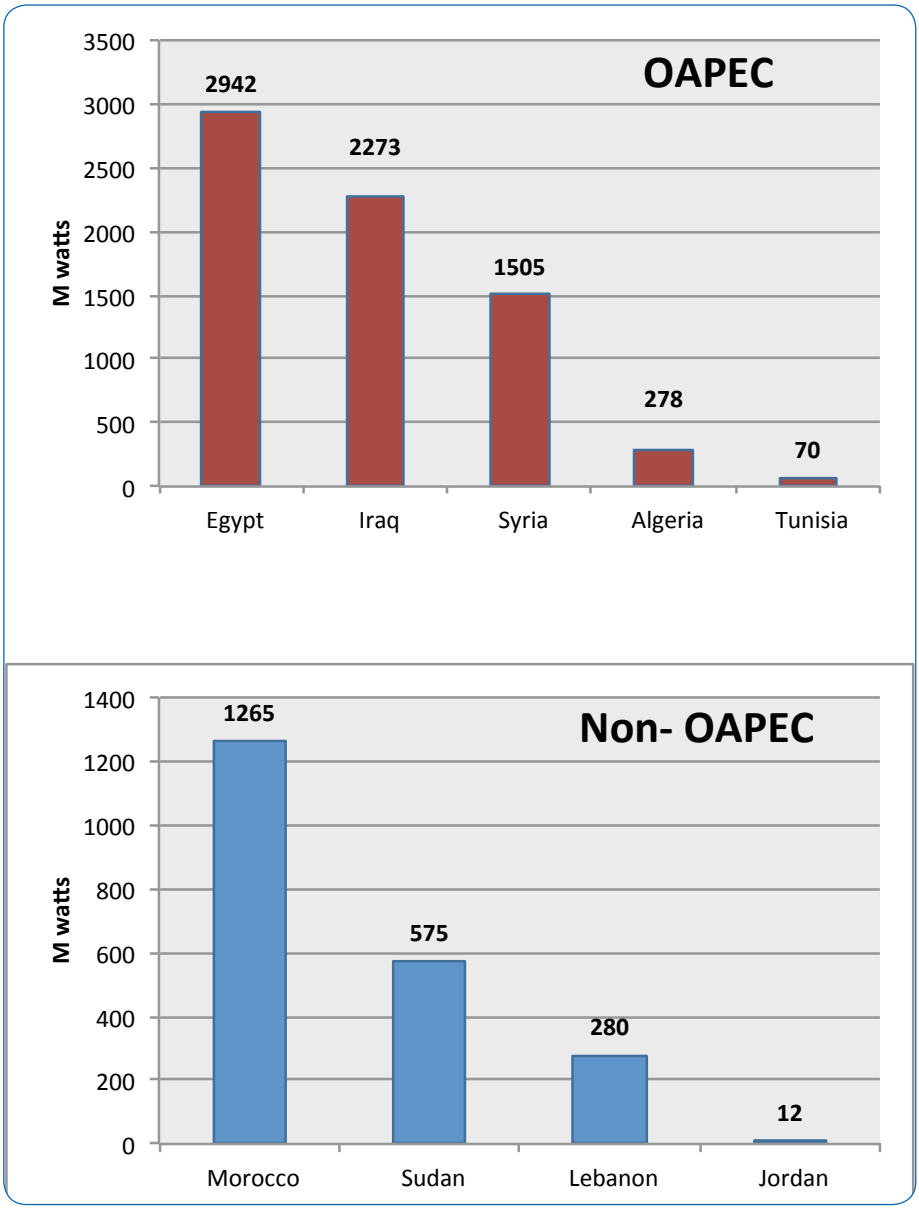
1-2 Hydropower in the Arab Countries

Egypt tops the Arab countries in terms of installed hydropower which reached 2942 MW in 2011, followed by Iraq with a capacity of 2273 MW, Syria (1505 MW), Morocco (1265 MW), Sudan (575 MW), Lebanon (280 MW), Algeria (278), Tunisia (70 MW), and finally Jordan (12 MW). Chart (K) shows installed hydropower capacity in OAPEC members and non-member Arab countries until the beginning of 2012.

Sudan announced a plan to supply hydropower generated from Al Nahdha Dam in Ethiopia to Eretria, where it is expected that Sudan would buy 100 MW of electricity from a total of 6000 MW to be generated by the dam. Once completed in 2017, Al Nahdha Dam would be the largest project in Africa. Work has actually started on a project to set up 45km of high voltage power line from Kassala, Eastern Sudan towards Eretria. In December 2013, Sudan launched cross-border transmission link power between the two countries.

Chart K

Installed Hydropower Capacity in the Arab Countries until the Beginning of 2012



It is noted that the percentage of installed hydropower in Arab countries compared to the world's total installed hydropower is considered moderate (Table 2-12); it does not exceed 0.76% for OAPEC member countries, and is less than 1% for all Arab countries.

2. Wind Energy

The wind energy can be classified into two categories:

1. Onshore wind
2. Offshore wind

2-1 Onshore Wind Energy

Onshore wind energy exploitation techniques are considered mature, as in recent years wind turbines started operating in regions with low wind speed. However, the industry's expansion plans were not up to the investors' expectations although Chinese wind turbines exports expanded by more than 50% from 430 MW in 2012 to 690 MW in 2013. Onshore wind energy investments hugely vary from one country to the other. The least costly countries in 2013 were China and India with about $1.2 million/MW. The highest costly countries were Japan with $2.5 million/MW. In the USA and Europe, costs ranged between $1.7-2 million/MW. Costs of electricity generated in 2014 were estimated between $55 and $130/MW Hour.

2-2 Offshore Wind Energy

Offshore wind energy exploitation is characterised by working on using turbines with large diameter fans, however, costs were high in this aspect in 2013, as it took relatively long time to install turbines offshore which was one reason for the high costs. Other factors also affect the costs of such energy, most important of which the water depth, the type of rocks under water, and being far from coast and the public electricity power network. The costs of the scheduled generation of electricity power from new projects in Europe are estimated at about $170- 300 Kilowatt Hour. One example is E.ON project to build a new wind turbine plant in Amrumbank West in Germany, 37km north west

Germany's Helgoland Island in the North Sea. The project capacity is 288 MW, with the basic structure of the equipment weighing about 900 tons. Investments required for the project are estimated at about €1 billion.

A- Wind Energy in the World

The total installed wind power capacity in the world in 2013 increased by 12.4% compared to 2012 to reach 319907 MW, 38% of which in Europe and Eurasia (121442 MW), followed by Asia and the Pacific by about 37.5% (119933 MW), then North America by 22.2% (71093 MW), while the remaining 0.6% has been distributed among the rest of the world. Wind power contributed in generating 19.4% of the total power generated from renewable energy resources in the OECD countries in 2013.

B- Wind Energy in the Arab Countries

Total installed wind power capacity in the Arab countries represents a very small percentage from that of the world. Tunisia's total installed wind power capacity is 305 MW, 10.1% higher than its 2012 rates. Egypt's total installed wind power capacity is 634 MW, 14.9% higher than its 2012 rates, while in Morocco, it is 495 MW, 25.6% higher than its 2012 rates.

2014 witnessed the move of some countries towards exploiting wind energy like Oman that signed in October an agreement with Abu Dhabi Future Energy Co (Masdar) to build a wind farm to generate power with a capacity of 50 MW at Harweel in the governorate of Dhofar. The planned farm stretches across 200,000 sq meters at a cost of about $200 million. It is expected to begin operating in 2017 to generate 1200 MW Hour/D. The farm consists of 15 to 25 wind turbines with heights varying between 120 to 145 meters with 2 to 3.2 MW capacity per turbine according to their locations.

Jordan's Energy and Mineral Resources Ministry signed a turnkey agreement with Elecnor to build a wind farm in the country. Under the terms of the over $100 million agreement, the company will administer the project's engineering, procurement, and construction, in addition to the wind farm operating and maintenance for two years. The wind

farm is planned to include 33 turbines with a capacity of 2 MW each at the Maan. The facility, which is funded by Kuwait Fund for Economic Development, is due for operation in 2016.

In Morocco, General Electric (GE) will supply 100 MW wind turbines for a wind farm located near Akhfennir in southern Morocco. The project is part of the first phase to build wind farms with a capacity of 720 MW, in line with the Moroccan government plan targeting the generation of 2GW of electrical power using wind energy by 2020 at an estimated cost of $3.62 billion.

3. Solar Energy

In the **UAE**, in line with Dubai integrated Energy Strategy which aims at diversifying energy resources by 2030, Dubai Electricity and Water Authority (DEWA) organized a conference for qualifying international developers who intend to send their proposals for the second project of the Mohammed bin Rashid Al Maktoum Solar Park to produce 100 MW of electricity. The project, which will be implemented according to the Independent Power Producer (IPP) model, supports the Dubai Integrated Energy Strategy 2030. It is due to operate by 2017. The Mohammed bin Rashid Al Maktoum Solar Park is one of the biggest renewable-energy projects in the region at a cost of 12 billion dirhams. It will produce 1,000 megawatts upon completion. The first phase of the project with a capacity of 13 MW was inaugurated earlier. It has been connected to DEWA's grid which covers the whole of the Emirate.

Bahrain launched Bahrain Solar Energy pilot project through the installation of the largest smart solar power plant in the Middle East owned by Bahrain Petroleum Company (Bapco). The project's capacity is equivalent to 5 MW, and is planned to generate 8000 MW Hour of electricity. The project costs $25 million.

Jordan's Ministry of Energy and Mineral Resources signed 12 agreements to buy power from a number of investment companies on solar cells projects to generate electricity under the first round for direct bidding on renewable energy projects with various capacities which would generate together 200MW Hour. The projects are located in four areas as follows:

1. Shams Ma'an project in Ma'an developmental area, with a capacity of 20 MW
2. First Solar, Inc's project in Ma'an developmental area with a capacity of 22 MW
3. Shamsuna Power Company LLC's project in Aqaba with a capacity of 10 MW
4. Scatec Solar ASA's project in Ma'an with a capacity of 10 MW
5. Falcon Ma'an for Solar Energy project in Ma'an developmental area with a capacity of 20 MW
6. Anwar Al Ardh Solar PV Power Plant Project in Ma'an developmental area with a capacity of 20 MW
7. Al Zanbaq for Power Generation project in Ma'an developmental area with a capacity of 10 MW
8. Ard Al Amal PV Power Plant Project in Ma'an developmental area with a capacity of 10MW
9. Jordan Solar One project in the Al Mafraq area with a capacity of 20MW
10. SunEdison project in Ma'an developmental area with a capacity of 20 MW
11. Al Ward Al Joury For Energy Generation project in Ma'an developmental area with a capacity of 10 MW
12. Zahrat Al Salam power generation project in Ma'an developmental area with a capacity of 10 MW

Total investment for these projects reached about $560 million. They are scheduled to be completed in 2015 to generate about 470 GW per annum.

In **Oman,** it is expected to start electricity power generation from the pilot project for solar power in Mazyouna governorate in 2015. This project was announced by the Sultanate in 2013 with a capacity of 303 KW.

4. Geothermal Energy

Only 23 countries worldwide exploit geothermal energy. Within 10 years (2003-2013), it was noted that the total installed geothermal

capacity amounted by 29% from 9.09 GW to 11.7 GW. 79% of this capacity is distributed among 6 countries; the USA topped the list as its installed geothermal capacity has reached 3442 MW; followed by the Philippines (1868MW), Indonesia (1339MW), Italy (876MW), New Zealand (855MW), and Mexico (823MW).

By the end of 2012 and 2013, total installed geothermal capacity from geothermal power worldwide has increased by 3.1% together. Turkey registered the highest increase worldwide by more than 98% from 114MW in 2012 to 226MW by the end of 2013.

5. Ocean and Tidal Power

This type of energy includes various technologies that can exploit the different natural phenomenon like high tide and low tide, waves movement, thermal energy conversion in water, and salinity gradients. However, the only mature technology until today is that of utilizing tides. Its installed power capacity is estimated at about 0.5GW. Other technologies are still in their early stages with a few pilot projects of small capacities. Until 2013, there were no more than 10 devices in research centres to test the possibility of utilizing thermal and salinity changes worldwide, with capacities varying between 250KW to 1 MW. They all belong to the European Marine Energy Centre (EMEC). SeaGen tidal device is the largst operating device of its kind in the UK, which started operating in 2008. There is also a plant operating by tidal power with a capacity of 300KW in Spain.

According to IEA statistics, this kind of installed power capacity is not expected to exceed 1GW until 2020, especially that it is still relatively costly. A detailed study by the US Energy Department showed that the capital expenditure for a wave energy plant with a capacity of 5MW is estimated at $7000/KW. Increasing this plant's capacity to 50 MW would reduce expenditure to $4500/KW.

TABLES

CHAPTER TWO

Table 2-1

Seismic Surveys Worldwide, 2010- 2014
(Crew /Month)

	2010	2011	2012	2013	2014*
Middle East	33	35	33	21	23
Africa	71	60	54	56	52
Europe	30	35	39	35	29
Russia/CIS**	47	47	46	219	217
Far east	68	68	67	122	115
USA	63	67	69	72	62
Canada	9	14	13	8	12
Latin America	40	37	34	32	21
World Total	**361**	**363**	**355**	**565**	**531**

Source:
* Society of Exploration Physicists
Average 11 Months (Jan - Nov. 2014)
** Including CIS by HIS from 2010 to 2012. Russia›s data were included in 2013 based on Society of Exploration Physicists surveys.

Table 2-2

Average Number of Active Rigs Worldwide, 2010-2014
(Rig)

	2010	2011	2012	2013	2014*
Middle East	265	292	356	372	407
Africa	83	78	96	125	134
Europe	94	118	119	135	145
Asia/Pacefic	269	256	241	246	254
USA	1541	1875	1919	1761	1860
Canada	351	423	365	355	380
Latin America	383	424	423	419	400
World Total	**2986**	**3466**	**3519**	**3413**	**3580**

Source:
- *Baker Hughes,(Jan - Nov. 2014).

Table 2-3

Petroleum Discoveries in OAPEC Members and Other Arab Countries, 2010- 2014

Country	2010		2011		2012		2013		2014*	
	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas
Algeria	14	15	10	10	8	23	12	20	1	-
Bahrain	-	-	-	-	-	-	-	-	-	-
Egypt	40	22	57	21	57	29	41	14	2	2
Iraq	1	1	2	1	6	1	5	-	6	-
KSA	4	1	1	-	1	2	-	-	-	-
Kuwait	1	1	2	2	8	-	4	-	-	-
Lybia	20	1	-	-	4	1	4	3	-	1
Qatar	-	-	-	-	-	-	-	1	-	-
Syria	2	-	3	1	1	0	-	-	-	-
Tunisia	1	4	4	1	2	-	-	-	1	-
UAE	1	-	-	-	-	-	-	-	-	1
OAPEC	**84**	**45**	**79**	**36**	**87**	**56**	**66**	**38**	**10**	**4**
Morocco	-	1	-	3	-	-		-	1	1
Oman	1	2	1	-	-	-	1	-	1	-
Sudan	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	2	-	-	1	-	-	-
Total Arab	**85**	**48**	**80**	**41**	**87**	**56**	**68**	**38**	**12**	**5**

* Estimates

Table 2-4

Arab and World Oil Reserves, 2010- 2014
(Billion barrels at year end)

	2010	2011	2012	2013	2014*	Change 2013/2014 (%)
Algeria	12.20	12.20	12.20	12.20	12.20	0.0
Bahrain	0.12	0.12	0.12	0.12	0.12	0.0
Egypt	4.30	4.30	4.20	4.20	4.20	0.0
Iraq	142.30	141.40	145.30	145.30	145.30	0.0
KSA	264.59	265.40	265.9	265.85	265.78	(0.0)
Kuwait	101.50	101.50	101.50	101.50	101.50	0.0
Lybia	47.10	48.00	48.50	48.40	48.36	(0.1)
Qatar	25.50	25.26	25.24	25.24	25.24	0.0
Syria	2.50	2.50	2.50	2.50	2.50	0.0
Tunisia	0.43	0.43	0.43	0.43	0.43	0.0
UAE	**97.80**	**97.80**	**97.80**	**97.80**	**97.80**	**0.0**
OAPEC	698.34	698.91	703.68	703.53	703.43	(0.0)
Oman	5.50	5.50	5.50	5.50	5.50	0.0
Sudan	5.00	5.00	1.50	1.50	1.50	0.0
Yemen	**2.67**	**2.67**	**2.67**	**2.67**	**2.67**	**0.0**
Total Arab countries	711.51	712.08	713.35	713.20	713.10	(0.0)
Angola	9.06	9.06	9.06	9.06	9.01	(0.5)
Ecuador	7.21	8.24	8.24	8.24	8.23	(0.0)
Iran	151.17	154.58	157.30	157.80	157.80	0.0
Nigeria	37.20	37.20	37.14	37.14	37.07	(0.2)
Venezuela	**99.40**	**99.40**	**99.40**	**99.40**	**100.00**	**0.6**
Total non-Arab OPEC	**304.03**	**308.47**	**311.13**	**311.63**	**312.11**	**0.2**
OPEC	**995.02**	**1000.03**	**1007.56**	**1007.92**	**1008.30**	**0.04**

Cont.

Table 2-4 Cont.

	2010	2011	2012	2013	2014*	Change 2013/2014 (%)
Brazil	12.86	13.99	13.15	15.05	15.31	1.8
Canada	2.86	2.83	3.10	2.98	2.98	0.1
China	20.35	20.35	23.72	24.38	24.65	1.1
CIS	98.90	98.90	119.06	118.89	119.79	0.8
of which: Azerbigan	7.00	7.00	7.00	7.00	7.00	0.0
Kazakhstan	30.00	30.00	30.00	30.00	30.00	0.0
Russian Fedration	60.00	60.00	80.00	80.00	80.90	1.1
Turkmanstan	0.60	0.60	0.60	0.60	0.60	0.0
Uzbakstan	0.59	0.59	0.59	0.59	0.59	0.0
Mexico	5.67	5.32	5.37	5.83	5.50	(5.6)
Norway	19.12	20.68	28.95	33.40	37.90	13.5
UK	10.40	10.16	10.26	10.07	9.81	(2.6)
USA	6.10	5.60	6.00	6.00	6.00	0.0
Others	39.19	43.17	32.7	40.41	45.74	13.2
World Total	**1230.99**	**1241.55**	**1266.79**	**1281.85**	**1292.90**	**0.86**
OAPEC/World %	56.7	56.3	55.5	54.9	54.4	
Arab/World%	57.8	57.4	56.3	55.6	55.2	
OPEC/World%	80.8	80.5	79.5	78.6	78.0	

* Estimates

Notes:
A- Parentheses denote negative figures.
B- 50% of the Divided Zone›s oil reserves is added to each of Saudi Arabia and Kuwait oil reserves.
C - Total reserves excludes bitumen and extra heavy oil in Venezuela.
D - Canada reserves excludes unconventional oil .
E- USA reserves includes shale oil reserves.
Sources:
- BP Statistical Review of World Energy, June 2014 .
- Oil & Gas Journal, 1 Jan. 2015.
- OPEC Annual Statistical Bulletin, 2014.

Table 2-5

Arab and World Natural Gas Reserves, 2010- 2014
(Billion cubic meters at year end)

	2010	2011	2012	2013	2014*	Change 2013/2014 (%)
Algeria	4504	4504	4504	4505	4505	0.0
Bahrain	92	92	92	92	92	0.0
Egypt	2193	2045	2186	2186	2186	0.0
Iraq	3170	3158	3694	3694	3694	0.0
Kuwiat	1784	1784	1784	1784	1784	0.0
Liyba	1495	1547	1532	1532	1532	0.0
Qatar	25190	25030	24400	24400	24400	0.0
Saudi Arabia	8016	8150	8234	8234	8316.0	1.0
Syria	285	285	285	285	285	0.0
Tunis	65	65	65	65	65.0	0.0
UAE	6091	6091	6091	6091	6091	0.0
Total OAPEC	**52885**	**52751**	**52867**	**52868**	**52950**	**0.2**
Oman	705.0	705.0	705.0	705.0	705.0	0.0
Sudan	85	85	85.0	85	85.0	0.0
Yemen	479	479	479.0	479	479	0.0
Total Arab Countries	**54154**	**54020**	**54136**	**54137**	**54219**	**0.2**
Angola	275	275	275	275	275	0.0
Ecuador	8	8	6	6	6	0.0
Iran	33090	33090	33780	33780	34020	0.7
Nigeria	5110	5154	5118	5118	5111.0	(0.1)
Venezuela	5525	5525	5563	5562	5581.0	0.3
Total Non-Arab OPEC	**44008**	**44052**	**44742**	**44741**	**44993**	**0.6**
Total OPEC	**87022**	**87028**	**87708**	**87708**	**88042**	**0.4**

Cont./

Table 2-5 Cont.

	2010	2011	2012	2013	2014*	Change 2013/2014 (%)
Brazil	366	417	396	389	389	0.0
UK	256	253	246	241	244.0	1.2
Norway	2039	2007	2070	2049	2090.0	2.0
USA	6928	7717	9877	8723	9595.0	10.0
Mexico	339	490	488	484	469.0	(3.1)
Canada	1754	1727	1930	1889	2033.0	7.6
CIS	61301	61301	61675	61675	61675.0	0.0
Of which: Azerbaijan	850	850	991	991	991	0.0
Uzbekistan	1841	1841	1841	1841	1841	0.0
Turkmenistan	**7504**	**7504**	**7504**	**7504**	**7504**	**0.0**
Russian Federation	47573	47573	47806	47806	47806	0.0
Kazakhstan	2407	2407	2407	2407	2407	0.0
China	3036	3036	4006	4406	4649.0	5.5
Rest of the World	17160	15777	15297	17850.6	16973.0	(4.9)
World Total	191341	190797	194862	196585	197329	0.4
OAPEC/ world (%)	27.6	27.6	27.1	26.9	26.8	
Arab countries/ world (%)	28.3	28.3	27.8	27.5	27.5	
OPEC/ world (%)	45.5	45.6	45.0	44.6	44.6	
	0.0	0.0	0.0	0.0	0.0	

*Estimates
** Official Sources
Notes
A- Parentheses denote negative figures.
Sources:
- Oil & Gas Journal, 1 Jan. 2014.
- OPEC Annual Statistical Bulletin, 2014.

Table 2-6

Arab and World Hydrocarbon Liquids Production, 2010- 2014
Thousand b/d
First: Oil Production

	2010	2011	2012	2013	2014*	(%) Change 2013/2014
Algeria	1189.8	1262.0	1203.0	1203.0	1191.0	(1.0)
Bahrain	182.0	190.0	173.0	197.0	199.5	1.3
Egypt	560.7	566.0	571.5	581.0	666.4	14.7
Iraq	2359.0	2653.0	2942.0	2980.0	3073.0	3.1
Kuwait	2312.1	2658.7	2977.6	2921.6	2856.0	(2.2)
Libya	1495.0	589.5	1454.0	993.3	560.0	(43.6)
Qatar	733.4	734.0	736.0	724.0	703.0	(2.9)
Saudi Arabia	8165.6	9311.0	9763.4	9640.0	9701.0	0.6
Syria	387.0	330.0	170.0	31.0	10.0	(67.7)
Tunis	78.8	70.0	66.8	62.7	55.5	(11.5)
UAE	2324.0	2564.0	2652.5	2797.0	2769.0	(1.0)
Total OAPEC	**19787.4**	**20928.2**	**22709.8**	**22130.6**	**21784.4**	**(1.6)**
Oman**	758.3	780.2	813.2	841.0	857.0	1.9
Sudan	462.1	453.0	99.7	117.8	122.0	3.6
Yemen	275.0	190.0	180.1	158.8	140.4	(11.6)
Total Arab Countries	**21282.8**	**22351.4**	**23802.8**	**23248.2**	**22903.8**	**(1.5)**
Angola	1757.6	1618.0	1704.0	1701.2	1664.0	(2.2)
Ecuador	476.4	500.3	503.6	526.4	556.0	5.6
Iran	3544.0	3576.0	3739.8	3575.0	3146.0	(12.0)
Nigeria	2048.3	1974.8	1954.1	1753.0	1820.0	3.8
Venezuela	2853.6	2880.9	2803.9	2789.0	2839.0	1.8
Total Non-Arab OPEC	**10679.9**	**10550.0**	**10705.4**	**10344.6**	**10025.0**	**(3.1)**
Total OPEC	**25905.6**	**27568.7**	**28564.2**	**27906.9**	**27614.5**	**(1.0)**

Cont./

Table 2-6 Cont.

	2009	2010	2011	2012	2013*	(%) Change 2012/2013
Brazil	2049.7	2094.0	2017.5	2029.0	2224.5	9.6
UK	1196.2	993.6	869.0	798.0	768.0	(3.8)
Norway	1875.0	1739.4	1604.5	1517.0	1524.0	0.5
USA	5486.0	5642.5	6504.2	7449.5	8467.4	13.7
Mexico	2594.3	2561.3	2553.9	2531.5	2448.7	(3.3)
Canada	2016.8	2082.8	2339.5	2504.2	2676.6	6.9
CIS	13220.5	13264.5	12792.0	13315.0	13400.0	0.6
Of which: Azerbaijan	1027.4	931.0	861.3	815.0	810.8	(0.5)
Uzbekistan	87.0	86.0	70.0	68.0	63.0	(7.4)
Turkmenistan	220.0	220.0	215.4	229.0	238.0	3.9
Russia Fedration	10147.6	10325.0	9935.0	10047.3	10081.5	0.3
Kazakhstan	1600.0	1600.0	1559.5	1398.5	1361.4	(2.7)
China	4049.0	4090.2	4228.1	4175.0	4185.0	0.2
Rest of thw World	7501.6	7136.9	6156.8	7029.0	7601.0	8.1
Wrold Total	71951.8	72506.6	73556.0	74941.0	76224.0	1.7
OAPEC/world (%)	**27.5**	**28.9**	**30.9**	**29.5**	**28.6**	
Arab Countries/World (%)	**29.6**	**30.8**	**32.4**	**31.0**	**30.0**	
OPEC/World (%)	**36.0**	**38.0**	**38.8**	**37.2**	**36.2**	
Second : Natural Gas Liquids Production						
OAPEC Members Production	**3003.9**	**3229.7**	**3355.8**	**3303.6**		
Arab countries Production	**3130.1**	**3355.2**	**3472.8**	**3411.6**		
World NGL Production	**8593.0**	**8938.0**	**8568.0**	**8668.0**		
Total Hydrocarbon Liquids Production						
World Total Production	**80544.8**	**81444.6**	**82124.0**	**83609.0**		
OAPEC/world (%)	**28.3**	**29.7**	**31.7**	**30.4**		
Arab Countries/ world (%)	**30.3**	**31.6**	**33.2**	**31.9**		

Bahrain: Average Bahrain oil field production (Oct. 2015) as per JODI+ the share of Abu Sa›afah joint oil field with Saudi Arabia (about150K bpd according to latest available data).
Tunisia figures are average 8 months (Jan. - Aug. 2014) as per JODI.
Egypt figures are average 9 months (Jan - Sept. 2014) as per JODI.
*Estiamtes
Notes:
- Parentheses denote negative figures.
Saudi and Kuwait production includes their share of the divided zone.
OPEC members› data are 11 months average (Jan. – Nov. 2014) according to OPEC monthly reports.
Arab countries data, 2013 according to the annual statistical report.
Sources:
Oil & Gas Journal, 1 Jan. 2015.
OPEC Annual Statistical Bulletin 2014
JODI Data Initiative.

Table 2-7

NGL Production in OAPEC Members and Other Arab Countries, 2009-2012 (Thousand b/d)

	2009	2010	2011	2012	2013*	Change 2012-2013 (%)
UAE	250	270	400	358	370	3.4
Bahrain	10	10	11	10	10	0.0
Tunis	3	4	3	3	4	33.3
Algeria	572	514	486	449	420	(6.5)
Saudi Arabia	897	962	1009	1093	1093	0.0
Syria	10	10	10	5	1	(81.8)
Iraq	41	44	45	41	45	9.8
Qatar	636	835	1001	1066	1071	0.4
Kuwait	106	126	137	152	147	(3.3)
Libya	84	70	19	83	54	(34.6)
Egypt	158	159	109	96	89	(7.3)
Total OAPEC	**2767**	**3004**	**3230**	**3356**	**3304**	**(1.6)**
Oman **	100	106	106	97	88.0	(9.3)
Yeman	20	20	20	20	20.0	0.0
Total Arab Countries	**2887**	**3130**	**3355**	**3473**	**3412**	**(1.8)**
World Total	**8132**	**8593**	**8938.0**	**8568.0**	**8668.0**	**1.2**
OAPEC/World (%)	**34.0**	**35.0**	**36.1**	**39.2**	**38.1**	

Notes:
- Parentheses denote negative figures.

Sources:
Annual statistical report
** Official Sources
Oil&Energy Trends, Annual Statistical Revie,2014

Table 2-8

Arab and World Marketed Natural Gas, 2009- 2013
(Million cubic meters/year)

	2009	2010	2011	2012	2013*	Change 2012-2013 %
UAE	48840	51282	52300	54300	54600	0.6
Bahrain**	12700	13200	12700	13800	14700	6.5
Tunisia	1800	2000	1930	1860	1880	1.1
Algeria**	82600	83800	82600	85700	82700	(3.5)
Saudi Arabia**	78500	87700	92300	99300	100030	0.7
Syria	6500	8900	7900	5800	5300	(8.6)
Iraq**	8900	8100	8000	7600	8600	13.2
Qatar**	119400	182400	202500	204000	204600	0.3
Kuwait**	11500	11700	11900	14300	12100	(15.4)
Libya**	22500	23400	7900	18100	18300	1.1
Egypt**	62070	61600	61300	58800	52200	(11.2)
Total OAPEC	**455310**	**534082**	**541330**	**563560**	**555010**	**(1.5)**
Oman**	24500	25800	26921	28692	29953	4.4
Total Arab Countries	**479810**	**559882**	**568251**	**592252**	**584963**	**(1.2)**
Angola	690	733	752.0	760	925	21.7
Iran	175742	187357	188753.0	202431	199293	(1.6)
Venezuela	18430	19728	20769.0	22726	21820	(4.0)
Nigeria	23206	28099	41323.0	42571	38411	(9.8)
Ecuador	296	330	241.0	517	515	(0.4)
Total Non-Arab OPEC	**218364**	**236247**	**251838**	**269005**	**260964**	**(3.0)**
Total OPEC	**590604**	**684629**	**709338**	**752305**	**741894**	**(1.4)**

Cont.

Table 2-8 Cont.

	2009	2010	2011	2012	2013*	Change 2012-2013 %
UK	62400	59700	47600	59700	57100	(4.4)
Norway	104800	107700	101700	114700	108700	(5.2)
USA	584000	603600	648500	681200	687600	0.9
Mexico	59400	57600	58300	56900	56600	(0.5)
Canada	164000	159900	159700	156000	154800	(0.8)
CIS	676000	741900	776500	764300	776500	1.6
Of which: Azerbaijan	14800	15100	14800	15600	16200	3.8
Uzbekistan	60000	59600	57000	56900	55200	(3.0)
Turkmenistan	36400	42400	59500	62300	62300	0.0
Russian Federation	527500	588900	607000	592300	604800	2.1
Kazakhstan	17800	17600	19300	18400	18500	0.5
China	85300	94800	102700	107200	117100	9.2
Rest of the world	614740	673871	664932	664935	633473	(4.7)
World Total	**3,049,326**	**3,295,741**	**3,382,170**	**3,422,800**	**3,437,800**	**0.4**
OAPEC/ world (%)	**14.9**	**16.2**	**16.0**	**16.5**	**16.1**	
Arab countries/ world (%)	**15.7**	**17.0**	**16.8**	**17.3**	**17.0**	
OPEC/ world (%)	**19.4**	**20.8**	**21.0**	**22.0**	**21.6**	

* Estimates
** Official Sources
Notes:
- Parentheses denote negative figures.
Sources:
OPEC Annual Statistical Bulletin 2014.
BP statistical review of world energy full report 2014.

Table 2-9

World Coal Reserves, 2009 - 2013
(Billion tons at year end)

	2009	2010	2011	2012	2013
North America	**244.9**	**243.9**	**245.1**	**245.1**	**245.1**
Canada	6.6	6.6	6.6	6.6	6.6
USA	238.3	237.3	237.3	237.3	237.3
Central & South America*	**16.2**	**13.7**	**12.5**	**12.5**	**14.6**
Of which: Brazil	7.1	4.6	4.6	4.6	6.6
Colombia	6.8	6.7	6.7	6.7	6.7
Europe	**272.2**	**304.6**	**304.6**	**304.6**	**310.5**
Of which: FSU	222.2	224.5	228	228	228
Asia/Oceania	**259.3**	**265.8**	**265.8**	**265.8**	**228.3**
Of which: Australia	76.2	76.4	76.4	76.4	76.4
Indonesia	4.3	5.5	5.5	5.5	28
China	114.5	114.5	114.5	114.5	114.5
India	58.6	60.6	60.6	60.6	60.6
Africa	**32.0**	**31.7**	**31.7**	**31.7**	**31.8**
Of which: South Africa	30.4	30.2	30.2	30.2	30.2
Middle East	**1.4**	**1.2**	**1.2**	**1.2**	**1.1**
World total	**826.0**	**860.9**	**860.9**	**860.9**	**891.5**

Source:
- BP Statistical Review of World Energy, June 2010- June 2014 .

Table 2-10

World Coal Production, 2009 - 2013
(Million tons/year)

	2009	2010	2011	2012	2013
North America	**1050.2**	**1063.7**	**1075.9**	**1005.0**	**978.8**
Canda	64.6	68.0	67.5	67.1	69.5
Mexico	12.1	14.9	19.0	15.7	16.6
USA	975.2	983.7	993.9	922.1	892.6
Central & South America*	**81.9**	**83.0**	**94**	**99.6**	**98.0**
Of which: Brazil	5.1	5.4	5.5	6.6	7.4
Colombia	72.8	74.4	85.8	89	85.5
Europe	**1181.2**	**1190.9**	**1255.4**	**1281.6**	**1221.6**
Of which: Germany	183.7	182.3	188.6	196.2	190.3
Russia	301.3	321.6	335.9	356.1	347.1
Asia/Oceania	**4336.2**	**4658.3**	**5021.1**	**5243.6**	**5336.0**
Of which: Australia	422.3	432.7	421.1	452.8	478.0
China	2973.0	3235.0	3516	3645	3680.0
India	556.0	573.8	570.1	606.5	605.1
Africa	**253.8**	**261.7**	**256**	**262.3**	**260.8**
Of which: South Africa	250.6	257.2	251.6	258.3	256.7
Middle East	**1.2**	**1**	**1**	**1.2**	**1.2**
World total	**7896.4**	**7896.4**	**7896.4**	**7896.4**	**7896.4**

Source:
- BP Statistical Review of World Energy, June 2014 .

Table 2-11

Nuclear Power Reactors in Operation and Under Construction Worldwide (End of 2013)

Country	Reactors in Operation		Reactors Under Construction		Electricity Supplied by Nuclear Reactors 2013	
	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units
UAE			2	2690	-	-
Argentina	2	935	1	692	5.7	4.4
Armenia	1	375	1	1109	2.2	29.2
Spain	7	7121			54.3	19.7
Germany	9	12068	-	-	92.1	15.4
Ukraine	15	13107	2	1900	78.2	43.6
Iran	1	915	-	-	3.9	1.5
Pakistan	3	690	2	630	4.4	4.4
Brazil	2	1884	1	1245	13.8	2.8
Belgium	7	5927	-	-	40.6	52.1
Bulgaria	2	1906			13.3	30.7
Taiwan	6	5032	2	2600	39.8	19.1
Czech Republic	6	3884	-	-	29.0	35.9
Slovak Republic	4	1815	2	880	14.6	51.7
South Africa	2	1860	-	-	13.6	5.7
Russian Federation	33	23643	10	8382	161.7	17.5
Romania	2	1300			10.7	19.8
Slovenia	1	688	-	-	5.0	33.6

Cont./

Table 2-11 Cont.

Country	Reactors in Operation		Reactors Under Construction		Electricity Supplied by Nuclear Reactors 2013	
	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units	Capacity (MWe)	No. of Units
Sweden	10	9474	-	-	63.7	42.7
Switzerland	5	3308	-	-	25.0	36.4
China	20	15977	29	28774	104.8	2.1
France	58	63130	1	1630	405.9	73.3
Finland	4	2752	1	1600	22.7	33.3
Canada	19	13500	-	-	94.3	16.0
South Korea	23	20721	5	6370	132.5	27.6
Mexico	2	1330	-	-	11.4	4.6
UK	16	9243	-	-	64.1	18.3
India	21	5308	6	3907	30.0	3.5
Hungary	4	1889	-	-	14.5	50.7
Netherlands	1	482	-	-	2.7	2.8
USA	100	99081	5	5633	790.2	19.4
Japan	48	42388	2	1325	13.9	1.7
World Total	**434**	**371733**	**72**	**69367**	**2359**	

Source:
- IAEA, Nuclear Power Reactors in the World, 2014

Table 2-12

Installed Hydro Power Capacities in some Countries, 2011

Installed Capacity (Megawatt-MWe)	
Country	**2011**
Algeria	278
Egypt	2942
Iraq	2273
Syria	1505
Tunisia	70
OAPEC	**7068**
Jordan	12
Lebanon	280
Morocco	1265
Sudan	575
Arab Countries	**9200**
Others	925533
World total	**934733**
OAPEC/Word	**0.76%**
Arab/World	**0.98%**

Sources:
World Energy Resources, 2013 Survey

Table 2-13

Installed Wind Power Capacities in some Countries, 2009-2013

Country	Installed Capacity (Megawatt-MWe)					Annual Growth Rate 2012/2013 (%)
	2009	2010	2011	2012	2013	
China	25853	44781	62412	75372	91460	21.3
USA	35159	40274	47084	60208	61292	1.8
Germany	25777	27191	29075	31315	34316	9.6
Spain	19160	19715	21160	22722	22898	0.8
India	10926	13065	16179	18420	20226	9.8
UK	4424	5378	6476	8889	10976	23.5
Italy	4854	5793	6733	7998	8448	5.6
France	4775	5940	6770	7585	8120	7.1
Denmark	3408	3805	3926	4137	4747	14.7
Portugal	3474	3837	4214	4363	4557	4.4
Sweden	1537	2141	2904	3750	4474	19.3
Poland	849	1231	1667	2547	3441	35.1
Turkey	792	1320	1729	2261	2760	22.1
Japan	2208	2429	2595	2673	2722	1.8
Netherlands	2226	2241	2309	2552	2714	6.3
Austria	997	1013	1082	1378	1661	20.5
Egypt	552	552	552	552	634	14.9
Morocco	254	263	292	394	495	25.6
Hungary	229	323	357	357	357	0.0
Tunisia	160	247	277	277	305	10.1
Others	12579	16179	21174	26741	33304	24.5
Total World	**160193**	**197718**	**238967**	**284491**	**319907**	**12.4**

Sources:
- BP Statistical Review of World Energy, June 2014 .

Table 2-14

Cumulative Installed Photovoltaic Power Capacities in Some Countries, 2011-2013 (Megawatt)

Country	Cumulative Installed Capacity Megawatt-Mwe)			Annual Growth Rate 2012/2013 (%)
	2011	2012	2013	
Germany	25039	32643	35948	10%
China	3300	7000	18300	161%
Italy	12803	16139	17600	9%
Japan	4914	6743	13643	102%
USA	3910	7271	12022	65%
Spain	4472	4685	4828	3%
France	2953	4019	4632	15%
Australia	1377	2407	3255	35%
Belgium	2057	2768	2983	8%
UK	976	1900	2892	52%
Greece	624	1536	2579	68%
India	481	1176	2291	95%
Chez Republic	1959	2072	2160	4%
South Korea	729	1025	1467	43%
Canada	558	766	1210	58%
Romania	0	50	1150	2200%
Bulgaria	141	908	918	1%
Switzerland	211	440	740	68%
Netherlands	150	365	722	98%
Thailand	198	387	704	82%
Austria	187	360	580	61%
Denmark	17	379	532	40%
Slovakia	508	524	524	0%
Rest of EU	163	358	521	45%
Taiwan	102	206	376	23%
Portugal	158	226	278	82%
Mexico	37	55	100	135%
Malaysia	14	31	73	79%
Sweden	16	24	43	67%
Turkey	0	9	15	6%
Norway	10	10	11	0%
Finland	7	7	7	0%
Others	3148	5587	6534	17%
Total World	**71218**	**102076**	**139637**	**36.8%**

Sources:
- BP Statistical Review of World Energy, June 2014 .
- IEA Renewables Information, 2014 .
-National Survey Report of PV Power Applications in Canada, June, 2014

Table 2-15

Installed Geothermal Capacities in Some Countries, 2011 and 2013

	Installed Capacity (Megawatt-MWe)			Annual Growth Rate 2011/2013 (%)
	2011	2012	2013	
Australia	1	1	2	2.2%
Austria	1	1	1	1.1%
China	24	24	27	0.0%
Costa Rica	208	208	208	0.1%
El Salvador	204	204	204	11.2%
Ethiopia	7	7	7	1.4%
France	16	16	17	0.0%
Germany	8	12	17	0.2%
Guatemala	52	52	48	16.6%
Iceland	665	665	665	98.2%
Indonesia	1209	1339	1339	0.0%
Italy	883	875	876	0.0%
Japan	502	502	503	0.0%
Kenya	212	217	253	0.0%
Mexico	887	812	823	0.0%
New Zealand	769	769	855	-7.7%
Nicaragua	88	160	160	0.0%
Papua New Guinea	56	56	56	12.5%
Philippines	1783	1848	1868	43.0%
Portugal	29	29	29	6.3%
Russia	82	82	82	0.0%
Thailand	0.3	0.3	0.3	100.0%
Turkey	114	114	226	0.0%
US	3236	3368	3442	0.0%
Total World	**11037**	**11361**	**11709**	**3.1%**

Sources:
- BP Statistical Review of World Energy, June 2014 .

Table 2-16

Installed Solid Biomass Capacities in some Countries, 2011 and 2012

	Installed Capacity (Megawatt-MWe)		Annual Growth Rate 2011/2012 (%)
	2011	2012	
USA	7400	7810	5.5
Sweden	3397	3522	3.7
Italy	421	538	27.8
Finland	1910	1956	2.4
Austria	1628	1672	2.7
Germany	1966	2034	3.5
Denmark	921	1156	25.5
UK	1647	1610	-2.2
Mexico	473	473	0.0
Chez Republic	306	330	7.8
Australia	597	597	0.0
Belgium	701	678	-3.3
Canada	4064	4064	0.0
Netherlands	713	644	-9.7
Spain	563	640	13.7
Turkey	10	10	0.0
South Korea	46	46	0.0

Sources:
- IEA Renewables Information, 2014 .

CHAPTER THREE

ARAB AND WORLD DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES

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ARAB AND WORLD DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES

I. REFINING INDUSTRY

1. World Developments

Total world primary distillation capacity of crude oil recorded a decrease of 120,000 b/d, representing a decrease of 0.13% from its last year's level. It totalled about 90.73 million b/d at the end of 2014 compared to 90.85 million b/d at the end of 2013. The number of the world's operating refineries decreased from its 2013 levels as well to reach 642 refineries.

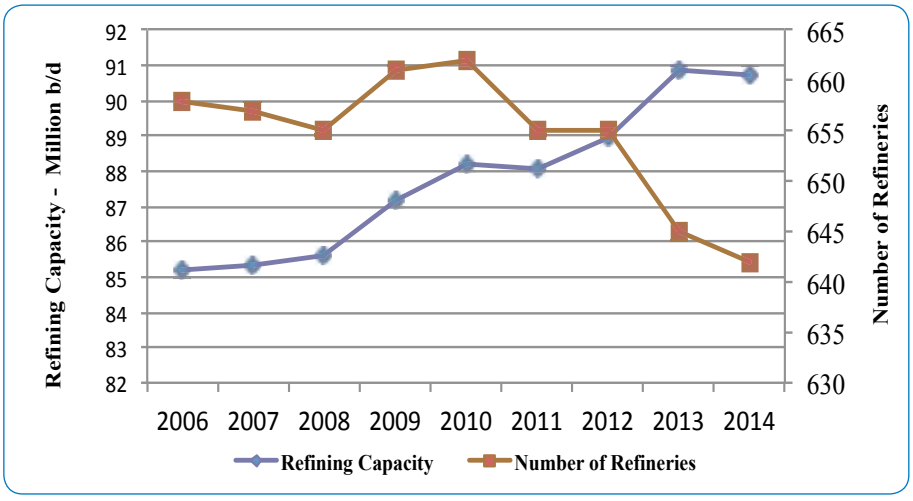
Figure (3-1) shows the development of the refining capacity and the number of world refineries between 2006 and 2014.

Asia/Pacific was the only region that registered a hike in refining capacity by 310,000 b/d, representing 1.17% compared to 2013 levels. This is due to putting two new refineries in China in operation. These refineries are China's CNOOC's "Huizhou refinery" with a refining capacity of 240,000 b/d, and PetroChina's "Qinzhou refinery" with a refining capacity of 200,000 b/d. However, Australia's "Kurnell refinery", with a refining capacity of 120,000 b/d, and Indonesia's Peetamina's "Pangakalan refinery" with a capacity of 4.75 thousand b/d have been shut down.

Figure 3-1

Development of World Refining Capacity and the Number of Refineries

(2006-2014)



Despite increasing the refining capacity of Spain's "Cartagena refinery" by 120,000 b/d, Western Europe registered a decline in total refining capacities by 213,000 b/d, representing 1.46% drop compared to 2013 levels. The reasons were:

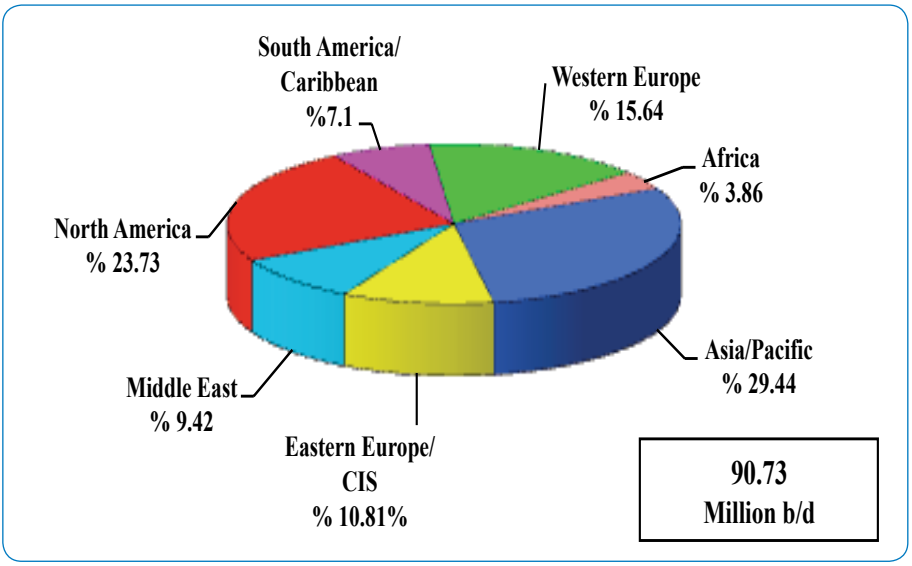
- Shutting down LyondellBasel's "Berre refinery" in France with a capacity of 80,000 b/d
- Shutting down two refineries in Italy: ERG & Total's "Rome refinery" with a capacity of 90,000 b/d, and Italiana Energia's "Mantuva refinery" with a capacity of 55,000 b/d
- Shutting down Murco Petroleum's "Milford refinery" in the UK with a capacity of 108,000 b/d

Also, North America registered a decline of 215,000 b/d after .closing Flint Hills Resources' "North Pole refinery" in Alaska

Figure (3-2) shows the distribution of the total world primary distillation capacities by region by the end of 2014. Table (3-1) compares world primary distillation capacities by the end of 2013 and 2014.

Figure 3-2

Distribution of World Primary Distillation Capacity by Region, End of 2014

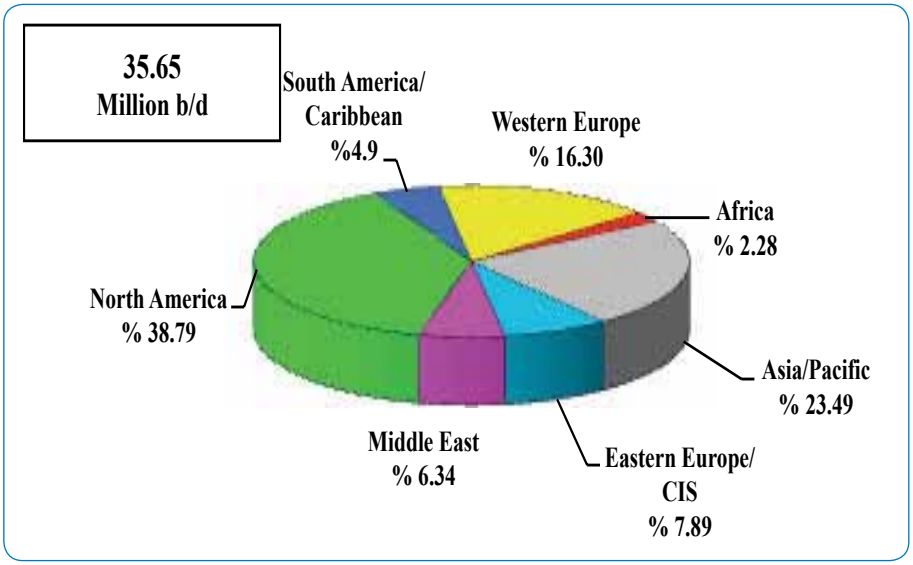


Despite the increase recorded in Asia Pacific region, the total capacity for catalytic conversion processes, which include fluid catalytic cracking (FCC), catalytic hydrocracking, catalytic reforming, and isomerisation declined by the end of 2014. It totalled to 35.65 million b/d compared to about 35.74 million b/d at the end of 2013, representing a decline of 0.24% due to the closure of refineries in Western Europe and the USA.

Figure (3-3) shows the distribution of world catalytic conversion capacity by region by the end of 2014. **Table (3-2)** compares world catalytic Conversion capacity by region in 2013 and 2014.

Figure 3-3

Distribution of World Catalytic Conversion Capacity by Region, End of 2014



The decline concentrated in the total capacity of catalytic cracking processes (by 50,000 b/d, or 0.34%), and catalytic hydrocracking (by 40,000 b/d, or 0.56%). No change worth mentioning in the total catalytic reforming capacity or isomerisation, since the hike resulting from operation new refineries in Asia/Pacific was faced by a drop in Western Europe due to closing of refineries.

Table (3-3) compares the total catalytic conversion capacities at the end of 2013 and 2014.

Figures (3-4), (3-5) and (3-6) show comparisons among world catalytic reforming capacity by region, catalytic cracking, and catalytic hydrocracking at the end of 2013 and 2014.

Figure 3-4

Comparison of World Catalytic Reforming Capacity and Isomerisation by Region, End of 2013 and 2014

(%)

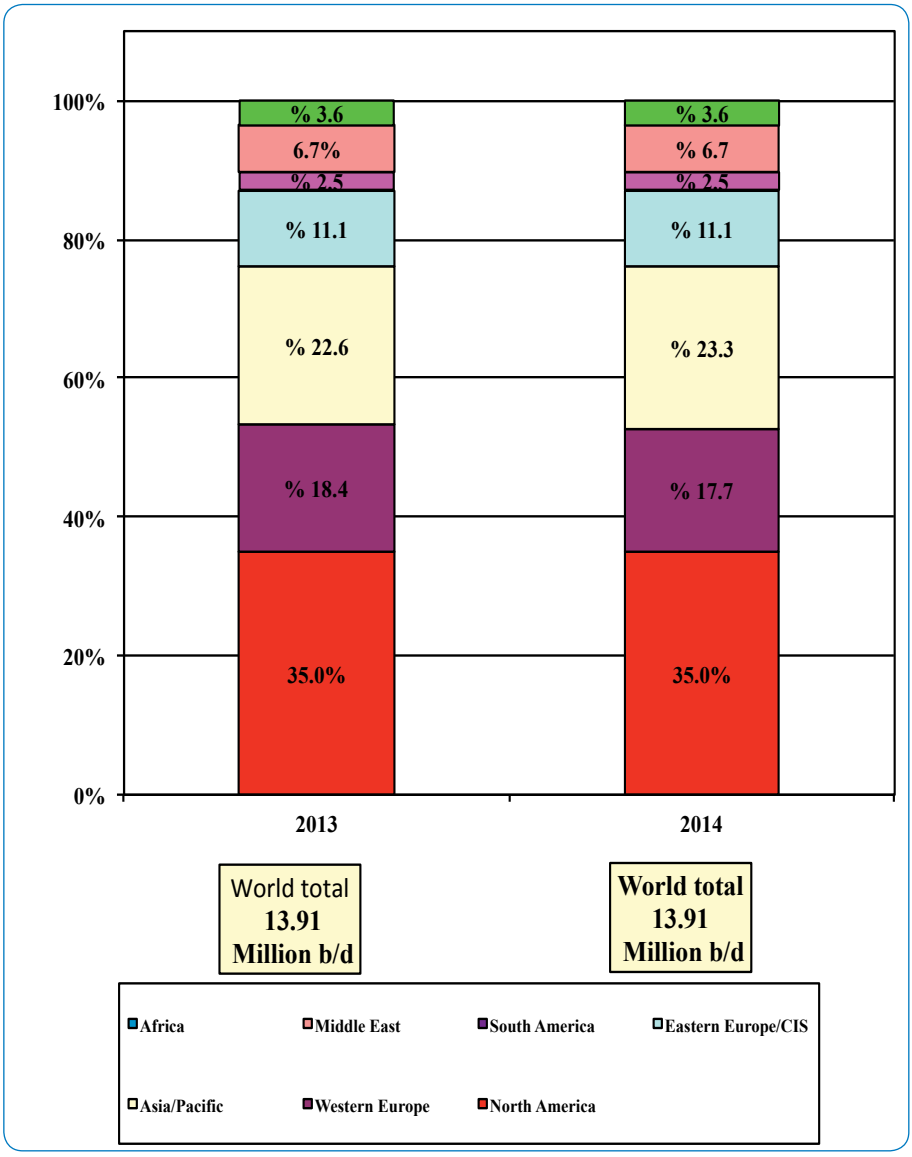


Figure 3-5

Comparison of World Fluid Catalytic Cracking Capacity by Region, End of 2013 and 2014

(%)

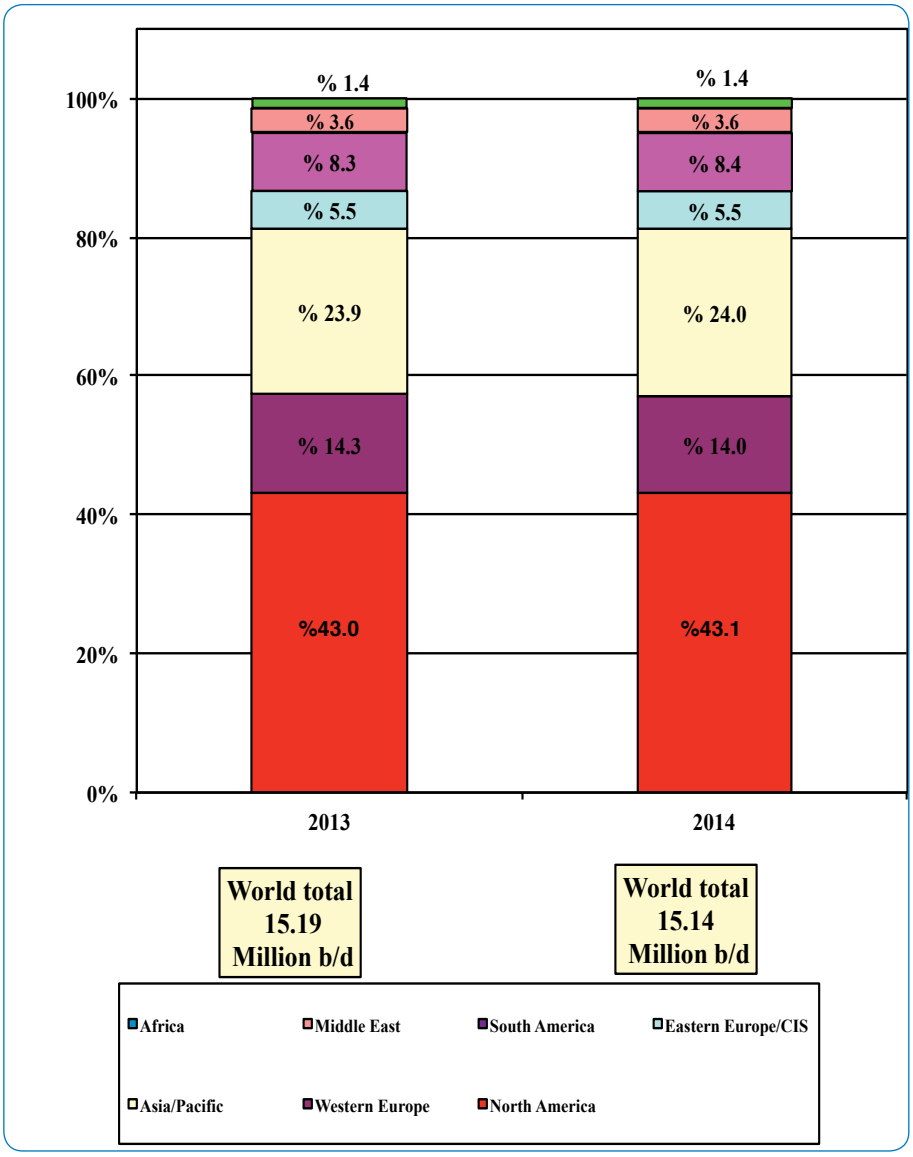
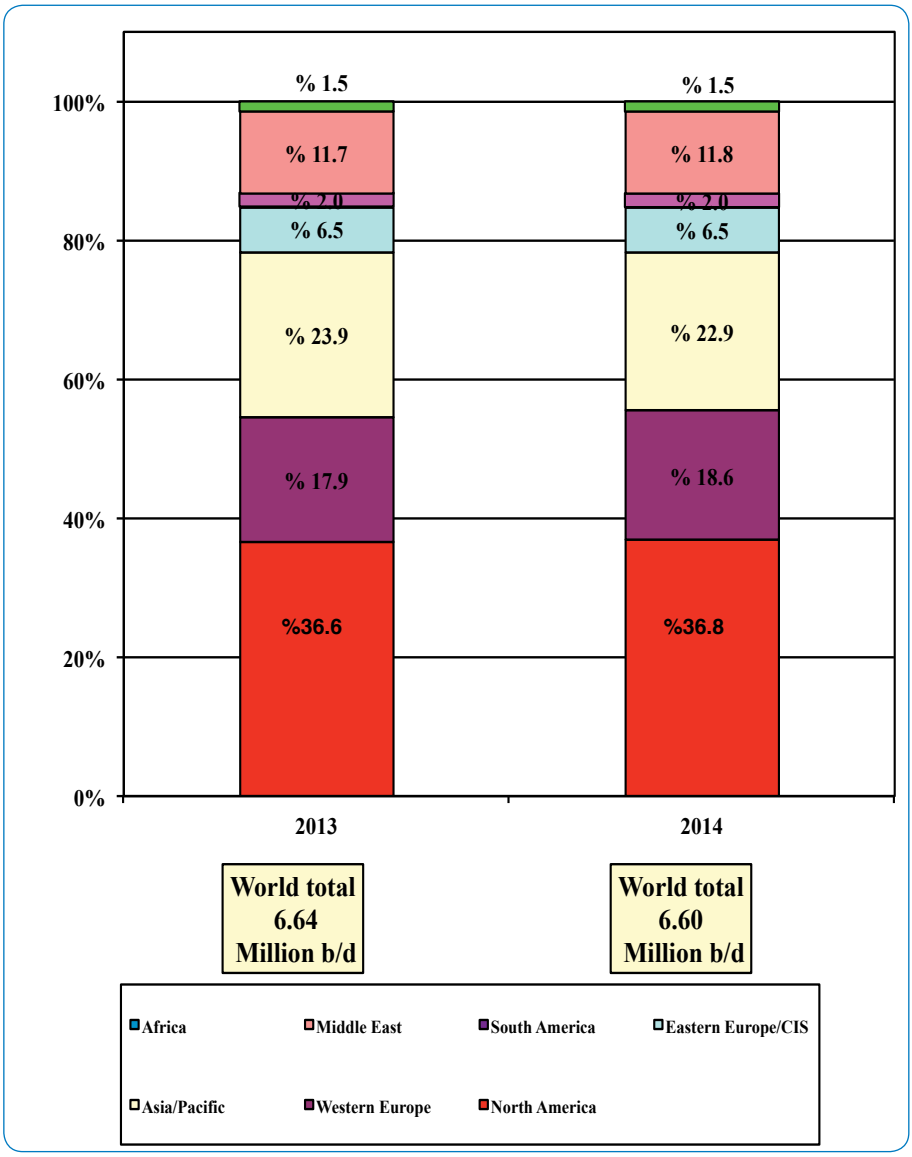


Figure 3-6

Comparison of World Hydrocracking Capacity by Region, End of 2013 and 2014

(%)



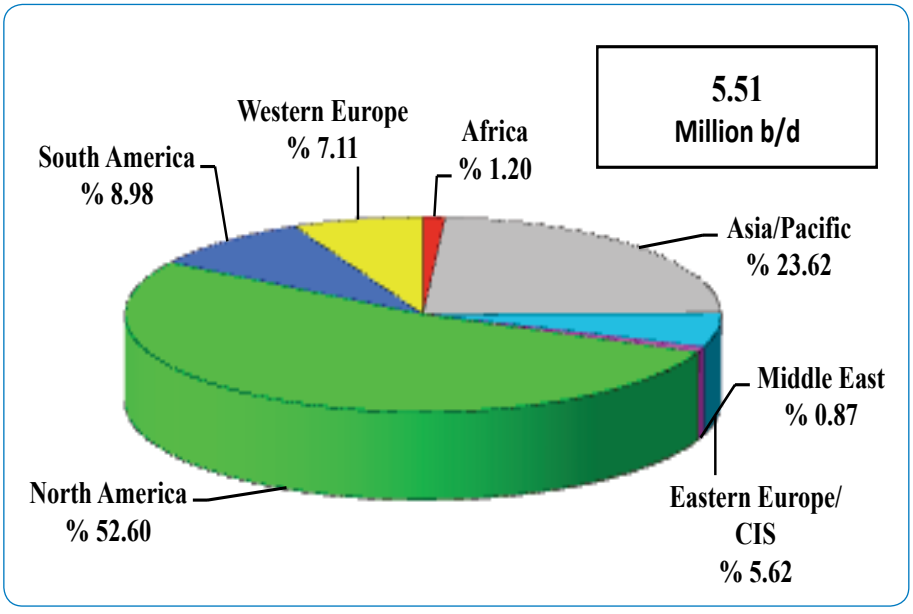
As for coking capacity, 2014 has registered an increase of 250,000b/d, representing a hike of 4.77% from its 2013 levels, as it reached 5.51 million b/d by the end of 2014 compared to 5.26 million b/d by the end of 2013.

The increase is centred in Western Europe by about 50,000 b/d (14.62%) as a result of putting "Cartagena" refinery into operation in Spain, also in Asia/Pacific by about 100,000 b/d (8.32%), and inNorth America by 100,000 b/d compared to 2013.

Table (3-4) shows a comparison between world capacity for coking worldwide at the end of 2013 and 2014. Figure (3-7) shows the distribution of coking capacities worldwide at the end of 2014.

Figure 3-7

Distribution of Coking Capacities Worldwide
End of 2014



On the other hand, total hydrotreating capacity in 2014 recorded an increase of 160,000 b/d, or 0.33 %, reaching 47.52 million b/d from 47.36 million in 2013. The increase came from Asia Pacific

with about 250,000 b/d or 2.03%, North America with 160,000 b/d, and the Middle East with 54,000b/d. However, Western Europe registered a decline of 250,000 b/d or 2.46% due to refineries' closure.

Table (3-5) compares total world hydrotreating capacity by region at the end of 2013 and 2014. Figure (3-8) shows the distribution of total hydrotreating capacity by region at the end of 2014.

Figure 3-8

Distribution of Total Hydrotreating Capacity by Region

End 2014

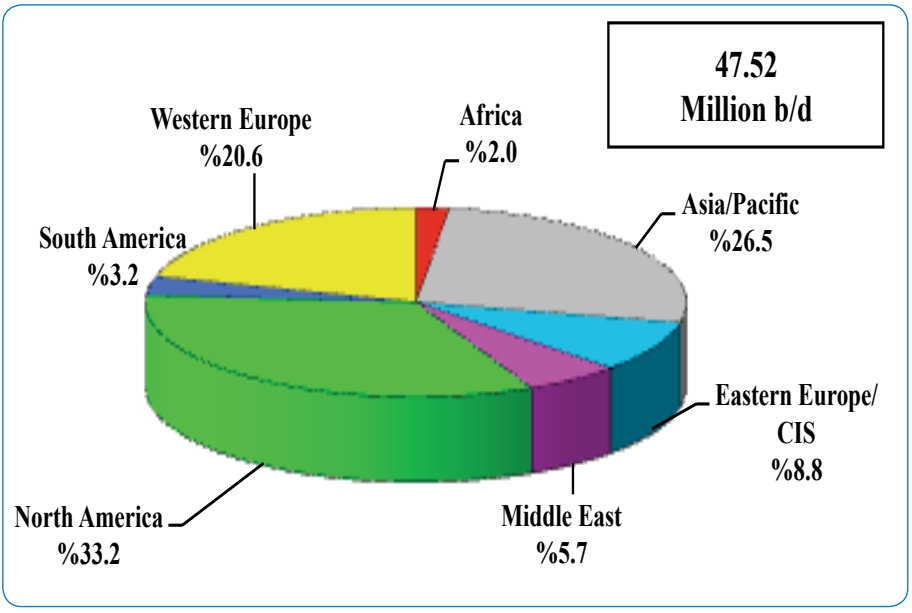


Table (3-6) lists the top 25 oil refining companies that own most of the refinery capacity in the world. The table includes also partial shares in refineries that the company do not wholly own.

Slight changes in positions took place in 2014: Formosa Petrochemical Co. made it to the list and ranked 25th to replace Sunoco Inc. This is due to selling its Marcus Hook and another refinery in Pennsylvania. The second change happened with Phillips

66 and Chevron Corp. swapping the ninth and tenth ranks as a result of an amendment in their declared statements.

Table (3-7) lists the world's largest refineries with a minimum capacity of 400,000 b/d at the end of 2014.

Following are the most significant developments in the oil refining industry worldwide in 2014:

1-1 Asia Pacific

Heavy residues cracking capacity percent on crude has risen compared to primary distillation capacity in Japanese refineries from 10% in 2010 to 13.1% in 2014 due to the execution of various development projects for existing refineries in a response to the requirements of the Japanese government decision on boosting the operational efficiency of the oil refining industry. The decision includes increasing the ratio of cracking to crude oil distillation in refineries from 10% to 13% minimum by 2014.

In November 2014, the Chinese National Petroleum Corporation (CNPC) and Russia's Rosneft endorsed a feasibility study for a project to construct the Tianjin refinery, to the east of Tianjin port, with a capacity of 260,000 b/d. The project also includes a unit to produce paraxylene with a capacity of 1.4 million tons/year. The refinery is due for operation before the end of 2020.

Rosneft will be the prime crude importer for the refinery which will be given the oil import/petroleum products export rights, as well as, the possibility of selling the products to the Chinese government.

In June 2014, India's government officially approved the government-owned Hindustan Petroleum Corp. Ltd. (HPCL) to set up its proposed refinery and petrochemical complex in Barmer district, Rajasthan. The planned refinery will have a crude processing capacity of 200,000 b/d. The project cost is estimated at $6.85 billion and construction time at 4 years.

Mangalore Refinery & Petrochemicals (MRPL) announced operating the third phase units of the Mangalore refinery expansion

and upgrading project. The expansion project units include a fluidized catalytic cracking unit (FCC) at a capacity of 45,000 b/d, a 60,000 b/d delayed coker, and a 16,000 b/d hydrogen process unit for gasoil produced by the coker unit. The project also includes other service units like sulphur recovery unit , and a hydrotreater unit. The project was announced in 2010 as part of a plan to upgrade the refinery's refining capacity from 190,000 b/d to 300,000 b/d, in addition to upgrading the complexity of the refinery and improving its profitability, as well as, achieving a better capability to handle cheap heavier and sourer crude.

In August 2014, Pakistan's National Refinery Ltd. (NRL) has let a contract to China National Chemical Engineering Corp. Ltd. (CNCEC) for work related to the upgrade and expansion of its refining complex in the Korangi Industrial Zone, about 9 miles southeast of the center of Karachi. The project includes the installation of a high-sulfur diesel desulfurization plant with a capacity of 15,000 b/d, and an isomerization plant with a capacity of 5,000 b/d. The project aims at enabling the refinery to increase diesel and gasoline production to meet domestic demand, as well as, to upgrade product specifications to help the plant meet Euro-2 environmental standards, the diesel desulfurization unit is scheduled to be commissioned by December 2015.

Work is still ongoing at Nghi Son Refinery to be installed in North Thanh Hoa Province in Vietnam, 180 km south of the capital of Hanoi. Nghi Son Refinery and Petrochemical project will have the capacity to process 200,000 barrels of crude oil a day at a total cost of $6 billion. It will be the biggest refinery in Vietnam and will cover 60% of the domestic market need of oil products. Production is expected to start in 2018. The joint venture is owned by Kuwait Petroleum International (KPI) by (35.1%), Japan's Idemitsu Kosan Co. Ltd. (35.1%), Vietnam's government- owned PetroVietnam (25.1%), and Japan's Mitsui Chemicals, Inc. (4.7%).

In Australia, BP- PLC announced that it intends to halt refining operations at its 102,000 barrels per day (bpd) Bulwer Island refinery in Brisbane, by mid-2015.

Following the closure of its 79,000 b/d Clyde refinery in Sydney, Shell Australia announced that it was looking for buyers for its other remaining refinery in Australia.

PT Kreasindo Resources Indonesia sealed an agreement with Iranian firm Nakhle Barani Pardis (NBP) Co. for the construction of a $3 billion heavy oil refinery in West Java with a capacity of 300,000 b/d. Project shares will be distributed as follows 70% for the Indonesian company and 30% for the Iranian company that will supply the refinery with heavy oil.

The Indonesian National Oil Company PT Pertamina has selected Axens to conduct a Bankable Feasibility Study for the modernization and capacity expansion of Plaju refinery. The objectives of the project are to improve Plaju refinery's competitiveness to first quartile standards in terms of gross refinery margin through crude processing flexibility to increase the capacity to produce Euro IV standards products to meet increasing domestic demand in the Indian market.

The project is part of a comprehensive strategy to develop all other existing refineries to enable them refine imported heavy crude oil due to the decline in the domestic oil production.

Singapore Refining Co. Pte. Ltd. (SRC) has let a construction contract to JGC Corp. for expansion work at its 290,000-b/d Jurong refinery in Singapore. Under the contract, JGC will perform the engineering, procurement, and construction work for a 26,000-b/d gasoline desulfurization unit, an amine treating unit, a heavy naphtha splitter, and a two-train 72-Mw cogeneration unit. The aim of the project is to produce motor gasoline meeting Euro 4 and 5 specifications. The project is due to be commissioned in 2017.

Petronas announced the start of construction work at its integrated refinery and petrochemical complex at Pengerang in southeastern Johor, Malaysia. The project cost is estimated at about $27 billion. Construction work scheduled to be completed in the beginning of 2019.

1-2 North America

The growth of shale oil production in the USA has encouraged many refining companies to prepare plans on the development of the oil refineries' flexibility to process this kind of oils. A number of these plans is under execution while others are still pending for more clarifications on the future crude oil export policies which are expected to be announced by the US government.

BP Plc announced the commissioning of all new units in its 413,500 b/d Whiting refinery, Indiana. The refinery's upgrading project includes a 102,000 b/d coking unit, a 105,000 b/d gasoil hydrotreater, a revamping of 250,000 bpd crude utilities, and other utilities. The project aims at upgrading the refinery's capacity to process heavy and sour crude oil from 20% to 80% of the total refined crude.

Husky Energy announced that it will upgrade its 161,500 b/d Lima, Ohio, refinery to process an extra 40,000 barrels of Western Canada heavy crude oil per day for about $300 million. The project is scheduled for completion in 2017.

1-3 South America

In Brazil, Petrobras announced the commissioning of the first phase of the new 115,000b/d Arnest refinery project. The second phase is expected to start operating by the end of 2015 to increase the refinery's refining capacity to 230,000 b/d. The refinery is designed to process (API° 16) heavy crude.

In Venezuela, construction activities have started for the expansion and modernization at Petroleos de Venezuela SA's (PDVSA) 190,000-b/d Puerto La Cruz refinery in eastern Venezuela. The project aims at refining heavy crude oils, and increasing high quality oil products rates. The project cost is expected to hit $4.8 billion. It is scheduled to start operating in 2018.

1-4 Western Europe

Due to the low profit margins of the refinery industry in Western Europe as a result of abundant refining capacities and declining demand for oil products, some refining companies are seeking to execute modernizing and upgrading projects for their existing refineries to boost their capacities on converting cheap heavy residues to high-value light products like ULSD. Here are some examples:

- France's Total SA announced a project to modernize its 360,000b/d Antwerp, Belgium refinery and petrochemical complex at a total cost of $1.3 billion. The project aims at expanding and boosting its refinery complex production capacity. It is due for completion in 2017.
- ExxonMobil Corp. announced it plans to install a new delayed coker unit at its 320,000 b/d Antwerp refinery to convert heavy, higher sulfur residual oils into high-quality light products.

On another note, TotalErg, a joint venture between France's Total (49%), and Italy's Erg (51%), announced the closure of its 90,000 b/d Rome Refinery in Italy. It was converted into a product storage terminal.

Also, another 55,000 b/d refinery, Mantuva, Italy, has been converted into a product storage terminal.

1-5 Africa

Construction work is still ongoing in Angola government- owned Sonangol in Sonaref refinery in Benguela with a capacity of 200,000 b/d at a cost of $8 billion. The refinery will process oil produced in Angola. It should start operating in 2016.

Nigeria's Dangote Group has signed an agreement with Engineers India Ltd. (EIL) for project management consultancy (PMC) and engineering, procurement, and construction management (EPCM) for a new 400,000b/d refinery and a 600,000b/d polypropylene plant in Lekki Free Trade Zone, near Lagos, Nigeria.

2. Developments in Arab Countries

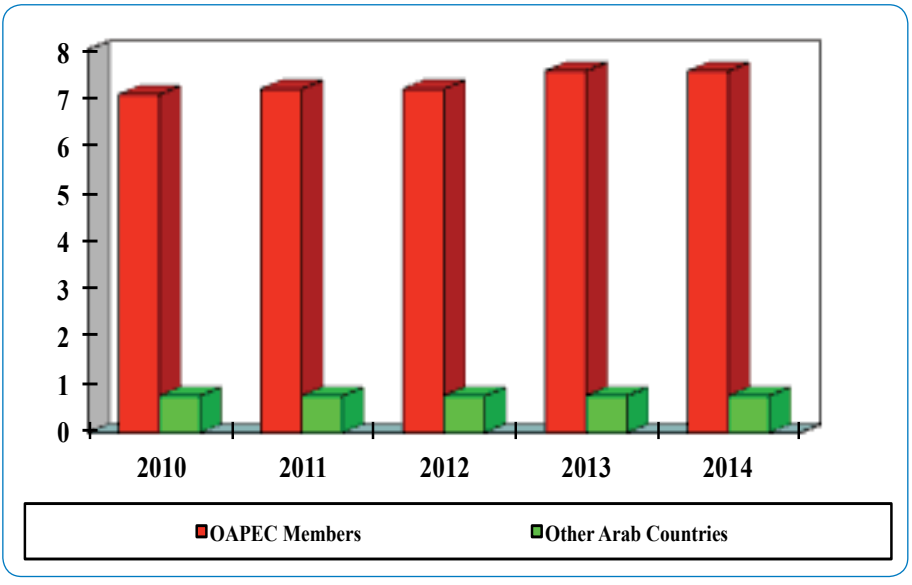
Total primary distillation capacity of refineries in the Arab states in late 2014 has maintained its 2013 level. Total primary distillation capacities of the 51 oil refineries in OAPEC member countries accounted for 7.55 million b/d, or 90.72% of the total primary distillation capacity of the Arab countries amounting to 8.322 million b/d. Total primary distillation capacity at the 11 oil refineries in other non-OAPEC Arab countries accounted for the remaining 772,000 b/d, or 9.28%.

Figure (3-9) shows the evolution of primary distillation capacity in the Arab countries from 2010 to 2014. Table (3-8) shows the evolution of primary distillation capacity in the Arab countries from 2010 to 2014 and the number of refineries in 2014.

Figure 3-9

Evolution of Primary Distillation Capacity in the Arab Countries, 2010-2014

(Million b/d)



A long list of projects, totalling almost 4.9 million b/d of distillation capacity announced by the Arab countries is still facing many difficulties in execution due to several reasons. It is expected that only about 2.4 million b/d of additional capacity will come into operation during 2014-2018. Major additional capacity is expected from new grassroots projects in Yanbu and Jizan in Saudi Arabia, as well as Ruwais refinery in United Arab Emirates, Mina Al Zour refinery in Kuwait, four refineries in Iraq, and four refineries in Algeria. Tables (3-9) and (3-10) summarize project status of the new refineries in OAPEC and non-OAPEC Arab countries in 2014.

Following are the most important developments in the Arab countries in 2014.

2-1 Algeria

Work is ongoing in Algeria to construct a new 100,000 b/d refinery near the city of Biskra 300km south of Algeria at a cost of $3 billion. This refinery is the first of four new similar configuration plants totalling 400,000 b/d set to come on stream by 2018. These new refineries will be in Ghardaia, Tiaret and Hassi Messaoud.

As for the upgrade and expansion of existing refineries, it was announce that work to expand Skikda refinery to 335,000 b/d from 300,000 b/d for boosting diesel and gasoline production is underway and set for completion mid-2015.

2-2 Bahrain

France's Technip was awarded a $55 million contract by The Bahrain Petroleum Company (BAPCO) to develop the Front-End Engineering Design (FEED) of the Sitra refinery. It is scheduled to be completed at the end of 2015.

BAPCO aims at enhancing the refinery configuration, by increasing the throughput from 267,000 to 360,000 barrel per day at a cost of about $6-8 billion. The project is scheduled to be completed over several stages; the first stage to start in 2017 while the final stage will be in 2020.The project includes setting up new units, replacing many

old ones in order for the refinery to be able to produce high value oil products like ULSD to be exported to European and other markets that observe strict measures on fuel transport.

The planned new units under the modernization program include vacuum gasoil hydrocracking unit, diesel hydprocessing unit, delayed coking unit, vacuum distillation unit, and a hydrogen unit.

2-3 Egypt

Korea's GS Engineering and Constructions, and Japan's Mitsui started construction on the long-delayed refining upgrade project to be built within the existing Mostorod Petroleum Complex (MPC), run by Egyptian Refining Co. (ERC). The project was supposed to start production back in 2011 but has been delayed due to the required funding for the project which is estimated at about $3.7 billion.

The project is designed to address Egypt's demand for diesel and reduce the country's dependence on imports from external markets. It will also reduce about 93,000 tons/year of sulfur emissions, which constitutes 29% of the total environment pollutants in Egypt.

The project is a hydrocracking complex without an atmospheric distillation unit. It will receive CORC fuel oil as feedstock at a rate of 107,200 b/d. In addition to an 80,000-b/d vacuum distillation unit and 40,000-b/d hydrocracker, the project includes a 25,000-b/d delayed coker, a 23,000-b/d naphtha hydrotreater, and a 32,000-b/d distillate hydrotreater. Production is due to start in 2017.

The foundation stone for the expansion of the MIDOR refinery in Alexandria has been laid to increase its refining capacity from 100,000 to 160,000 barrels of crude oil per day. The project aims at meeting the increasing domestic demand for vehicles fuel and reducing Egypt's dependence on imports from external markets. The project will contribute to doubling the refinery's production of diesel from 41,000 b/d to 82,000 b/d, and gasoline from 25,000 b/d to about

72,000 b/d. The project's cost is estimated at one billion US dollars. It is due to start operating in 2017.

Non-OAPEC countries' developments can be summed up as follows.

2-4 Iraq

In line with its plan to increase the refining capacity from 860,000 b/d to 1.5 million b/d by 2020 to meet domestic demand for oil products, the Iraqi Oil Ministry is conducting a study to choose the best possible option to increase the existing Biji refinery northern Iraq whose current capacity is 310,000 b/d.

The Iraqi Oil Ministry announced it started procedures for the primary operating of the 70,000 b/d atmospheric distillation unit at Basra Refinery, which will increase the refinery's capacity to 210,000 b/d.

The Iraqi government awarded an EPC contract for the Karbala refinery project to Korea's Hyundai Company. Main units consist of a 41,500 b/d naphtha hydrotreating unit, a 25,500 b/d catalytic reforming unit, a 20,000 b/d kerosene hydrotreating unit, a 28,000 b/d diesel hydrotreating unit, a 36,000 b/d vacuum gasoil hydrotreating unit, and a fluid catalytic cracking (FCC) unit.

Misan refinery project's execution has been delayed due to some contract-related problems with Switzerland's Satarem that was signed in October 2013 on a BOO basis to build and operate the refinery at a cost of $6 billion with a capacity of 150,000 b/d.

The 300,000 b/d Al Nasriyah refinery project's execution has been delayed as the Iraqi government decided to annex the project to Al Nasriyah Oilfield Upgrading project.

In Iraq's Kurdistan, Qaiwan Global Energy DMCC (Qaiwan) Group has sent the call for bid (CFB) regarding the engineering, procurement and construction (EPC) contract for its Bazian Refinery Expansion Project to raise its capacity from 34,000 b/d to 84,000 b/d.

The French engineering company Technip is currently conducting the project's final engineering designs. It includes constructing a 50,000 b/d atmospheric crude distillation unit (CDU), a 33,500 b/d Naphtha hydrotreating unit, a 22,500 b/d continuous catalytic reformer (CCR), a 10,500 b/d isomerization unit, a 13,500 b/d kerosene hydrotreating unit, in addition to other offsites and utilities like an amine regeneration unit, and a sulfur recovery unit. The project is due to operate in 2018.

The Bazian Refinery is the second of two existing refineries in Kurdistan of Iraq with a capacity of 34,000 b/d. The first refinery is Kalak, 40km from Erbil the region's capital, and is operated by the Kurdish Kar Group. The refinery started production in 2009 with a capacity of 20,000 b/d, which was later increased to 80.000 b/d, using crude from Kirkuk's largest oilfields "Khurmala".

2-5 Kuwait

The Kuwait National Petroleum Company (KNPC) awarded Van Oord a contract for land reclamation work in the new Al Zour refinery.

The new refinery will produce 615,000 b/d. The Al Zour refinery is part of the clean fuel project that involves revamping of the existing other three refineries at a cost of $15-17 billion. The revamping project aims to boost the capability of the existing refineries to produce high quality fuel, according to international standards. The project includes the following work:

- Capacity expansion at Mina Abdulla Refinery from 270,000 b/d to 420,000 b/d, to cover the shortfall of the refining capacity of Mina Al- Ahmadi refinery, which will result from shutting down one of its 86,000 b/d distillation units.
- Installing 156,000 b/d heavy atmospheric residue conversion unit at Mina Al Ahmadi refinery.
- Installing a new 45,000 b/d hydrotreating unit at Mina Al Ahmadi refinery.

Within the framework of its plans to boost its participation in external investment projects, Kuwait Petroleum International (KPI) announced the possibility of returning to negotiations to join the refining and petrochemicals complex project to be established in Zhanjiang in China's southern coast, despite earlier reports that the Chinese government decided to halt some new petrochemicals refining projects. The plant will include a 300,000 b/d crude refinery, and a one million tons/year ethylene unit. The project will make Kuwait the second Arab oil producing country in China after KSA.

Construction work started in Nghi Son Refining and Petrochemicals project northern the Vietnamese Thanh Hoa Province at a total cost of $6 billion. The refinery's capacity is 200,000 barrels per day. It will refine Kuwaiti heavy crude oil. Production is expected to start in 2017. The project is owned by Kuwait Petroleum International Company (KPI), and Japan's Idemitsu Corp (35.1% each), in addition to Vietnam's government- owned PetroVietNam, and Japan's Mitsui Chemicals Inc by 25.1% and 4.7% respectively.

As for constructing a new oil refinery project in Balongan West Java, Indonesia, in collaboration with Pertamina Co. with a refining capacity of about 200,000 to 300,000 b/d, negotiations are still ongoing between KPI and the Indonesian government without any final decision on the project yet.

2-6 Libya

After the endorsement of the Libyan Government of a plan to construct two new oil refineries, the first in Tobruk east Libya with a capacity of 300,000 b/d; and the other in Ubari southeast with a capacity of 50,000 b/d, preparations are ongoing now to call for basic design bids.

Tobruk refinery aims at meeting most of the oil products needs of the eastern area. The little refinery aims at meeting the oil products needs of the southern area, where population is relatively small.

The plan also includes doubling the refining capacity of Al Zawiya

refinery to 300,000 b/d and Ras Lanuf refinery, the biggest in Libya, to 300,000 b/d at a cost of $6 to 7 billion.

2-7 Qatar

Qatargas announced that it started operating a 54,000 b/d diesel hydrotreater (DHT) at the Laffan-1 refinery and the new Laffan-2 refinery. The project aims to increase Qatar's high quality production of Euro-5 (10 parts-per-million sulfur) ultra-low sulfur diesel (ULSD). Sulphur produced by the unit will be exported to external markets.

2-8 Saudi Arabia

Saudi Aramco announced its 10-year strategy to increase its total refining capacity inside and outside KSA to about 8-10 million b/d with up to $100 billion investments.

YASREF refinery project made significant progress. Operations expected to start in the beginning of 2015.

YASREF refinery project is a joint venture between KSA's The Yanbu Aramco and China's Sinopec Group at a capacity of 400,000 b/d. It is one of the most developed refineries to process Arabian heavy oil into high quality products conforming to Euro-5 standards. YASREF will produce about 90,000 b/d of gasoline, 263,000 b/d of diesel, along with 6,300 tons/day of coke and 1,200 tons/day of sulphur.

Saudi Aramco announced that its Jazan refinery starting date will be postponed to 2017 instead of 2016 due to some amendments to the refinery's annexed project like increasing the capacity of the IGCC from 3 gigawatts to 4 gigawatts (5 units with a capacity of 800 megawatts each). Petrochemicals unit to boost the utilisation of the refinery's products will be added.

Jazan refinery's capacity is 400,000 b/d. It will process the locally produced oils like Arab heavy and Arab medium.

Construction work is ongoing in Saudi Aramco and Japanes Sumitomo Chemical's joint point venture, Rabigh II, with shares distributed by 37% for each of the two companies while the remaining shares will be allocated for the public.

Rabigh II includes an integrated refinery with a petrochemicals complex. The project will produce 4.85 million tons/year of high quality petrochemical products, most of which are produced for the first time in KSA for the first time. The project cost is estimated at about $8.5 billion and due to start production in 2016.

Construction work is still ongoing in the Clean Fuel Project at the 120,000 b/d Riyadh refinery. The Riyadh refinery upgrade is part of a Saudi Aramco plan to reduce the sulphur content of its refineries' gasoline and diesel output to a maximum of 10 parts per million. The project will include installing new isomerization, naphtha splitting and hydrotreating units, as well as addition of new equipment. The project cost is estimated at $300 million.

2-9 United Arab Emirates

The Dubai-based private sector Petrixo Oil & Gas Company said that it has completed the preparation of studies and engineering designs, and selected the required technologies to set up an $800 million biofuel refinery in the Free Zone, Fujairah. The refinery has a design capacity of 23,000b/d of bio-fuel products, which include bio-diesel, green diesel, bio-jet, bio-naphtha and bio-LPG. The refinery, which is due to be completed by the end of 2015, depends on turnip and canola seeds as feedstock for bio-fuel production. Beside production units, it also includes biomass waste packaging unit. The aim is to sell bio-fuel to the GCC market, while the bio-mass residual will be sold to Asian markets. The refinery will be the first of its kind in the Middle East, and will top the world in terms of size and number of products.

Emirates National Oil Co. (ENOC) has let a front-end engineering and design (FEED) contract to KBR for the upgrade of its condensate

refinery at Jebel Ali in the Jebel Ali Free Zone, Dubai. The planned upgrade will add processing units that include jet and diesel hydrotreaters as well as an isomerization unit to produce products meeting Euro-V standards. The company did not disclose the capacity of these units or their date of completion.

2-10 Jordan

Jordan Petroleum Refinery Company is considering plans on the upgrading of Zarqa oil refinery in order to take the appropriate decision on one of the following three options:

- Adding some unleaded-gasoline units and improving diesel specifications at a cost of $400 million
- Limited expansion of the refinery to improve product specifications and transform heavy fuel oil into light products at a total cost of $900- $1100 million
- Comprehensive expansion of the refinery to increase high quality production and transforming heavy fuel oil into high quality light products at a total cost of $2 billion

2-11 Oman

Work is still in progress in Sohar refinery's upgrading and expansion project from 116,000 b/d to 197,000 b/d. The project aims to enable the refinery to refine locally produced heavy oils through increasing the existing downstream units' capacity and adding new ones consisting of a 71,500 b/d atmospheric distillation unit, a 96,800 b/d vacuum distillation unit, a 66,450 b/d hydrocracker, and a 42,400 b/d solvent deasphaltating unit.

Oman Oil Refineries & Petroleum Industries (Orpic) awarded the engineering, procurement and construction contract (EPC) of Sohar Refinery expansion project to the UK's Petrofac and Korea's Daelim in 2013 at a cost of $2.1 billion. The project is due for completion in 2016.

Construction work is ongoing in Duqm Refinery project, which consists of a 230,000 b/d refinery and a petrochemicals complex at a

cost of $6 billion. The project is a joint venture between state-owned Oman Oil Company (OOC) and Abu Dhabi International Petroleum Investment Company (IPIC). The refinery is scheduled for start up in 2017.

2-12 Sudan

The plan to increase the refining capacity of the three existing refineries that was announced by the Sudanese Government is still under consideration.

The plan includes increasing the refining capacity of Khartoum refinery from 100,000 b/d to 200,000 b/d, Port Sudan refinery from 25,000 b/d to 50,000 b/d, and Al Ubayyidh refinery from 15,000 b/d to 50,000 b/d.

II. PETROCHEMICAL INDUSTRIES

1. World Developments

World ethylene production capacity has risen from 143.40 million tons/year in the beginning of 2013 to 146 million tons/year in the beginning of 2014, representing an increase of 2.6 million tons/year, or about 1.82%.

The increase is due to the expansion of Jurong Island Petrochemicals Complex in Singapore, a subsidiary of ExxonMobil Chemical, from 900,000 tons/year to 3.5 million tons/year in Asia/Pacific region.

Figure (3-10) shows the annual increases in the world's existing ethylene production capacities during the period (2001- 2013).

Figure 3-10

Increases in World's Existing Ethylene Production Capacity (2001 - 2013) (Million tons/year)

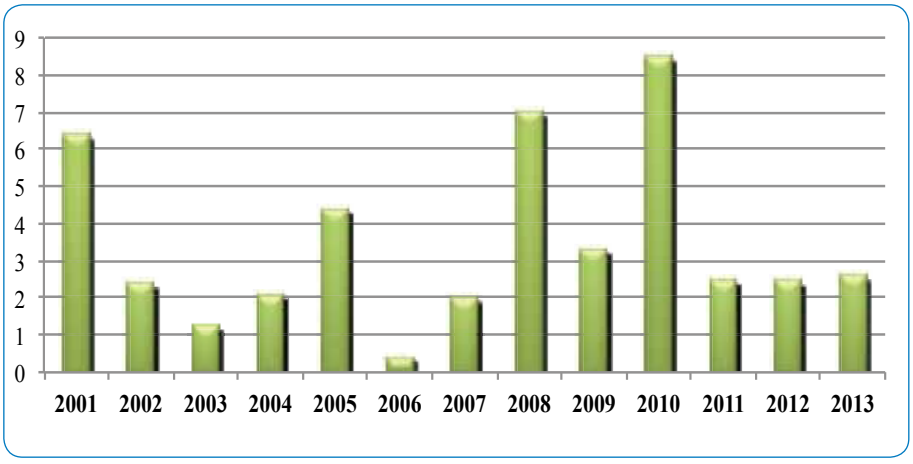


Table (3-11) shows the world's ten largest ethylene production complexes by the beginning of 2014. Jurong Island Petrochemicals Complex in Singapore, a subsidiary of ExxonMobil Chemical,

topped the list replacing Canada's Foromosa Chemical's Joffre, Alta., Complex that came second. It also pushed Equate's Shuaiba Complex in Kuwait out of the list to be ranked eleventh.

Figure (3-11) shows the distribution of the total existing ethylene capacities worldwide in 2013.

Figure (3-11)
Distribution of Total Existing Ethylene Capacities in 2013 (million tons/year)

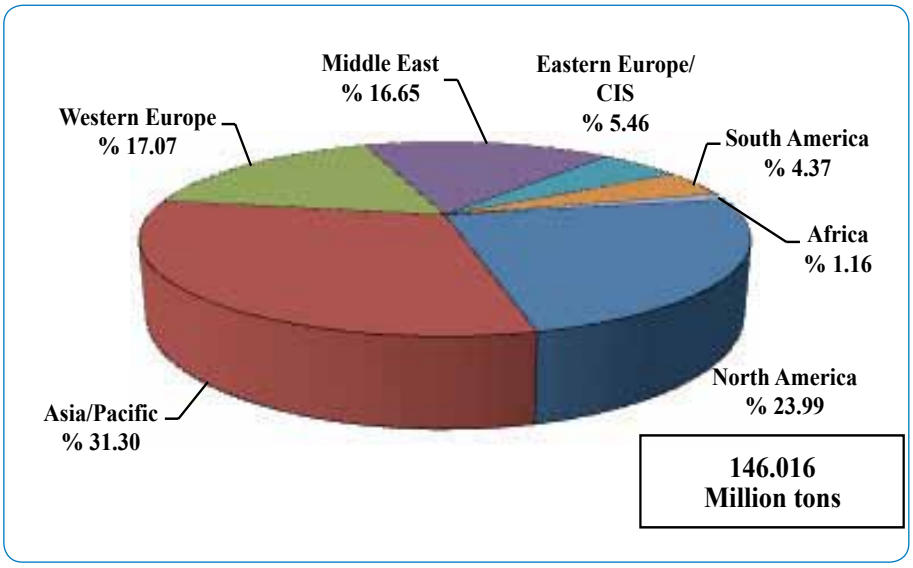


Table (3-12) compares the existing ethylene production capacity worldwide by regions in 2012 and 2013. Asia/Pacific registered the highest increase of 2.6 million tons/year due to the operation of Jurong Island Petrochemicals Complex in Singapore, a subsidiary of ExxonMobil Chemical. The table also shows an increase in Western Europe by 14,000 tons/year due to the expansion of one of the two steam crackers at Ruhr Oel GMBJ Gelsenkichen integrated with the petrochemicals complex in Germany, which is operated by BP PLC.

Table (3-13) shows the distribution of ethylene production capacity worldwide by countries in 2012 and 2013. It is noted that

the Singapore achieved the highest increase.

Table (3-14) lists the world's ten largest ethylene producers in the beginning of 2014. The table also shows the number of sites and the percentage of companies' actual shares in joint projects' ownership.

Following are the most important planned/ongoing projects around the world.

1-1 Africa

In South Africa, Sasol Ltd. announced that it inaugurated Sasol's new 47,000 tons/year ethylene purification unit, located at the Sasol Polymers Plant in Sasolburg. The company expects that half of the additional 47 000 tons of polyethylene will be reached within the first six months of operation, while the plant is expected to reach full capacity by 2017.

The ethylene purification unit was designed to address the growing domestic demand for polyethylene. The plant will also ensure better utilisation of Sasol's existing downstream polyethylene facilities. The plant was designed to reduce hydrocarbon flaring, which reduces the carbon footprint of Sasol's total ethylene production capacity in South Africa.

1-2 Asia- Pacific

In November 2012, China's Sinopec announced that it will boost the refining capacity at its Yangzi Petrochemical complex by 250,000 b/d, and expand its ethylene production by 800,000 tons/year. The joint venture's shares are distributed as follows 35% for South Korea's SK Corp., and the remainder 65% for Sinopec. The project construction is estimated to take three years at a total cost of $2.7 billion. The project includes construction 11 new production units, in addition to services units. The project will produce 2.3 million tons/year of more than 20 types of petrochemical products.

In December 2013, Technip was awarded by CNOOC Oil &

Petrochemicals Company Ltd a contract to supply its proprietary ethylene technology and process design package for a grassroots one million tons/year ethylene plant in Huizhou, Guangdong Province, China. The products of this ethylene plant will feed other downstream units at the complex, including a 300,000 metric tons /year grassroots cumene plant.

The new ethylene unit comes as part of the second phase of the integration project of CNOOC's Huizhou refinery endorsed by the Development and Reform Authority. The project is due for completion in mid-2015.

Following the reduction of ethylene production by 330,000 tons/year in 2012, Japan maintained its production capacity during 2013. Some producers announced plans to boost production instead of total closure of units.

In March 2014, Japan's Asahi Kasei and Mitsubishi Chemical have agreed to set up a joint venture that will operate their unified naphtha cracker at Mizushima in Japan.

Also, Asahi Kasei announced it will close its 500,000 tons/year naphtha cracker at Mizushima Complex, and join forces to operate the neighbouring Mitsubishi Complex. The company will start joint operations in April 2016 after executing the upgrading plan for the cracker unit at the Mitsubishi complex, which would boost its ethylene production capacity to 570,000 tons/year.

Mitsubishi Chemical announced shutdown of one of its two ethylene facilities with a capacity of 390,000 tons/year in Kashima Complex, eastern Japan, in order to cut the complex's fixed costs by $50 million/year. The step will be taken once the project on expanding the capacity of its second facility by 50,000 tons/yaer to reach 540,000 tons/year is completed.

In 2013, Sumitomo Petrochemical decided that it will close down an ethylene plant at its Chiba Works located in Chiba, in mid-2015.

In India, Technip was awarded by Reliance Industries Limited (RIL) a license, supply of an engineering and procurement services

contract for the Refinery Off-Gas Cracker (ROGC) plant. This contract is part of the expansion project being executed at RIL's world-scale Jamnagar refining and petrochemical complex in Gujarat, on the West coast of India. The ROGC plant will be among the largest ethylene crackers in the world. The products from that plant will be utilized as feedstock for the new downstream petrochemical plants.

In Indonesia, PT Pertamina has started in 2013 preparations for the construction and operation of a naphtha cracker. The cracker is to start up in Java or Sumatra in 2018 to produce 250,000 tons/year of ethylene, 400,000 tons/year of polyethylene, 350,000 tons/year of polypropylene, and 200,000 tons/year of polyvinyl chloride (PVC). The project is part of a plan to increase the company's share in the Indonesian petrochemicals market.

PT Chandra Asri Petrochemical- CAP has obtained loan facility amounting to $265 million from a group of local and international banks to complete its project on expanding the naphtha cracker at its Ciwandan Complex, Cilegon, in Banten province. The project's total cost is estimated at $380 million. The project will increase the unit's capacity from 600,000 tons/year to 860,000 tons/year. It will be put on stream by the end of 2015.

In South Korea, construction work is progressing at Korea's Petrochemical Industry (KPIC)'s ethylene oxide (EO) and ethylene glycol (EG) plant in Ulsan, South Korea according to the scheduled plan.

1-3 North America

Petrochemicals producers continue to execute capacity expansion projects at existing complexes as well as establishing new complexes along Texas and Louisiana coasts in the USA.

Axiall Corporation and South Korea's Lotte Chemical signed a Heads of Agreement to pursue a 50/50 joint venture arrangement for the design, construction and operation of a proposed 1 million metric tons/year ethane cracker in Louisiana. In addition, Lotte Chemical plans to begin a front-end engineering design (FEED) study for a

monoethylene glycol plant to be located adjacent to the potential cracker. Both plants could begin commercial operation in 2018 if the projects are approved by each of the companies.

Shin-Etsu Chemical's US subsidiary company Shintech Inc. has announced it applied to the State of Louisiana Department of Environment Quality for a permit to build a new plant that will produce ethylene with a production capacity of 500,000 tons/year. The company did not specify the plant's location or the date of completion.

In February 2014, Sasol commissioned its world's first commercial 100,000 tons /year plant to convert ethylene into high value Comonomers, at its existing petrochemial complex in Lake Charles, Louisiana.

In the beginning of 2014, Dow Chemical awarded a contract to Chicago Bridge & Iron (CB&I) for its proposed ethylene and propylene expansion projects on the US Gulf Coast in Texas and its polyethylene and propylene unit in Louisiana. The company did not disclose the cost of the contract, or the date of completion.

The company announced plans to start establishing a number of ethylene projects to benefit from the low price of feedstock that was made available by the shale gas production in the USA. Most important projects include:

- Improving the flexibility of ethylene cracker in Plaquemine, Louisiana, to enable the plant to receive ethane feedstock produced from shale gas. The project will be completed in 2015.
- Constructing a new ethylene plant at the US Gulf coast. Operations will start in 2017.
- Constructing a new propylene plant at its complex in Texas. Operations to start in 2015.

BASF-Total Petrochemicals announced starting of operations at its ethylene steam cracker's upgrading project to increase its capacity to 1 million tons/year at Port Arthur, Texas. It will also enable the plant to use ethane feedstock and improve its performance.

ExxonMobil announced the approval of the US Environmental Protection Agency for its project to expand its Baytown refining and petrochemicals complex, Texas, east Huston. The project includes building an ethane cracker unit with capacity of 1.5 tons/year and two polyethylene units with capacity of 650,000 tons/year each. Production is projected in 2016.

The US Environmental Protection Agency also approved Occidental Chemical Corp.'s project to establish an ethylene cracker at Ingleside, Texas, at Texas coast.

Lyondell Basell also announced the approval of the US Environmental Protection Agency for its project to expand ethylene production at its Channelview complex, and Corpus Christi Complex in Texas. Operation is projected in 2015.

Chevron Phillips Chemical Co. started construction at its petrochemicals project in Cedar-Bayou complex, Baytown, the US Gulf Coast, Texas. The project includes constructing a 1.5 million tons/year ethane cracker at Cedar-Bayou complex, and two polyethylene plants at Old Ocean complex, Texas, with a capacity of 500,000 tons/year. Plants are due to start operation in 2017.

In Canada, Williams Energy made a significant progress in executing NGL and Olefins treating units in Alberta. They aim at investing the gas produced from oil sands treatment units through establishing a recovery plant at the Canadian Natural Resources Incl.'s Horizon Complex.

It is worth mentioning that Williams plans to invest $500-600 million and start up service unit operations by mid-2016. Ultimate production of ethane, propane, ethylene, and propylene could reach 15,000 b/d by 2018.

In December 2013, NOVA Chemicals announced plans to execute a number of expansion projects at its existing complexes in Canada, in order to benefit from the competitive price of North America's NGL feedstock. NOVA Chemicals will expand its existing cracker's capacity by 20% from its current 839,000 tons/year. This comes in parallel with

the new cracker's unit project at the Corunna Ontario refining and petrochemicals complex due for completion before the end of 2018.

Nova Chemicals Corp. announced it will restart its low density polyethylene production (LDPE) unit, and its high density polyethylene production (HDPE) unit at its existing complex in Mooretown, Ontario, which imports ethylene via pipelines from Corunna complex.

NOVA said work is progressing at its transition of the Corunna polyethylene reactor at Joffre, which is expected to be completed in Q1 2016.

Mexico's Braskem Idesa confirmed that its petrochemical complex in the Coatzacoalcos-Nanchital region of the Mexican state of Veracruz, at a cost of $3 billion, is executed as scheduled. Production should start in 2015.

The complex will include a 1 million tons/year ethylene cracker; low-density polyethylene plant, high-density polyethylene plant, utilities, storage units, waste treatment unit, a 150-Mw combined-cycle power plant, and a logistics platform for shipment of 1 million tons/year of polyethylene via rail, or truck.

2. Arab Developments

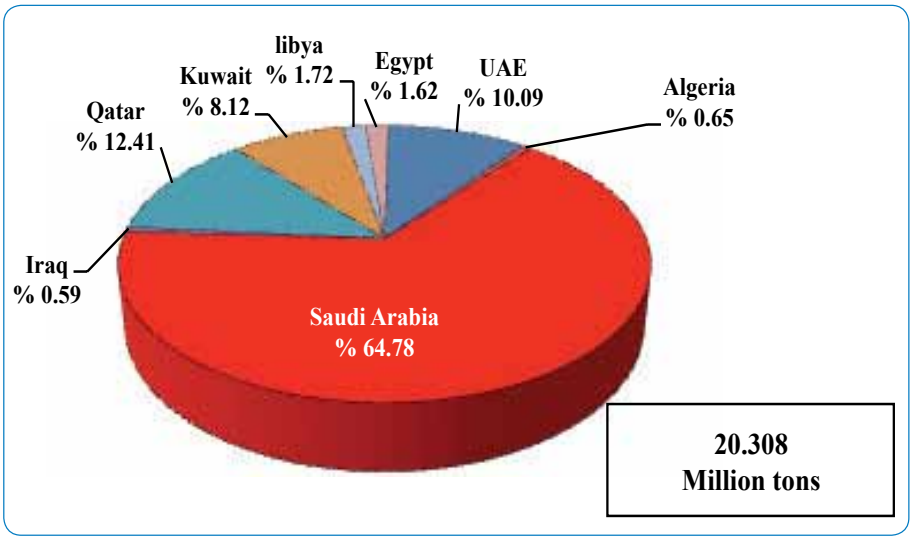
Total ethylene production capacity in Arab countries in 2013 has maintained its 2012 average without change at 20.3 million tons/year which led to the decline of Arab countries' ethylene production to 13.9% of the world's total, compared to 14.16% in 2012.

Table (3-15) shows the development of ethylene production in Arab countries (2009-2013), while Figure (3-12) shows the ddistribution of total ethylene capacities in Arab countries in the beginning of 2014.

Figure (3-12)

Distribution of Total Ethylene Capacities in Arab Countries, beginning of 2014

%



2-1 Algeria

Sonatrach has announced plans to establish a new petrochemicals complex, the largest in Algeria, with a capacity of 3 million tons/year. The complex will produce various types of chemical products like plastic and rubber. The project's cost is estimated at about $5-10 billion. It will receive naphtha supplies from neighbouring local oil refineries.

This project will replace the existing petrochemicals complex in Skikda, which has become uneconomical due to being obsolete and dependant on ethane feedstock. This is in addition to the low production capacity of its units, which consist of a 120,000 tons/year ethylene unit, a 130,000 tons/year HDPE unit, and a 48,000 tons/year LDPE unit.

On another note, Algeria's Sonatrach and Oman's Suhail Bahwan

Group (Holding) LLC (SBGH) have announced the possibility of starting production from their joint venture fertilizer plant under construction in Arzew city, after postponing it for three years; the project was scheduled for completion in 2012. The delay resulted from a shortage of natural gas produced in Algeria, which will be used as feedstock. The project's production capacity is 2.5 million tons/year of urea and 1.5 million tons/year of Ammonia.

2-2 Egypt

Egypt Carbon Holdings Company signed an engineering, procurement, construction and commissioning (EPCC) activities for utilities and offshore facilities with Drake & Scull International (DSI) for the development of its Tahrir Petrochemicals Project (TPC), at the entrance of the Suez Canal near Ain Sokhna. The complex's production capacity is 1.4 million tons/year of ethylene and polyethylene. It will be the largest of its kind in the world and the first of its kind in Egypt to depend on naphtha feedstock. The naphtha cracker will produce 900,000 tons/year of propylene, 250,000 tons/year of butadiene, 350,000 tons/year of benzene and 100,000 tons/year hexene-1. Once a $3.4 billion loan secured from global banks out of the project's total cost of $5.5 billion, TPC project is likely to begin in 2015.

2-3 Qatar

As Qatar continues to further optimize its hydrocarbon resources utilization, Qatar Petrochemical Company (QAPCO) and Materia, Inc., (Materia), specialized in catalyst technology department, have signed a Memorandum of Understanding (MoU), on studying the development of the next generation of materials produced from Qatar's existing feedstocks, and getting a higher value from some of QAPCO's secondary products.

In a similar move, Qatar Petroleum (QP) and UOP have signed a joint research and development agreement to develop new ways to cost effectively treat and remove contaminants from natural gas to enhance Qatari natural gas reputation in terms of purity and other specifications in the world markets.

Construction work is still in progress at Qatar Petroleum (QP) and Royal Dutch Shell Plc (RDSA) joint venture on Ras Laffan olefins plant. The project includes a steam cracker with a capacity of 1.1 million metric tons/year of ethylene and 170,000 tons of propylene, in addition to downstream units like a mono-ethylene glycol plant with a capacity of 1.5 million metric tons/year, and a linear alpha olefins plant with a capacity of 300,000 tons/year. The project costs $6.4 billion and is scheduled to start production in 2018.

Qatar Petrochemical Company (QAPCO) is currently executing its project on building a new ethylene plant to produce 400,000 tons/year of ethylene at a cost of at a cost of $330 million to start production in 2016. The operation of the project will contribute to increasing QAPCO's ethylene production capacity to 1.2 million tons/year, in addition to increasing the capacity of the two existing ethylene units to 800,000 tons/year. The company is also installing a 205,000 tons/year low density polyethylene (LDPE) unit.

2-4 Saudi Arabia

Saudi Aramco announced that about half of the construction work at its giant Sadara petrochemicals joint venture with Dow Chemical is completed. Production should start in the second half of 2016. The Sadara complex will produce 3 million tons of petrochemicals a year, is the world's largest such facility to be built in a single phase. It consists of 26 production units.

The manufacturing units include basic feedstock manufacturing units from multi- feedstock crackers, and aromatics unit . the cracker unit will produce 1.35 million tons/year of ethylene, 400,000 tons/year of propylene through feeding the unit with 53,000 b/d of naphtha feedstock obtained from SASREF refinery (join refinery between Aramco and Shell), in addition to 85 million cubic square feet/day of ethane produced by neighbouring gas fields. The aromatics units will produce benzene, and toluene required for feeding intermediate petrochemical produchtion units. They will receive gasoline feedstock produced by the cracker unit, in addition to benzene and

toluene imported from other complexes to convert them into highly pure toluene and benzene to be used as feedstock for isocyanates.

Saudi Basic Industries Corporation (SABIC) announced plans to establish a new crude oil-to-chemicals (OTC) mega-plant, the first of its kind in the world. The plant will integrate with other plants in Yanbu' industrial area; it will convert 200,000 b/d of crude oil directly into various petrochemicals. The company might use US ExxonMobil invented technology. ExxonMobil has completed earlier a similar plant in Singapore.

Oil-to-chemical (OTC) technology is a modern low-cost technology compared to other plants that use gas and naphtha as feedstock. It is also energy-efficient and environmental-friendly as it reduces the conventional refining processes to convert oil to naphtha.

Saudi International Petrochemical Company (Sipchem) announced starting production at its ethylene vinyl acetate (EVA) plant in Al Jubail industrial city with a capacity of 200,000 tons/year of ethylene vinyl acetate (EVA) and low-density polyethylene at a total cost of $800 million.

The ethylene vinyl acetate (EVA) plant is the first of its kind in the Middle East. It is a joint venture between Sipchem (75%) and South Korea's Hanwha Chemicals (25%). This project goes in parallel with the work on developing the neighbouring Butanediol plant which will feed the polybutylene terephthalate (PBT) plant with feedstock.

Saudi Arabia's Sahara and Ma'aden Petrochemicals Co announced that their 50/50 joint venture (SAMAPCO) in Jubail Industrial City started commercial operations to produce 250,000 tons/year of caustic soda and 300,000 tons/year of ethylene dichloride.

Taiwan-based engineering firm CTCI Corporation has been awarded an engineering, procurement and construction (EPC) contract to work on the construction of a methyl methacrylate monomer (MMA) and a polymethyl methacrylate (PMMA) plants. The project is owned by SABIC and Japan-based Mitsubishi Rayon. It will be the biggest integrated plant worldwide to produce 250,000

tons/year of MMA and 40,000 tons/year of PMMA in Jubail Industrial City at a total cost of $840 million. It is scheduled to start production by the end of 2018.

Polymethyl methacrylate is a transparent thermoplastic of high demand as it is often used as a lightweight or shatter-resistant alternative to glass or poly-carbon in many industries like vehicles and electronics.

Work is still in progress at Petro Rabigh-2, a joint venture between Sumitomo Chemical and Saudi Aramco, at a cost of $5 billion. The Rabigh-2 Project's main products will include ethylene propylene rubber (EPDM), thermoplastic polyolefin (TPO), methyl methacrylate (MMA) monomer, polymethyl methacrylate (PMMA), low-density polyethylene (LDPE), ethylene vinyl acetate (EVA), para-xylene,benzene, cumene and phenol/acetone.

Petro Rabigh is a joint venture between Saudi Aramco and Japan's Sumitomo Chemical. It operates an integrated complex consisting of an oil refinery and Rabigh-1 petrochemicals production units in Rabigh city, KSA.

2-5 The United Arab Emirates

Pilot operations started at the (Borouge 3) petrochemicals complex expansion project in Ruwais, which is due to be completed in 2015. The expansion project aims at increasing poly olefins production capacity by four times to reach 4.5 million tons/year. It will be allocated for exporting to the Middle East and Asia. The project consists of two polyethylene units at a total cost of $1.255 billion and a total production capacity of 1.08 million tons/year, two polypropylene units a total production capacity of 960,000 tons/year in addition to a low density polypropylene (LDPE) unit with a capacity of 350,000 tons/year.

Abu Dhabi Polymers Co Ltd (Borouge), a joint venture of the Abu Dhabi National Oil Company and Austria's Borealis has completed the second expansion programme (Borouge 2) that raised polyethylene and polypropylene production capacity to 2 million

tons/year in 2010. The project also included an ethane cracker unit with a capacity of 1.45 million tons/year, an olefins conversion unit with a capacity of 752,000 tons/year, two polypropylene units with a total capacity of 800,000 tons/year, and a polyethylene unit with a capacity of 540,000 tons/year.

2-6 Oman

Oman Oil Refineries and Petroleum Industries Company (Orpic's) $3.6 billion Liwa Plastic Project (LPP) has announced the award of five technology licensor contracts valued at around $80 million. LPP is one of three projects, which will upgrade the Sohar Refinery. Units covered by the contract include NGL Extraction, PyGas Hydrogenation, MTBE, Polypropylene, and Polyethylene units.

It is worth mentioning that Oman Refineries and Petroleum Industries Company (Orpic) awarded Engineers India Limited (EIL) a Project Management Consultancy (PMC) Contract for managing Liwa Plastics Project. Also, ORPIC has let a contract to the Netherlands-based CB&I to provide front-end engineering and design (FEED) services and technology licensor for its 800,000 tons/year steam cracker unit.

Liwa Complex will use light ends produced at Sohar refinery and its aromatics plant. It will also process natural gas liquids (NGL) produced at Fahoud Gas Field. Liwa project aims at doubling Orpic's profit by maximizing the value added to each oil or gas barrel produced in Oman.

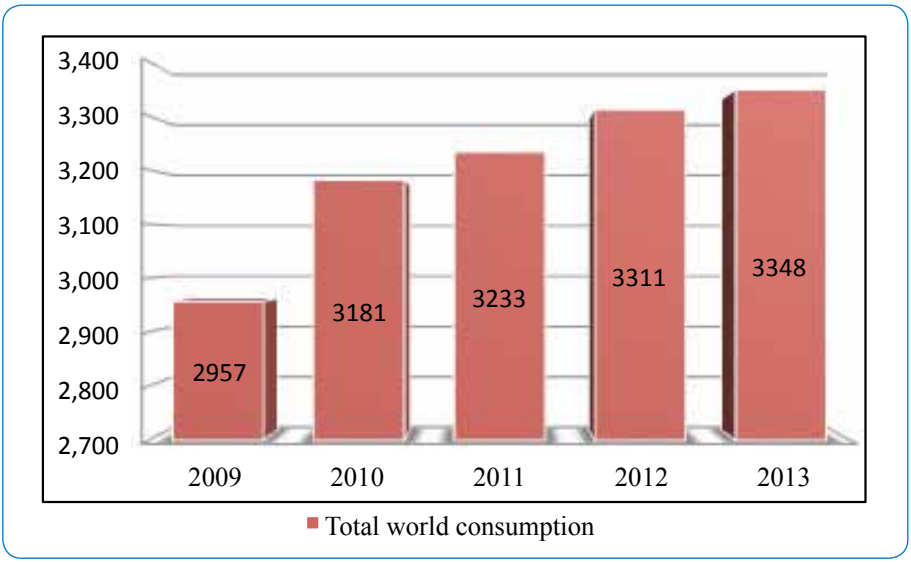
NATURAL GAS CONSUMPTION, TRADE AND PROCESSING

1. World Developments

1-1 Natural Gas Consumption

Growth in the world's consumption of natural gas in 2013 reached about 1.4%, lower than the historical average of 2.6% for the past 10 years. World's consumption totalled about 3347.6 billion cubic meters in 2013 against about 3310.8 billion cubic meters in 2012. Figure (3-13) shows the development of world natural gas consumption between 2009 and 2013. The share of natural gas in the world's total commercial energy consumption in 2013 has dropped to 23.7%[1] compared to 23.9% in 2012.

Figure 3-13
Development of world natural gas consumption between 2009 and 2013
(Billion cubic meters)



[1] Contribution to total energy consumption measured in million tons of oil equivalent TOE million units have been calculated.

In 2013, OECD natural gas consumption rate exceeded the average rate reaching about 1.8%, which was lower than that of the non-OECD countries that recorded 1.1%. The year 2013 witnessed a drop in the EU demand for natural gas as consumption hit its lowest levels since 1990. India recorded the largest volumetric decline worlldwide by -12.2%. While in the USA, the demand on natural gas increased by 2.4% and China by 10.8% USA and China contributed with the largest growth increments of the global natural gas demand, together they claimed about 81% of the World's total increase in 2013.

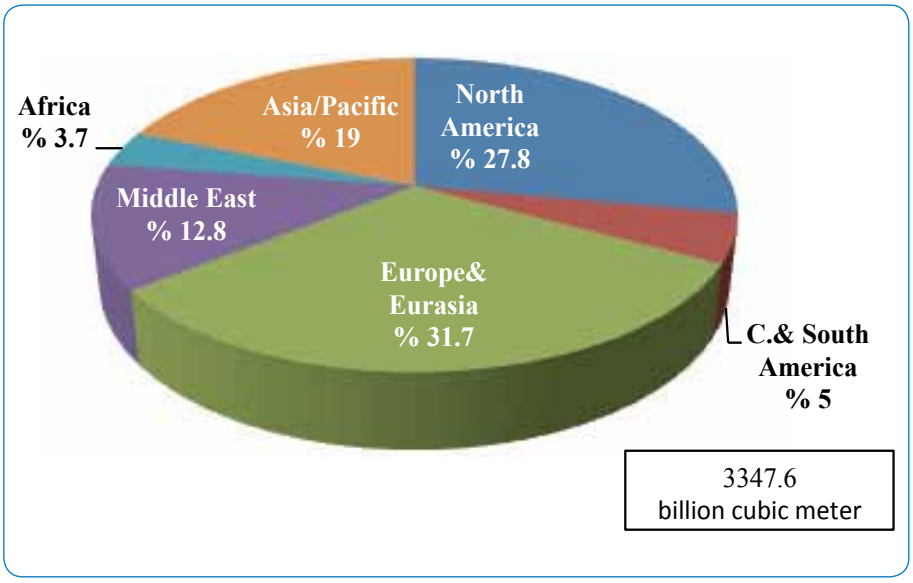
Most major regions of the world witnessed a growth in natural gas consumption by different rates; the lowest was recorded in Africa by 0.6% with about 123.3 billion cubic meters, representing an increase of 0.3 billion cubic meters compared to 2012. Asia/Pacific consumption increased to 639.2 billion cubic meters in 2013 against 627.1 billion cubic meters in 2012, or an increase of 2.2%.

In North America, total consumption reached about 923.5 billion cubic meters, against 902.9 billion cubic meters in 2012, or an increase of 2.7%. Consumption increased in the Middle East to 428.3 billion cubic meters in 2013 against 412.9 billion cubic meters in 2012, representing an increase of 4%. In Central and South Americas, consumption reached about 168.6 billion cubic meters in 2013 against 162.3 billion cubic meters in 2012; representing an increase of 4.2%.

Against these increases there have been noticeable decline in consumption growth in Europe and Eurasia (including Europe, CIS, and Turkey) where it dropped by 1.4% to 1064.7 billion cubic meters in 2013 against 1082.6 billion cubic meters in 2012. Table (3-16) and Figure (3-14) show the distribution of natural gas consumption worldwide in 2013.

Figure 3-14

Distribution of natural gas consumption worldwide in 2013



Natural gas production, however, has increased worldwide from 3364.1 billion cubic meters in 2012 to 3390.5 billion cubic meters in 2013, representing an increase of 1.1%. The USA maintained its position as the biggest natural gas producer worldwide. Its natural gas production increased from 681.2 billion cubic meters in 2012 to 687.6 billion cubic meters in 2013, representing an increase of 1.3%. Production increased in Russia by 2.4% and China by 9.5%. Russia and China recorded the largest volumetric increase worldwide. Production declined in Nigeria by -16.4%, India by -16.3%, and Norway by -5%. These countries recorded the largest volumetric declines worldwide.

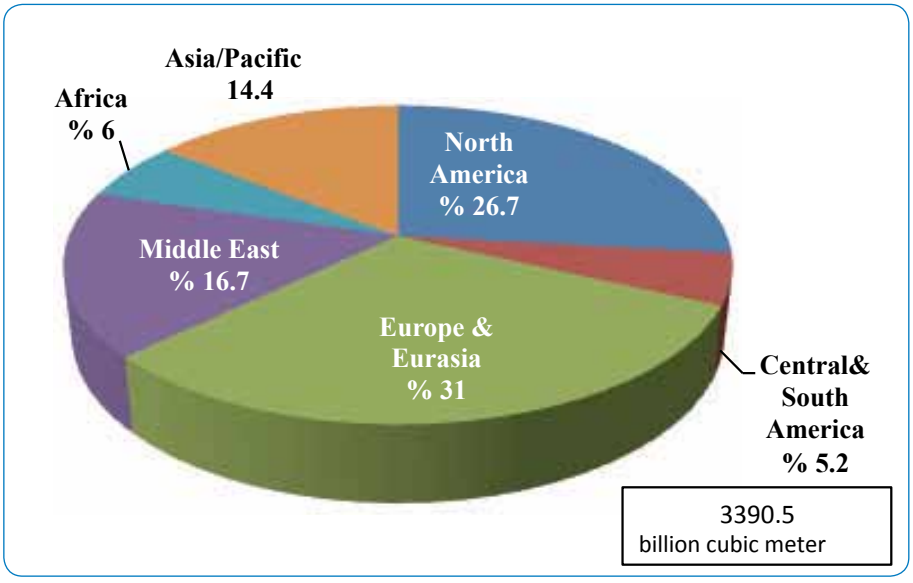
The Middle East registered highest production rates reaching about 4.5% from 545.5 billion cubic meters in 2012 to 568.2 billion cubic meters in 2013. It is followed by Central and South America with 1.5% as production increased from 174.3 billion cubic meters in 2012 to 176.4 billion cubic meters in 2013. They are followed by Asia/Pacific with 1.1%, as production increased from 484.9 billion

cubic meters in 2012 to reach 489 billion cubic meters in 2013.

In North America, production increased from 894.2 billion cubic meters in 2012 to 899.1 billion cubic meters in 2013 by growth rate of 0.9%. Lowest increase was registered in Europe and Eurasia with about 0.7%, as production increased from 1048.9 billion cubic meters in 2012 to 1053.6 billion cubic meters in 2013.

These increase happened against a decline in Africa's production with 5.3% dropping to 204.3 billion cubic meters in 2013 compared to about 216.3 billion cubic meters in 2012. Figure (3-15) shows the distribution of natural gas production worldwide in 2013.

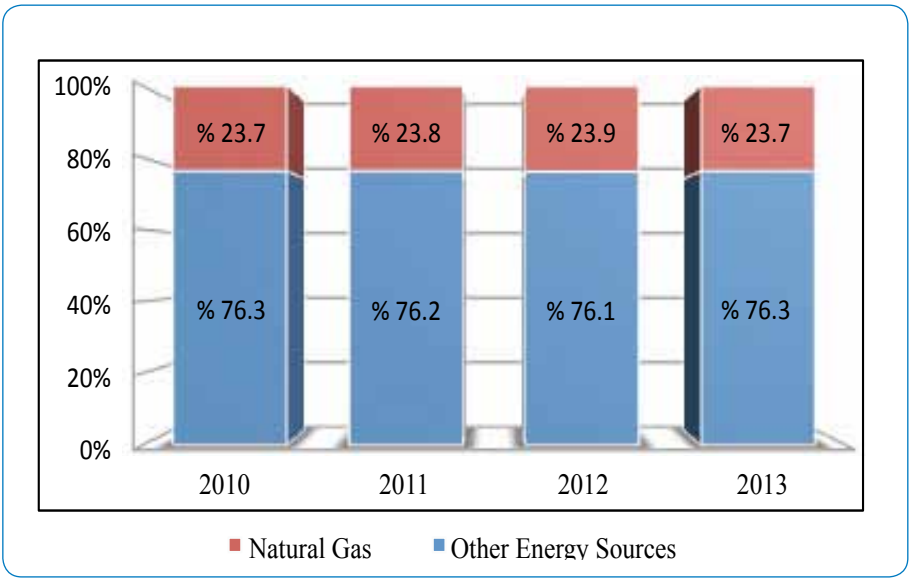
Figure 3-15
Distribution of natural gas production worldwide in 2013



In 2013, most regions of the world maintained their share of natural gas in the commercial energy balance. The Middle East region maintained the highest share with 49.1% against 48.6% in 2012. Europe and Eurasia's share reached 32.8% against 33.1% in

2012,. North America's share maintained its 30.1%; while Africa's share reached about 27.2% compared to 27.5% in 2012. Asia/ Pacific's share reached about 11.2% against 11.3% in 2012. Table (3-17) and Figure (3-16) show the evolution of the share of natural gas in total commercial energy consumption by region in 2010-2013.

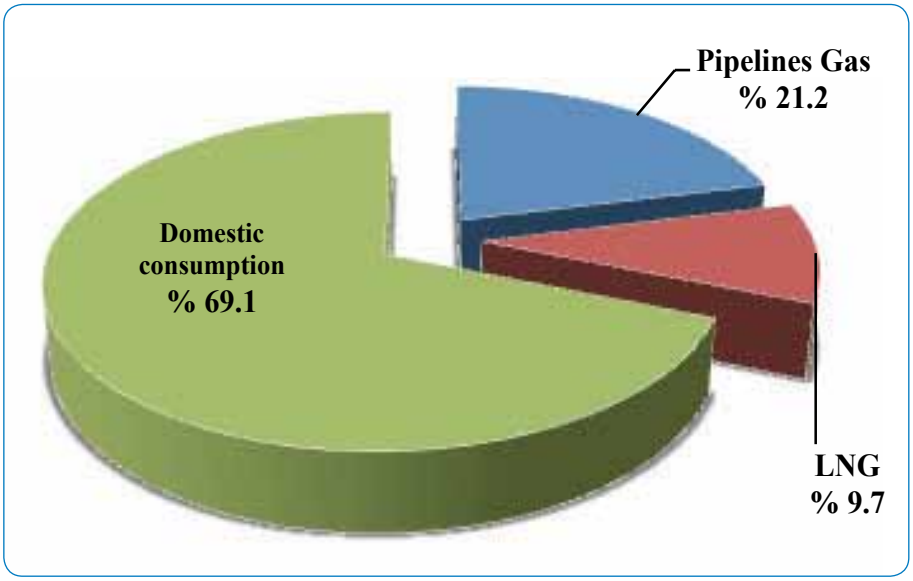
Figure 3-16
Evolution of the share of natural gas in total commercial energy consumption by region in 2010-2013



1-2 Natural Gas Trade

Natural gas exports worldwide increased by 1.8%. Total natural gas exports worldwide in 2013 reached about 1035.9 billion cubic meters against about 1020.8 billion cubic meters in 2012. These figures cover both pipelines and liquefied natural gas (LNG) exports. The total amount of both claims about 30.9% of the total natural gas consumption worldwide. The rest is consumed domestically in the producing countries. Figure (3-17) shows the distribution of global demand for natural gas during 2013.

Figure 3-17
Distribution of Global Demand for Natural Gas during 2013

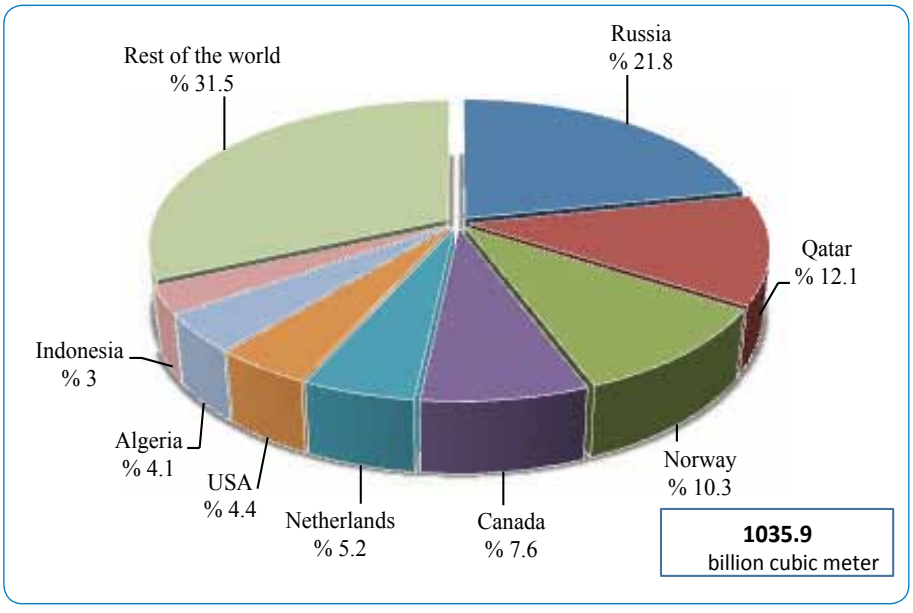


With regards to natural gas exports distribution worldwide in 2013, former Soviet Union region topped the list with 28.4% of total exports. Europe came second with 19.6%, followed by the Middle East with 15.8%, Asia Pacific with 12%, North America with 11.9%, while Africa contributed with 8%. South America came last with 4.3% of the world's total natural gas exports.

US imports of natural gas via pipelines declined to 78.9 billion cubic meters in 2013 compared to about 83.8 billion cubic meters in 2012. Canada remained the largest supplier of natural gas to the USA. US imported only about 2.7 billion cubic meters of LNG from Trinidad and Tobago, Norway, Yemen, and Qatar representing about 3.3% of the total imports. On the other side, total US exports of natural gas in 2013 reached about 44.5 billion cubic meters. Its natural gas exports via pipelines reached 25.8 billion cubic meters to Canada and 18.6 billion cubic meters to Mexico. Its LNG exports to Mexico reached about 0.1 billion cubic meters.

Russia topped the world's natural gas exporters in 2013, with a share of about 21.8% of world exports. Its natural gas exports to European countries totalled about 187.5 billion cubic meters, with a decline of 13 billion cubic meters compared to 2012. Qatar came second with 12.1%, followed by Norway with 10.3%, Canada 7.6%, the Netherlands 5.2%, the United States 4.4% Algeria 4.1%, and Indonesia 3%. The exports of the aforementioned countries collectively constitute about 68.5% of the total world exports of natural gas, as shown in Table (3-18) and Figure (3-18).

Figure 3-18
Natural Gas Exports Worldwide, 2013



The volume of natural gas exports by pipelines rose from about 696.6 billion cubic meters in 2012 to about 710.6 billion cubic meters in 2013, or by an increase of 2.3%. Russia's net natural gas exports via pipelines have increased by 12%, which compensated for the drop in Algeria's exports of 17.9%, Norway's decline of 4.5%, and finally Canada's drop of 5.5%.

LNG exports trade has rebounded slightly in 2013 achieving an increase of 0.6%, or about 325.3 billion cubic meters compared to 324.2 billion cubic meters in 2012. The growth of LNG exports to China (22.9%), South Korea (10.7%), and Central and South America (44.7%) has contributed partially to compensate for the decline in LNG imports by Spain (-35.6%), the UK (-31.9%), and France (-19.4%).

Generally, LNG exports accounted for 31.4% of the total world natural gas exports in 2013, against 31.8% in 2012. Natural gas exports via pipelines accounted for about 68.6%, with a slight increase compared to 68.2% in 2012; as shown in Table (3-19), Figure (3-19), and Figure (3-20).

Figure 3-19
Evolution of Natural Gas Exports Worldwide, 2009-2013
(Billion cubic meters)

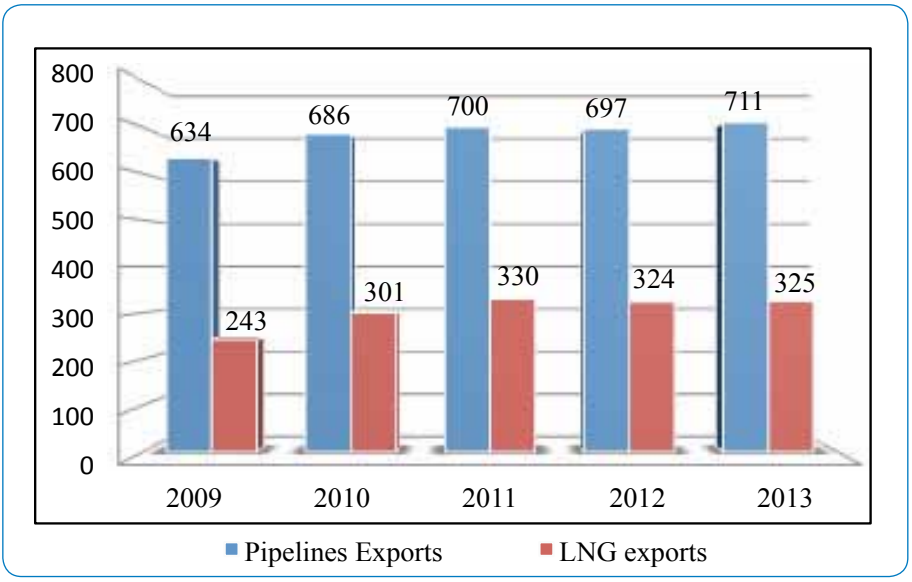
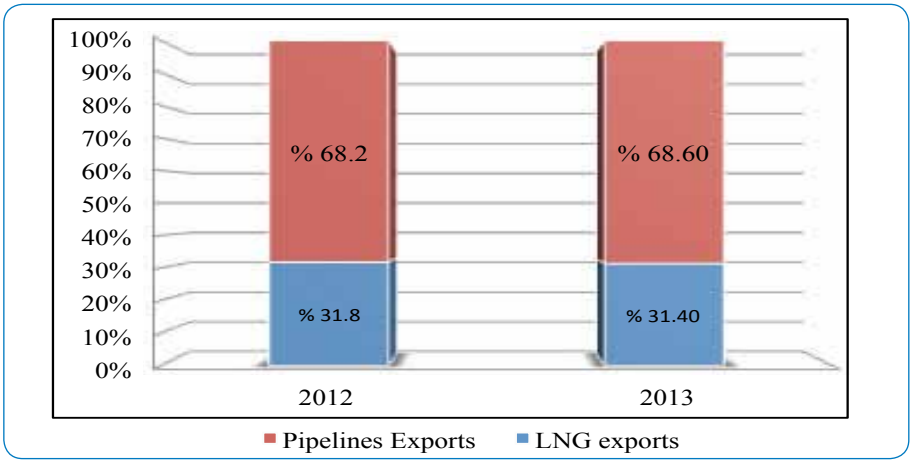
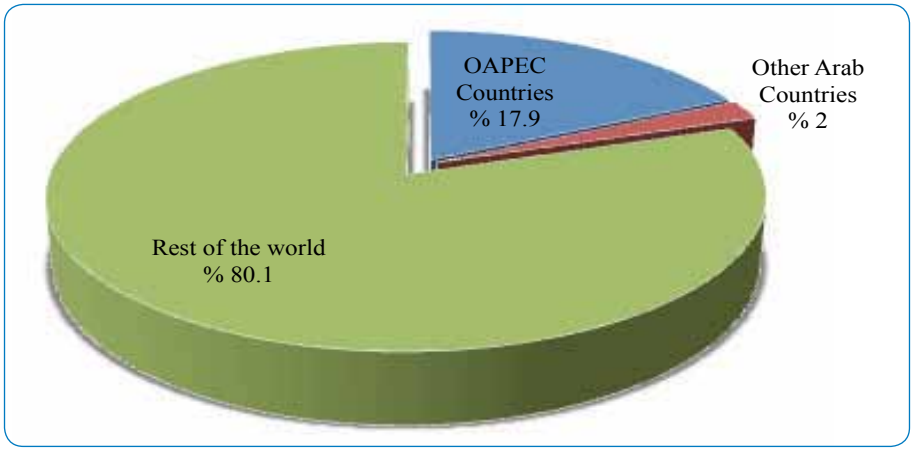


Figure 3-20
Distribution of Natural Gas Exports Worldwide, 2012 and 2013



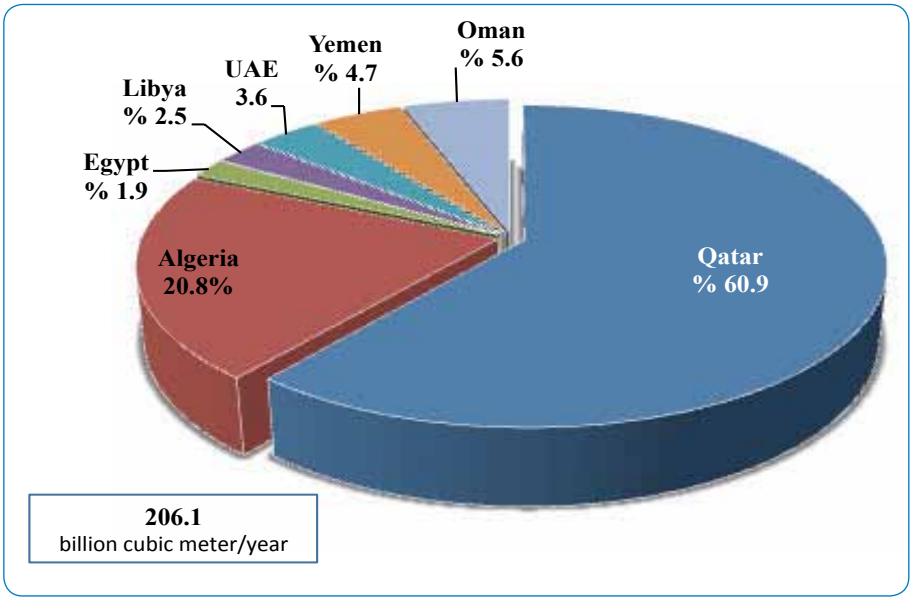
LNG and pipeline gas exports from Arab countries to the international markets in 2013 have dropped by 4% registering about 206.1 billion cubic meters compared to about 214.5 billion cubic meters in 2012. Combined Arab exports account for about 19.9% of the world's natural gas exports. Figure (3-21).

Figure 3-21
Distribution of the World's Natural Gas Exports, 2013



Qatar topped Arab countries' list with gas exports of 125.5 billion cubic meters, representing 60% of total Arab exports in 2013. Algeria came second with total exports of about 42.9 billion cubic meters, or 20.8% of total Arab exports, followed by Oman 5.62%, Yemen 4.7%, UAE 3.6%, Libya 2.5%, and finally Egypt 1.9%, as shown in Figure (3-22).

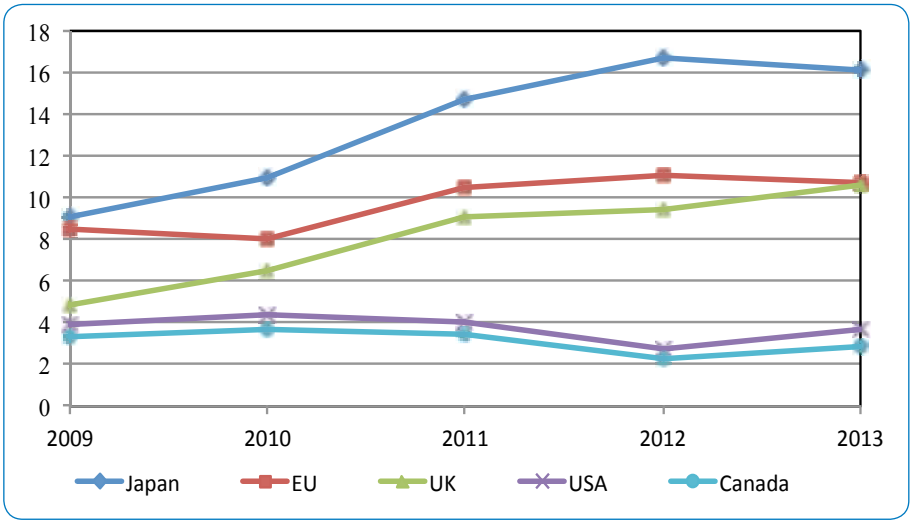
Figure 3-22
Distribution of Arab Natural Gas Exports, 2013
(Billion cubic meters)



1-3 World Natural Gas Prices

Natural gas prices, for both pipeline and LNG sales rose in major markets in 2013, compared with their levels in 2012. The price of natural gas in UK markets rose by 12.4%; in the USA according to Henry Bob by 34.4%; and in Canada by 29.1% while it dropped in EU countries by 2.8%. Prices of natural gas transported to Japan (in the form of LNG) dropped by about 3.5%, as shown in Figure (3-23) and Table (3-20).

Figure 3-23
World Prices of Natural Gas, 2009-2013
(USD/Million BTU)



1-4 The World's Most Important Natural Gas Developments

1-4-1 LNG production capacity

By the end of 2013, the world's nominal LNG production capacity reached about 291.5 million tons/year against 281.7 million tons/year in 2012, or an increase of 3.5%. 2013 witnessed operating Angola LNG T1 plant with a capacity of 4.5 million tons/year; in addition to start up Algeria's new Skikda LNG train with a capacity of 4.5 million tons/year.

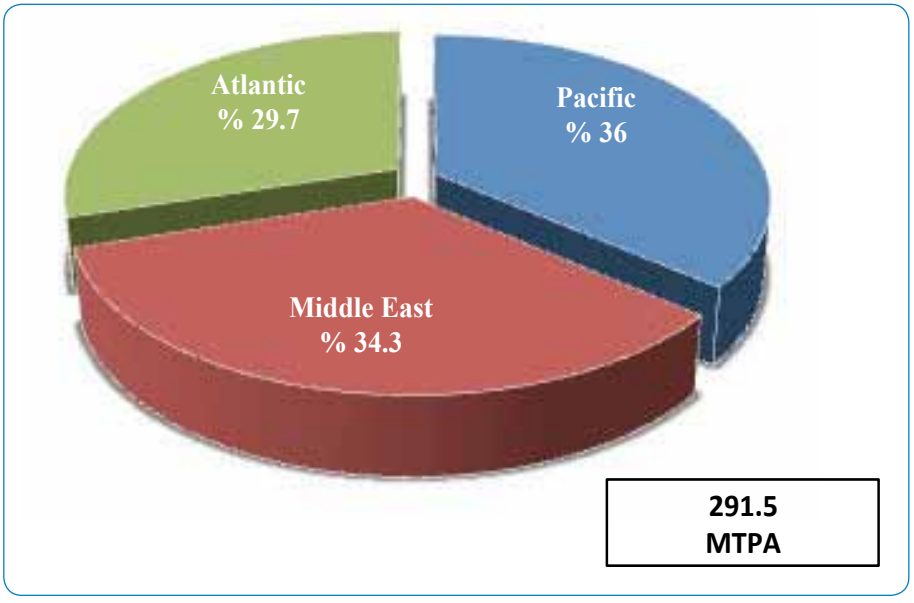
The number of LNG trains reached about 87 units distributed in 18 countries (after adding Angola), while the suspension of Libya's Marsa Brega LNG plant due to damage caused to its facilities by the recent security situation. Qatar still tops the world with a production capacity of about 77 million tons/year, representing about 26.4% of the total world production. It is followed by Indonesia with about 34.1 million tons/year or about 11.7%, then Malaysia with 24.2 million tons/year or 8.3% of the world's production. The three countries

combined production accounted for about 46.4% of the world's total LNG production capacity by the end of 2013. Table (3-21) .

As for the distribution of the world's nominal LNG production capacity by region by the end of 2013, Asia-Pacific topped the list with a total of about 105 million tons/ year, or 36% of the world's total capacity. The Middle East came second with about 99.9 million tons/year, or 34.3%, and finally the Atlantic region whose capacity hiked up to 86.6 million tons/year or 29.7% of the world's total capacity in 2013. Figure (3-24).

Figure (3-24)

Distribution of the world's nominal LNG production capacity by region by the end of 2013



1-4-2 LNG Receiving Terminals

On receiving facilities, the total number of LNG receiving and regasification terminals by the end of 2013 has reached about 104 with a total capacity of 974 billion cubic meters/year (721 million

tons/year), which is double the LNG's nominal production capacity worldwide.

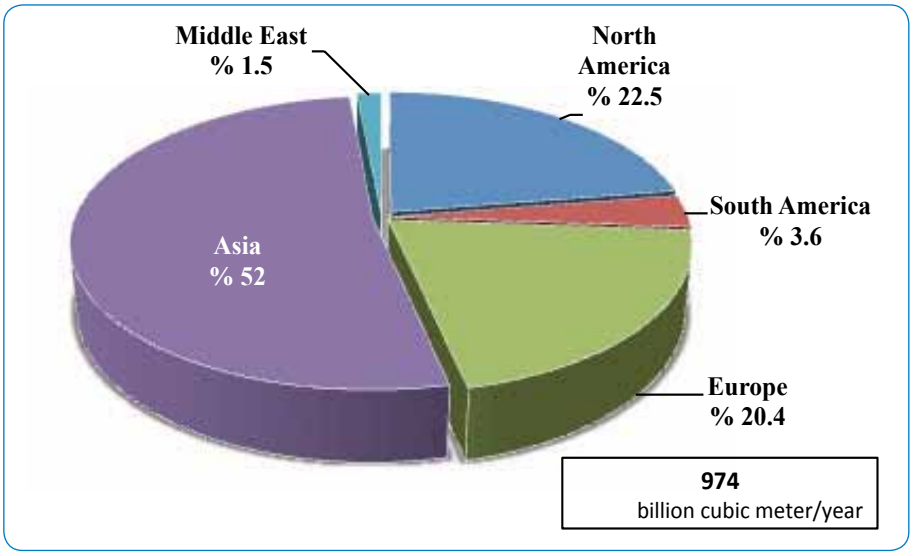
The number of LNG land-based receiving and regasification terminals reached about 89, while the remaining number represents the Floating Storage Regasification Units (FSRU), which are currently in demand due to low cost and short construction time compared to land-based terminals. By the end of 2013, importing countries' number has risen to 29 after occupied Palestine, Malaysia, and Singapore started importing LNG.

As for the distribution of LNG receiving and regasification facilities' design capacity worldwide by the end of 2013, Asia still tops the list with about 506.3 billion cubic meters/year, representing about 52% of the world's total. Asia is the main market for LNG exports.

North America comes second on the list with a total design capacity of about 220 billion cubic meters/year, representing 22.5%. However, it is projected that North America will retreat in the coming period after the USA's success in the shale gas production boom made it the biggest natural gas producer worldwide. The USA has also become less dependent on LNG imports with projections that it will begin exporting LNG by 2016, following converting some of its receiving terminals into LNG liquefaction facilities. Europe comes third on the list by 20.4% of the world's total, with a total design capacity of about 200 billion cubic meters/year. Europe is the second most important major market for LNG exports. LNG receiving terminals' design capacity reached about 34.7 billion cubic meters/year, or 3.6% in South America, and about 14.9 billion cubic meters/year, or 1.5% in the Middle East. Both South America and the Middle East represent emerging markets for LNG exports, which is expected to grow in coming years to keep in pace with the growing demand for natural gas. Figure (3-25).

Figure (3-25)

Distribution of Design Capacity of LNG Receiving Terminals Worldwide by the end of 2013



Following are the most important natural gas industry and trade developments worldwide in 2014:

In the USA, where shale gas production boom contributed to adopting many LNG export and import projects, work is still progressing at the US Cheniere Sabine Pass liquefaction plant. In September, the company announced the completion of 72% of the project's phase-1 (first and second production lines); and about 20% of the phase-2 (third and fourth production lines). According to the project's schedule, it is expected that the first train will start production by the end of 2015. Then the three other trains will be in operation within 6-9 months. Sabine Pass is the first project to receive all required permissions from the US DOE allowing it to export to all countries whether FTA or non- FTA. Also the project got all environmental licenses from the FERC.

In Russia, Gazprom decided in January to expand the Sakhalin-2, Russia's only plant to produce LNG. The plant has two production trains with a total capacity of 9.55 million tons/year. The company agreed with the Royal Dutch Shell on adding a third production train. Japan's Mitsui and Mitsubishi will join the project. Gazprom rejected this Shell proposal earlier on the basis of the absence of natural gas resources, however; it recently changed its position to benefit from the hike of LNG prices in the world markets.

As for Yamal LNG project, it is now facing funding problems due to the Western sanctions imposed on Russia. Therefore, Russia's OAO NOVATEK started negotiations with Chinese banks to secure funding for the project that seeks to construct a natural gas liquefaction plant including three production trains with a total capacity of 16.5 million tons/year and $27 billion of investments.

In addition to the above, Russia succeeded in May to sign a mega deal to supply about 38 billion cubic meters/year of Russian gas to China via a new pipeline called "The Power of Siberia" starting from 2018. The 30-year gas deal's investments are estimated at about $400 billion. It came after years of negotiations between Russia's Gazprom and China National Petroleum Corp (CNPC). Both companies have signed an MOU in November to supply about 38 billion cubic meters/year of Russian gas. The significance of these agreements lay in opening new markets for the Russian gas exports beside the European markets.

In Malaysia, Murphy Oil and Petronas have made the final investment decision to proceed with their 1.5million tons/year floating liquefaction project at the Rotan field in Malaysia.it is due for operation in 2018. The plant will be supplied by natural gas from Rotan field discovered by Murphy Oil in 2007.

In Angola, Angola LNG plant stopped operating in May, a year after starting operations in mid-2013. Production at the plant was stopped in April after an incident leading to a crack in the main flaring line. The plant will resume operations by the end of 2015 after fixing the design problems and damages caused by the incident,

according to an official statement by the company.[2]

In Papua New Guinea, the first cargo of liquefied natural gas (LNG) from the new PNG LNG plant has been shipped in May to Tokyo Electric Power Co. Inc. (TEPCO) in Japan, following the success of the commissioning phase in April. Papua New Guinea now entered the LNG exporters list. The new plant's capacity is estimated at about 6.9 million tons/year, with about $19 billion of investments.

In Australia, British Gas announced in December that it started loading the inaugural LNG cargo from its first gas train at BG's Queensland Curtis LNG (QCLNG) project off Gladstone in Queensland. It is the world's first project to successfully convert natural gas from coal seams to liquefied natural gas. QCLNG total production will reach 8.5 million tons/year of LNG when its second gas train comes online in the third quarter of 2015. Australia is executing seven LNG projects simultaneously, which are expected to raise its LNG production capacity up to 86 million tons/year by 2017 to pass Qatar as the world's biggest LNG exporter.

As for LNG receiving terminals, 2014 witnessed operating some of the recently completed terminals. In Brazil, Petrobras has started up the Bahia Floating Storage and Regasification Unit (FSRU) terminal, in Bahia province, north east Brazil in January. Brazil has other LNG receiving terminals; Guanabara Bay in the state of Rio de Janeiro with a capacity of 5 billion cubic meters/year; and Pecem FSRU at Ceará state with a capacity of 5.2 billion cubic meters/year. Brazil's total LNG terminals design capacity is about 13 billion cubic meters/year.

Klaipeda liquefied natural gas floating storage and regasification unit terminal started operating officially in December after the successful commissioning in October. Lithuania joined LNG importers. The new terminal's design capacity is about 2.2 million tons/year. This will enable Lithuania to diversify its natural gas supply resources instead of depending completely on the Russian pipeline gas imports.

2- Angola LNG spokesman, 2014

Singapore, which recently launched operations at the country's first 3.5 million tons/year LNG receiving terminal "Singapore LNG Terminal" in Jurong Island, the terminal's second phase has been completed with the addition of a third storage tank and regasification units to reach a capacity of 6 million tons/year. Currently, preparations are ongoing to add a fourth storage tank, which will raise the terminal's capacity up to 9 million tons/year.

On another note, Pakistan asked Iran in February to be given more time to complete the Pakistani side of the gas pipeline that will connect the two countries under the name "Iran-Pakistan (IP) pipeline". Pakistan failed to secure funding for the pipeline construction through its territories. The agreement stipulates that each country is obliged to build the pipeline through its territories till it reaches the other country's borders. The line length is about 800km, starting from the Pakistani side until Nawabshah. Work started on this side in March 2013 with little progress. The pipeline length is about 1,150km in the Iranian side. Most of it has already been built from Assaluyeh to Iran Shahr. It was originally scheduled for operation in 2014 to provide Pakistan with about 750 million cubic feet/day of Iranian gas.

British Petroleum (BP) announced in January the final investment decision (FID) for the Stage 2 development of the Shah Deniz gas field in the Caspian Sea, offshore Azerbaijan. Production is scheduled to start by 2018. Gas deliveries to Europe will follow approximately a year later.

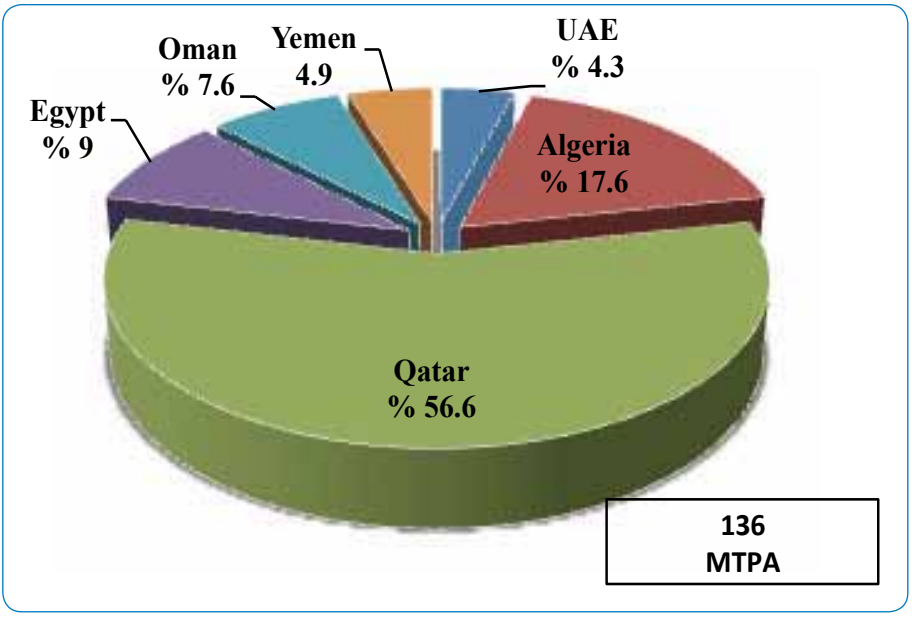
BP also announced that it agreed terms with SOCAR for extending the Shah Deniz and removing the first stage bottlenecks to add 1.4 billion cubic meters a year, and 55,000 b/d of condensates. The second stage aims at adding 16 billion cubic meters/year and about 65,000 b/d of condensates by 2018, 6 billion cubic meters of which will be sold to Turkey in line with an agreement with the Azeri government. As for the remaining volumes, they will be exported to European markets via the Trans-Adriatic Pipeline, running across the Greek-Turkish borders through north Georgia, Albaia, and the Adriatic into south Italy.

2- Most Important Arab Developments

On the Arab front, Arab countries' nominal LNG production capacity by the end of 2013 reached about 136 million tons/year, with an increase of 4.5 million tons/year following the operation of the new GL1K gas liquefaction unit in Skikda, Algeria during the same year. Qatar still tops the Arab list with about 56.6% of the total Arab countries' production capacity, followed by Algeria with 17.6%, Egypt 9%, Oman 7.6%, Yemen 4.9%, and UAE with 4.3%. Table (3-22) and figure (3-26).

Figure (3-26)

Distribution of LNG design capacity worldwide by the end of 2013



2-1 Algeria

In February, Samsung won an engineering, supply, and construction contract to upgrade Timimoun Field. The contract includes the construction of a central treatment plant with a capacity

of 1.8 billion cubic meters/year, and a 180km pipeline. The project is due for operation in 2017.

In Novemebr, a new production plant of Liquefied Natural Gas was inaugurated in Arzew. This plant has a production capacity of 4.7 million metric tons/year, with $4 billion of investments. The new Arzew complex will replace Camel complex that has been in operation since 1964 and was shut down and stopped production in 2010.

In December, Algeria's Sonatrach signed an agreement with The Egyptian Natural Gas Holding Company (EGAS) to import six liquefied natural gas (LNG) shipments to Egypt in 2015 with a total volume of 750,000 cubic meters. The two sides also agreed to start negotiations in the coming period t seek the possibility of supplying additional quantities of Algerian LNG during 2016-2020 to secure meeting the future natural gas needs of Egypt.

On another note, Algeria's Ministry of Energy and Mining announced plans to resume operations at the third unit remaining in the Ain Amenas Gas Treatment Complex beginning of 2015 in order to reach the complex's full capacity of 9 billion cubic meters/year. Norway's Statoil and UK's BP, with 45.9% share for each, have announced earlier this year resuming business as usual in the complex that was attacked in the beginning of 2013.

2-2 Bahrain

Bahrain's National Oil and Gas Authority (NOGA) is expected to sign LNG FSRU contracts north east Khalifa bin Salman Port in the beginning of 2015. Last year, Bahrain's NOGA has sought the advice of the US-based consultancy, Galway Group, to identify the best LNG import options. Galway Group then sub-contracted Worley Parsons to carry out the Pre-FEED study. According to the final proposal, it is scheduled to build a FSU, with double-docking, regasitication, and treating units with an initial expandable capacity of 400 million cubic feet/day up to 800 cubic feet/day in the future. The terminal is expected to start operations in the second half of 2017.

2-3 Egypt

Within the framework of the state strategy to protect the environment through expanding the use of gas as an environment-friendly fuel and to reduce fluid fuel imports by gradual replacement in vehicles and public transport, about 10,500 vehicles have been converted during the fiscal year 2013/2014. This has been done through 73 car conversion centers, which represents achieving 44% of the plan (24,000 vehicles). Total converted car number is about 204,000 vehicles using natural gas since the start of activity until the end of June. During the fiscal year, 11 natural gas stations has been constructed, representing 55% of the plan (20 gas stations). 175 natural gas stations are available in total for this purpose. The number of housing units supplied with natural gas has reached about 666,000 units in the fiscal year compared to 588,000 in the previous year, representing an increase of 83% (800,000 units in the plan). It is planned to supply gas to 850,000 housing units in the fiscal year 2014/2015.

In August, British Petroleum (BP) announced launching gas production from the Denise/ Karawan DEKA project at South-6 well at an initial rate of 50 million cubic feet per day. Natural gas production also started at the Gas Treatment plant at Dosouq field, in Delta onshore area following linking five new wells, which increased the production from 60 million cubic feet/day to 150 million cubic feet/day.

In November, Egyptian Natural Gas Holding Company (EGAS) has signed an agreement with Norwegian firm, Höegh LNG for a Floating Storage and Regasification Unit (FSRU) which will allow Egypt to ease its energy shortages with LNG imports. The contract entitles Egypt to rent the FSRU for a period of five years, to store and re-gasify LNG, providing over 500 million cubic feet of natural gas/day. Höegh LNG won the bid after competition with Malaysian, American, and Dutch companies. In the same vein, Höegh LNG indicated to the completion of the construction of FSRU at Hyundai Heavy Industries as an LNG import terminal in the port of Ain

Sokhna. It is due for operation in March 2015. Also, EGAS has finalized a deal with Algeria to import LNG shipments from Algeria's Sonatrach and Russia's Gazprom, after bidding that was launched during the year. Egypt is currently suffering from a failure to meet natural gas demand that is used in electrical power generation plants. Shortage hikes to its peak during summer, which forced the country to import natural gas to meet the electricity sector's needs.

2-4 Iraq

In February, Korea Gas Corp. (Kogas) announced it would gradually reduce its share in the Akkas Gas Field (western Iraq) full upgrading contract. Akkas is located in Anbar Province near to the Syrian borders. It is a huge field with 5.6 trillion cubic feet of gas. In August, Kuwait Energy announced that the consortium led by Turkey's TPAO for developing Mansouriya gas field has decided to halt all upgrading activities in the field in Dialya, northern Iraq. The reason behind the fall of development activities is the disturbances in these regions.

In another development, National Iranian Gas Export Company decided to start exporting Iranian gas to Iraq by March 2015, with a few months delay than scheduled earlier, due to delay in construction works for the pipeline that will connect the two countries. In July 2013, Iraq signed an agreement with Iran to import around 850 million cubic feet/day of Iranian gas to be used as fuel for electricity power generation in Diyala and Baghdad.

In April, Basrah Gas Company (BGC), the joint venture between South Gas Company (51%), Japan's Mitsubishi (5%), and the Netherland's Shell (44%), has awarded the a dual Front End Engineering Design (FEED) contract to two consortia comprised of Technip-HQC and Chiyoda-Saipem for a new Natural Gas Liquids (NGL) project in the Ar Ratawi area, north of Basrah. The new complex's treating capacity is approximately 500 million standard cubic feet per day. Construction work is expected to start in 2015. Once construction is complete and the plant is fully operational, it is estimated that the plant will supply enough dry gas to generate

the equivalent of 3 gigawatts of electricity, which will contribute to reducing gas flaring on one hand, and meeting part of the domestic market demand on the other hand. Since starting operations in May 2013, Basrah Gas succeeded in increasing its associated gas capacity produced from south oil fields from 240 million scfd to 500 million cubic feet days and is working towards bringing the total capacity to 2 billion cubic feet days in the future.

2-5 Kuwait

In January, Kuwait Foreign Petroleum Exploration Company (KUFPEC), subsidiary of Kuwait Petroleum Corporation (KPC), announced it has signed a Sale and Purchase Agreement to acquire Shell Development (Australia) 8% equity in the Wheatstone-Iago joint venture and Shell's 6.4% interest in the Wheatstone LNG project for $1135 million. This acquisition makes KUFPEC's share 13.4 of the Wheatstone project. It will secure commercial LNG shipments to KPC from the project that will commence production in 2016 with a capacity of about 8.9 million tons/year.

In April, Kuwait Petroleum Corporation (KPC) signed a contract to import 8 shipments of liquefied natural gas (LNG) from Qatargas to meet Kuwait domestic needs to the end of 2014. KPC also signed deals with British Petroleum and Royal Dutch Shell to import about 2.5 million tons/year of LNG from the two companies' portfolios. These $15 billion agreements come to secure the domestic market needs in the coming stage in light of the difficulties facing the development of the Jurassic non-associated gas fields.

The state-owned Kuwait National Petroleum Co. (KNPC) has contracted the US Foster Wheeler to prepare initial engineering designs for an LNG receiving terminal at Al Zour project southern Kuwait with a capacity of 1.5billion cubic feet/day. It consists of 4 tanks with a total storing capacity of 720,000 cubic meters. The designs provide the possibility of multiplying the terminal's capacity up to 3 billion cubic feet/day, and adding 4 more tanks with a total

capacity of 720,000 cubic meters.

Earlier on, Foster Wheeler conducted a feasibility study on the project to specify the terminal location and the technology to be used. KNPC plans to put the terminal on operation by 2020 in order to meet the increasing demand for natural gas in the country.

2-6 Libya

Due to the security situation in Libya, work is still suspended in Marsa Al Brega LNG plant that was severely damaged in 2011. Marsa Al Brega plant has been operating since the beginning of 1970 with a design capacity of about 3.2 million tons/year.

2-7 Qatar

In February, Qatargas and Japan's Tohoku Electric Power Company, Incorporated (Tohoku Electric) signed an LNG Sale and Purchase Agreement (SPA). Under the terms of the SPA, Qatargas 3, a joint venture between Qatar Petroleum, ConocoPhillips and Mitsui & Co. Ltd., will deliver LNG to Tohoku Electric for a period of 15 years starting from 2016, building up to a plateau volume of 0.18 million tons per annum from 2019 onwards.

In May, RasGas Company Limited (RasGas) and Germany's E.ON have signed a contract for the supply of about 0.5 million tons/year of liquefied natural gas (LNG), with immediate effect, from Qatar to the Isle of Grain in the United Kingdom for three years.

In the same vein, final preparations are ongoing between Qatar and Pakistan to sign a long-term agreement to export around 200-400 million cubic feet days of LNG to Pakistan, which is going through severe energy crisis due to fuel shortage required for operating power generation plants, half of which use natural gas to operate. Pakistan's Sui Southern Gas Company (SSGC), responsible for natural gas distribution networks, has signed a contract with Engro Elengy Terminal Private Limited (EETPL) to construct and commission a

FSRU at Qassim Port near Karachi with a capacity of 3 million tons/ year. The FSRU is due for operation during 2015.

In line with its plans to maintain its leading position as the world's biggest LNG exporter, Qatargas has announced the successful start-up of the Plateau Maintenance Project (PMP) in October. The objective of the project is to ensure the production capacity of Qatargas 1 is maintained at 10 million tons per annum of Liquefied Natural Gas (LNG) until 2021. The project involved drilling and recompleting offshore wells, adding new onshore facilities for sulfur handling and modifying existing LNG production trains 1, 2 and 3.

In Septemebr, RasGas Company Limited (RasGas) announced that Train 1 of its Barzan Gas Project (BGP) is 95 percent complete. It will play a significant role in meeting the increasing domestic demand for natural gas and its products. The company expects first gas production by first quarter of 2015. Construction work on Train 2 is also progressing and RasGas expects it to be complete by middle of 2015. Once completed, the trains will produce around 1.4 billion standard cubic feet a day (bcfd) of sales gas, 28,000 b/d of condensates, 34,000 b/d of ethane, 10,500 b/d of propane, and 7,000 b/d of butane. The project investments are around $10 billion; with Qatar Petroleum contributing to 93% of the shares, and ExxonMobil with 7%.

In November, Qatargas has announced the safe start-up of the Jetty Boil-off Gas Recovery (JBOG) Project in Ras Laffan Industrial City. This $800 million project is designed to eliminate flaring at the LNG Terminal. The project contributes to recovering about 100 million cubic feet per day of gas to be used as fuel in LNG trains. Over 30 years, it will secure about one trillion cubic feet of natural gas. It is considered a leading environmental project worldwide.

As for foreign investments in North America, Golden Pass Products, LLC (GPP), a joint venture between affiliates of Qatar Petroleum International (70%) and ExxonMobil (30%), awarded the continuing Front End Engineering Design (FEED) services contract to Japan's Chiyoda Corporation (Chiyoda) for the liquefied natural

gas (LNG) export facilities for the Golden Pass LNG Export Project. by The scope of work, which will be performed in conjunction with Chiyoda's partner CB&I, includes engineering and design services for the GPP LNG liquefaction and export facilities with a production capacity of 15.6 million tons of LNG per year. This measure is a major step towards the project's final investment decision to be taken in 2015 after acquiring environmental licenses from the Federal Energy Regulatory Commission in the USA.

2-8 Saudi Arabia

In July, Dutch Shell has decided to withdraw from its joint venture project SRAK to develop s Kidan our gas field in the Empty Quarter with Saudi Aramco. Shell has already stopped all drilling activities earlier this year, after spending about $400 in drilling exploration and appraisal wells. The withdrawal came because it was economically infeasible to develop the Kidan field, in addition to the company's plans to reduce its investments by $15 billion over two years according to their announcement in the beginning of 2014.

Negotiations are still on between Saudi Aramco and Russia's Lukoil on the price of the gas to be produced from block-A which stretches across 28,000 square km. The oil firm has made a discovery of about 14 trillion cubic feet of non-associated gas.

Wasit gas plant is expected to start operartions in the beginning of 2015, after a few months delay according to the project's original schedule due to some construction difficulties. The plant will be processing about 2.66 billion cubic feet/day of non-associated gas from the Hasba and Arabiyah offshore fields in the Gulf, 185km north east Zahran, to produce 1.7 billion cubic feet/day of sales gas to be pumped in KSA's main gas network. The project will contribute to increasing natural gas processing capacity by 40% along with the Karan field that has been recently operated.

In Novemebr, Saudi Aramco has contracted China's SEPCO to expand the capacity of the gas master system across Saudi Arabia,

which dates back to the 1970s, aiming to improve gas supply to industries in the west of the country. Under the contract, the first phase of an expansion of the gas master system will increase the capacity from 8.6 biillin cubic feet/day to 9.6 cubic feet/day by the end of 2016. Currently, engineering design work is being prepared for the second phase of the network expansion. It is due for completion in 2015. The second phase aims at a further increase of capacity to 12.8 billion cubic feet/day by 2018.

2-9 Tunisia

In March, the final investment decision has been taken on upgrading Nawara Field, South Tunisia, a 50/50 joint venture between Tunisia's ETAP and Austria's OMV. The project includes the construction of a Central Processing Facility (CPF), and a 370 km pipeline from the CPF to Qabis coastal city, where another plant for the production of propane, LNG, and sales gas to meet domestic market needs. It will be pumped through the National Commercial Gas Network of the Tunisian Electricity and Gas Company in Qabis. Later on, the project contracts were signed and awarded to Tunisian, Italian, German, British, and Greek companies. Work in the first phase started with the drilling of nine wells to produce 10,000 BOE/d. the project investments are estimated at about €1 billion. Production is due in 2016. It will largely contribute to meeting Tunisia's natural gas needs and will allow utilising natural gas resources southern Tunisia, which can be discovered in the future.

2-10 UAE

Within the frame of meeting the country's current and future needs of natural gas due to relying mainly on it for electrical power generation, the UAE is executing developmental projects with huge investments in order to increase domestic production levels, in addition to, expanding the construction of infrastructure to import LNG or pipeline natural gas. The step aims at diversifying supply

sources and avoiding relying on a single resource. For years, the UAE has been witnessing an increasing demand for natural gas which passes its domestic production. This has led to an increasing reliance on natural gas imports.

In May, Mubadala, which owns 51% of Dolphin Energy shares, confirmed the completion of the project on increasing the Dolphin pipeline design capacity, which transfers gas from Qatar's North Gas field to Abu Dhabi and Oman. The project included installing three new export gas compressors to the existing 6 compressors (an increase of capacity by 50%) at a cost of $370 million. The new compressors will increase the design capacity from 2 billion cubic feet of gas per day to 3.2 billion cubic feet of gas per day. However, no agreement has been made yet on the gas volume to be transferred via the pipeline with Qatar Petroleum.

As for LNG import projects, Emirates LNG announced in November that it is currently reviewing the tenders submitted by the qualified bidders for the engineering, procurement and construction (EPC) contracts to be awarded for the Emirates LNG Terminal and Regasification project at Fujairah Port on the Gulf of Oman with a capacity of 9 million tons per year. Evaluation and final investment decision should be made in the beginning of 2015. The project is expected to start operations by 2018. In Dubai, the Dubai Supply Authority (DUSUP) has entered into a 10-year charter agreement with Excelerate Energy in September under which Excelerate is to provide and operate a floating storage and regasification unit (FSRU). The FSRU is expected to be in service in April of 2015. The new terminal will replace the existing Jebel Ali LNG import terminal due to maintenance work. It is scheduled to upgrade the terminal's capacity in the second half of 2015 to be capable of a regasification capacity of 800 MMcf/d ready for service with the beginning of 2016.

As for natural gas field upgrading projects, in November, Al Hosn Gas announced that 98% of the sour Shah field construction works has been completed. The project is a joint venture between ADNOC (60%)

and Occidental Petroleum (Oxy, 40%). It should start production by the end of 2014. The project, located 210km southern Abu Dhabi, is scheduled to process 1 billion cubic feet per day of crude gas to produce about 540 million cubic feet of sales gas per day in addition to 33,000 b/d of natural gas fluids and about 10,000 tons/d of solid sulfur. Etihad Rail will transport the solid sulfur from Shah field to Al Ruwais port. The project is the first of its kind in the UAE and the Middle East to upgrade the sour gas reservoirs; the hydrogen sulphide content at the Shah gas field reaches 23%. This explains the technical difficulties represented in the design of pipelines, equipment, and raw material to deal with such a high level of sourness, temperature, and pressure. The upgrade of the Bab sour field, a joint project between Abu Dhabi National Oil Company (ADNOC) (60%) and Shell (40%), represents a bigger challenge technically and economically as the hydrogen sulphide content in the chemical composition of the gas reaches 30%. According to Shell, engineering designs are now underway; the project's next phase is expected to start in the beginning of 2015. The project aims at is processing 1 billion cubic feet per day of crude gas to produce 540 million cubic feet of sales gas per day with investments worth $40 billion. It is expected to be put on production by 2020.

2-11 Jordan

Jordan seeks to secure the country's natural gas needs following the total halt of natural gas imports from Egypt through the Arab Gas pipeline in 2014; in addition to the withdrawal of British Petroleum (BP) from developing Risha field in the beginning of the year. BP said it found no technical basis for a gas project at the Risha field in connection to exploration in the deep plays and in the Risha gas producing play. The company was hoping to reach 300 million cubic feet/day, however, results were disappointing. Therefore BP decided to hand the project to the Jordanian partner, National Petroleum Company, which decided to continue drilling to increase the field's 14 million cubic feet/day production.

In February, Noble Energy, Inc. signed a 15-year gas sales agreement with the Arab Potash Company ("Arab Potash"), and the Jordan Bromine Company ("Jordan Bromine"). Under terms of the agreement, Noble Energy will supply natural gas from the Tamar field, offshore occupied Palestine, to Arab Potash and Jordan Bromine for use in their facilities near the Dead Sea. Natural gas sales are anticipated to commence in 2016. The total gross contract quantity is approximately 66 billion cubic feet of natural gas. The price for the natural gas sold will be based on a floor price of $6.50 per a million BTU. Noble Energy operates Tamar with a 36 percent working interest. The Tamar field has an estimated 10 trillion cubic feet of discovered natural gas resources. In September, Noble Energy, Inc. signed a non-binding Letter of Intent (LOI) to supply natural gas from the Leviathan field, offshore occupied Palestine, to the National Electric Power Company Ltd. (NEPCO) of Jordan with a base gross quantity of 1.6 trillion cubic feet of natural gas over a 15-year term. A final gas purchase and sales agreement was scheduled to be completed in 2014. Noble Energy is also operating at the 22 trillion cubic feet Leviathan field with a share of 39.66%.

On another note, Royal Dutch Shell has won a contract to supply 590 million cubic feet/day of LNG to Golar FRSU terminal in Aqaba Port, which is due for operation in Q1 of the year 2015.

2-12 Oman

In February, UK's Petrofac has won a contract to construct a central gas processing facility (CPE) valued at around $1.2 billion for BP's Khazzan tight gas project in Block 61, central Oman. This contract comes following BP's signing of a 30-year agreement with the Omani government to develop the field, with about $16 billion of investments after 4 years of negotiations. The CPF will include two process trains, each having a capacity of 525 million standard cubic feet of gas per day. The project also includes an associated condensate processing system, industrial water treatment system, and a power generation plant. The project is expected to be completed in 2017. Production will ramp up to about one billion cubic feet/day by 2018.

In March, Oman and Iran signed a final agreement for Iran to supply about 10 billion cubic meters/year of natural gas via offshore pipeline to Oman. Under the agreement terms, gas will be transported via a pipeline from Rudan, southern Iran, to Sohar Refining and Petrochemicals Complex, northern Oman. The Omani side will bear all expenses of constructing the pipeline and associated facilities. Costs will be gradually recovered from gas sales to the Iranian side.

Oman's Oil Company for Exploration and Production (OOCEP) announced starting commissioning at the natural gas treatment plant in Abu Tubul tight gas field in Block 60 awarded to the company in 2010 following BP's withdrawal in the same year. Abu Tubul field development is the first unconventional gas project in Oman. Once completed, production will reach about 70 million cubic feet/day, and about 6,000 b/d of condensates. It will pump processed gas via the government gas system in Saih Nihayda, through which gas could be transported to the Oman LNG's complex.

TABLES

CHAPTER THREE

Table 3-1

World Existing Topping Distillation Capacity by Region, 2013 and 2014

(Million b/d)

	2013	2014	Difference	(%) Change 2013/2014
Africa	3.50	3.50	0.00	0.00
Asia/Pacific	26.40	26.71	0.31	1.17
Eastern Europe/CIS	9.81	9.81	0.00	0.00
Middle East	8.55	8.55	0.00	0.00
North America	21.75	21.53	(0.22)	(1.01)
South America/ Caribbean	6.44	6.44	0.00	0.00
Western Europe	14.40	14.19	(0.21)	(1.46)
Total	**90.85**	**90.73**	**(0.12)**	**(0.13)**

Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-2

World Catalytic Conversion Capacity by Region*, 2013 and 2014
(Million b/d)

	2013	2014	(%) Change 2014/2013
Africa	0.81	0.81	0.00
Asia/Pacific	8.35	8.38	0.28
Eastern Europe/CIS	2.81	2.81	0.00
Middle East	2.26	2.26	0.00
North America	13.83	13.83	0.00
South America/Caribbean	1.75	1.75	0.00
Western Europe	5.92	5.81	(1.82)
Total	**35.74**	**35.65**	**(0.24)**

* Includes catalytic cracking, hydrocracking and catalytic reforming.
Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-3

Regional Catalytic Conversion Capacity by Process, 2013 and 2014

(Million b/d)

	Catalytic Reforming				Catalytic Cracking				Catalytic Hydrocracking			
2013	2014	Dif-ferent	(%) Change 2014/2013	2013	2014	Dif-ferent	(%) Change 2014/2013	2013	2014	Dif-ferent	(%) Change 2014/2013	(%) Change 2013/2012
Africa	0.50	0.50	0.00	0.00	0.22	0.22	0.00	0.00	0.10	0.10	0.00	0.00
Asia/Pacific	3.14	3.24	0.10	3.15	3.63	3.63	0.00	0.00	1.59	1.51	(0.08)	(5.03)
Eastern Europe/CIS	1.54	1.54	0.00	0.00	0.84	0.84	0.00	0.00	0.43	0.43	0.00	0.00
Middle East	0.94	0.94	0.00	0.00	0.55	0.55	0.00	0.00	0.78	0.78	0.00	0.00
North America	4.87	4.87	0.00	0.00	6.53	6.53	0.00	0.00	2.43	2.43	0.00	0.00
South America	0.35	0.35	0.00	0.00	1.27	1.27	0.00	0.00	0.13	0.13	0.00	0.00
Western Europe	2.56	2.47	(0.10)	(3.86)	2.17	2.12	(0.05)	(2.53)	1.19	1.23	0.04	3.63
Total	**13.91**	**13.91**	**0.00**	**0.00**	**15.19**	**15.14**	**(0.05)**	**(0.36)**	**6.64**	**6.60**	**(0.04)**	**(0.56)**

* Includes catalytic cracking, hydrocracking and catalytic reforming.
Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-4

World Delayed Coking process Capacity by Region, 2013 and 2014

(Thousand tons/d)

	2013	2014	Difference	(%) Change 2013/2014
Africa	0.07	0.07	0.00	0.00
Asia/Pacific	1.20	1.30	0.10	8.32
Eastern Europe/CIS	0.31	0.31	0.00	0.00
Middle East	0.05	0.05	0.00	0.00
North America	2.80	2.90	0.10	3.61
South America	0.50	0.50	0.00	0.00
Western Europe	0.34	0.39	0.05	14.62
Total	**5.26**	**5.51**	**0.25**	**4.77**

Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-5

World Hydrotreating Capacity by Region, 2013 and 2014
(Million b/d)

	2013	2014	Difference	(%) Change 2013/2014
Africa	0.94	0.94	0.00	0.00
Asia/Pacific	12.34	12.59	0.25	2.03
Eastern Europe/CIS	4.18	4.18	0.00	0.00
Middle East	2.66	2.72	0.05	1.99
North America	15.67	15.77	0.10	0.64
South America	1.54	1.54	0.00	0.00
Western Europe	10.03	9.79	(0.25)	(2.46)
Total	**47.36**	**47.52**	**0.16**	**0.33**

Note: Parentheses denote negative figures.
Source:
- OAPEC Oil Refining Data Base

Table 3-6

World›s Top 25 Largest Refining Companies, Jan, (2014 - 2015)

Rank as in Jan. 2015	Company	Refining Capacity *1000 b/d	Rank as in Jan. 2014
1	Exxon Mobile Corp	5465.5	1
2	Royal Dutch Shell PLC	4184.6	2
3	SINOPEC	3971	3
4	BP PLC	2858.9	4
5	Saudi Aramco	2835.5	5
6	Valero Energy Corp	2769.5	6
7	Petroleos de Venezuela SA	2678	7
8	China National Petroleum Corp	2675	8
9	ConocoPhillips	2523.2	10
10	Chevron	2463.6	9
11	Total SA	2304.3	11
12	Petroleo Brasileiro SA	1997	12
13	Marathon Petroleum Co.LP	1731	17
14	Petroleos Mexicanos SA	1703	13
15	National Iranian Petroleum Co	1451	14
16	JX Nippon Oil&Energ Corp	1423.2	15
17	Rosneft	1293	16
18	OAO Lukoil	1217	18
19	SK Corp	1115	19
20	Repsol	1105	20
21	Kuwait National Petroleum Co	1085	21
22	Pertamina	988.2	22
23	Agip Petroli SPA	904	23
24	Flint Hills Resources	582.3	24
25	.Formosa Petrochemical Co	540	

* Include parial interests in refineries not wholly owned by the company
** Includes holdings in Caltex Oil and GS Caltex
Source:
Oil & Gas Journal,1 Dec. 2014.

Table 3-7

Ranking of World›s Top Largest Oil Refineries , January 2015

	Company	Location	Refining Capacity 1000 b/d
1 -	Paraguana Refining Center	Cardon/Judibana, Falcon, Venezuela	940
2 -	SK Corporation	Ulsan, South Korea	840
3 -	GS Caltex Corp	Yeosu, South Korea	775
4 -	S-Oil Corp	Onsan, South Korea	669
5 -	Reliance Petroleum	Jamnagar, India	660
6 -	ExxonMobil Refining&Supply Co	Jurong, Singapore	592
7 -	Reliance Industries, Ltd	Jamnagar, India	580
8 -	ExxonMobil Refining&Supply Co	Baytown, Texas, USA	560
9 -	Saudi Aramco	Ras Tanura, Saudi Arabia	550
10 -	Formosa Petrochemical Co	Mailiao, Taiwan	540
11 -	Marathon Petroleum Co. LLC	Garyville, Louisiana, USA	522
12 -	ExxonMobil Refining&Supply Co	Baton Rouge, Louisiana, USA	502
13 -	Kuwait National Petroleum Co	Mina Al-Ahmadi, Kuwait	466
14 -	Shell Eastern Petroleum Ltd	Pulau, Bukom, Singapore	462
15 -	Marathon Petroleum Co. LLC	Galveston Bay, Tex.	451
16 -	Citgo Petroleum Corp	Lake Charles, Louisiana, USA	440
17 -	Shell Nederland Raffinaderij BV	Pernis, Netherlands	404
18 -	Sinopec	Zhenhai, China	403
19 -	Saudi Aramco	Rabigh, Saudi Arabia	400
20 -	Saudi Aramco-Mobil	Yanbu, Saudi Arabia	400
21 -	Saudi Aramco Total Refiner & Petrochemicals Co. (SATORP)	Jubail	400

Source:
Oil & Gas Journal, 2 Dec. 2013.

Table 3-8

Installed Refining Capacity in the Arab Countries, 2010-2013

(Thousand b/d)

	Number of Refineries in 2014	2010	2011	2012	2013	2014
Algeria	5	582.9	582.9	582.9	582.9	582.9
Bahrain	1	267.0	267.0	267.0	267.0	267.0
Egypt	8	725.5	725.5	725.5	769.8	769.8
Iraq	12	860.0	860.0	860.0	860.0	860.0
Kuwait	3	936.0	936.0	936.0	936.0	936.0
Libya	5	380.0	380.0	380.0	380.0	380.0
Qatar	2	283.0	283.0	283.0	283.0	283.0
Saudi Arabia	8	2107.0	2107.0	2107.0	2507.0	2507.0
Syria	2	240.1	240.1	240.1	240.1	240.1
Tunisia	1	34.0	34.0	34.0	34.0	34.0
UAE	4	761.3	761.3	761.3	690.0	690.0
Total OAPEC	**51**	**7177**	**7177**	**7177**	**7549.8**	**7549.8**
Jordan	1	90.4	90.4	90.4	90.4	90.4
Sudan	3	140.0	140.0	140.0	140.0	140.0
Oman	2	222.0	222.0	222.0	222.0	222.0
Morocco	2	155.0	155.0	155.0	154.7	154.7
Mauritania	1	25.0	25.0	25.0	25.0	25.0
Yemen	2	140.0	140.0	140.0	140.0	140.0
Total other Arab countries	11	772	772	772	772.1	772.1
Total Arab countries	**62**	**7949**	**7949**	**7949**	**8321.9**	**8321.9**

Table 3-9

New Refinery Construction Projects in OAPEC Member Countries

Country	Project	Status 2013	Refining Capacity 1000 b/d	Status 2014
Algeria	Biscra	Construction	100	Construction
	Gurdaia	Engineering design	100	Engineering design
	Tiaret	Engineering design	100	Engineering design
	Hasi-Masuod	Engineering design	100	Engineering design
Egypt	Musturud	Postponing	160	Construction
	Ain al-Sokhna	Postponing	130	Postponing
Iraq	Nasiryia	Construction	300	Construction
	Karbala	Engineering design	140	EPC Contract
	Misan	EPC Contract	150	EPC Contract
	Kirkuk	Engineering design	150	Engineering design
Kuwait	Mina Al-Zour	Construction	530	Construction
Libya	Tubruq	Initial Study	300	Initial Study
	Obari	Initial Study	50	Initial Study
Saudi Arabia	Yanbu	EPC Contract	400	Construction
	Rabegh	Construction	400	Construction
	Jazan	Construction Bid Evaluation	400	Construction
	Furoqlos	Postponing	140	Postponing
Syria	Fujaira	EPC Contract	200	EPC Contract
UAE	Ruwais	Construction	417	Construction
	Ruwais	Construction	417	Construction

Table 3-10

New Refinery Construction Projects in Other Arab Countries

Country	Project	Status 2013	Refining Capacity 1000 b/d	Status 2014
Morocco	Al-Jufr Al-asfar	Postponed	200	Postpned
Oman	Dukum	Construction	230	Construction
Sudan	Port Sudan	Postponed	100	Postponed
Yemen	Rass Issa	Postponed	160	Postponed
	Hadramout	Postponed	50	Postponed

Table 3-11

World Top 10 Ethylene Complexes, January 2014

	Company Name	Location	Production Capacity Thousand) (tons/Year
1-	Exxon Mobil Chemical Company	Jouran Island Singapore	3500
2-	Formosa Petrochemical Company	Millan, Taiwan, China	2935
3-	Nova Chemicals Corporation	Joffre, Alta , Canada	2812
4-	Arabian Petrochemical Company	Jubail, Saudi Arabia	2250
5-	Exxon Mobil Chemical Company	Baytown, Tex	2197
6-	Chevron Phillips Chemical Company	Sweeny - Tex	1865
7-	Dow Chemical Company	Terneuzen, Netherlands	1800
8-	Ineos Olefins & Polymers	Chocolate Bayou, Tex	1752
9-	Equistar Chemicals LP	Channel view , Tex	1750
10-	Yanbu Petrochemical Company	Yanbu, Saudi Arabia	1705

Source:
Oil&Gas Journal, 7 July, 2014

Table 3-12

World Ethylene Capacity by Region, 2012 and 2013

(Thousand tons at the end of the year)

	2012	2013	Difference	(%) Change 2013/2012
Asia/Pacific	43101	45701	2600.0	6.03
Africa	1698	1698	0.0	0.00
Eastern Europe/CIS	7971	7971	0.0	0.00
Middle East	24309	24309	0.0	0.00
North America	35035	35035	0.0	0.00
South America	6384	6384	0.0	0.00
Western Europe	24904	24918.2	14.2	0.06
Total	**66323**	**66337.2**	**14.2**	**0.02**

Note: Parentheses denote negative figures.
Source:
Oil&Gas Journal, 1 July,2013 & 7 July, 2014

Table 3-13

World Ethylene Production Capacity by Country, 2005 and 2006

(Thousand tons /Year)

Country	2012	2013	Change
Algeria	133	133	0
Argentina	839	839	0
Australia	502	502	0
Austria	500	500	0
Azerbaijan	330	330	0
Belgium	2460	2460	0
Brazil	3500	3500	0
Bulgaria	400	400	0
Canada	5531	5531	0
Chile	45	45	0
China	13778	13778	0
Colombia	100	100	0
Croatia	90	90	0
Czech Republic	544	544	0
Egypt	330	330	0
Finland	330	330	0
France	3373	3373	0
Germany	5743	5757	14
Greece	20	20	0
India	3315	3315	0
Indonesia	600	600	0
Iran	4734	4734	0
Italy	2170	2170	0
Japan	6935	6935	0
Kazakhstan	130	130	0
Kuwait	1650	1650	0

/.Cont

Table 3-13 Cont.

Country	2012	2013	Change
Libya	350	350	0
Malaysia	1723	1723	0
Mexico	1384	1384	0
Netherlands	3965	3965	0
Nigeria	300	300	0
North Korea	60	60	0
Norway	660	660	0
Norway	550	550	0
Palestine	200	200	0
Poland	700	700	0
Portugal	330	330	0
Qatar	2520	2520	0
Romania	844	844	0
Russia	3490	3490	0
Russian Federation	193	193	0
Saudi Arabia	13155	13155	0
Serbia and Montenegro	200	200	0
Singapore	2780	5380	2600
Slovak Republic	220	220	0
South Africa	585	585	0
South Korea	5630	5630	0
Spain	1430	1430	0
Sweden	625	625	0
Switzerland	33	33	0
Taiwan	4006	4006	0
Thailand	3172	3172	0
Turkey	520	520	0
UAE	2050	2050	0
UK	2855	2855	0
Ukraine	630	630	0
USA	28121	28121	0
Uzbekistan	140	140	0
Venezuela	1900	1900	0
	143403	146017	

Note: Parentheses denote negative figures.
Source:
Oil&Gas Journal, 2 July,2012 & 1 July, 2013

Table 3-14

Top 10 Ethylene Producers
Jan 2014

Company Name	No. of Sites	Production Capacity (Thousand tons/Year)	
		of entire Complexes	With only Company Partial interests
1- Exxon Mobil Corp.	21	15115	8551
2- Saudi Basic Industries Corp.	15	13392	10274
3- Dow Chemical Co.	21	13045	10529
4 - Royal Dutch Shell Plc	13	9358	5947
5 - Sinopec	13	7895	7275
6 - Total AS	11	5933	3472
7 - Chevron Phillips Petrochemical Co.	8	5607	5352
8 - Lyondell Basell	8	5200	5200
9 - Iran National Petrochemical	7	4734	4734
10 - Ineos	6	4656	4286

Source:
- Oil & Gas Journal, 7 July, 2014

Table 3-15

Ethylene Production Capacity in the Arab Countries, 2009-2013

(Thousand tons/year)

	2009	2010	2011	2012	2013
Algeria	133	133	133	133	133
Egypt	330	330	330	330	330
Iraq	120	120	120	120	120
Kuwait	1650	1650	1650	1650	1650
Libya	350	350	350	350	350
Qatar	1220	2520	2520	2520	2520
Saudi Arabia	9400	11955	13155	13155	13155
UAE	600	600	600	2050	2050
Total	13803	17658	18858	20308	20308

Source:
- Oil & Gas Journal, 26 July 2010, 6 July 2011, 2 July 2012 & 1 July, 2013, 7 July 2014

Table 3-16

Natual Gas Consumption by Region, 2012 and 2013
(Billion cubic meters)

	2012	2013	(%) Change* 2013/2012
Africa	123.0	123.3	0.6
Asia/Pacific	627.1	639.2	2.2
Central & South America	162.3	168.6	4.2
Europe & Eurasia**	1082.6	1064.7	(1.4)
Middle East	412.9	428.3	4
North America	902.9	923.5	2.7
Total	**3310.8**	**3347.6**	**1.4**

*Annual changes are calculated based million tonnes oil equivalent figures
** CIS , Europe and Turkey represented by Europe & Eurasia.
Note:
Parentheses denote negative figures
Source:
- BP Statistical Review of World Energy, June 2013 and June 2014

Table 3-17

Evolution of Natural Gas Share of Total Commercial Energy Consumption by region, 2010-2013

(%)

	2010	2011	2012	2013
Africa	25.2	26.7	27.5	27.2
Asia/Pacific	11.0	11.2	11.3	11.2
Central& South America	21.8	21.7	22.2	22.5
Europe&Eurasia*	34.4	33.9	33.1	32.8
Middle East	47.4	48.8	48.6	49.1
North America	27.4	28.3	30.1	30.1
Total	**23.7**	**23.8**	**23.9**	**23.7**

* CIS , Europe and Turkey represented by Europe & Eurasia.
Note:
Shares of total are calculated in million tonnes oil equivalent figures
Source:
- BP Statistical Review of World Energy, June 2011 , June 2012 , June 2013 and June 2014

Table 3-18

Natural Gas Exports by Region, 2012 and 2013

Billion cubic meter

	2012	2013	(%) of Total	(%) Change* 2013/2011
Asia/Pacific	**122.5**	**124.4**	**12.0**	**1.6**
Of which: Australia	25.9	30.2	2.9	16.6
Brunei	9.4	9.5	0.9	1.1
Indonesia	38.6	31.3	3.0	(18.9)
Malaysia	32	33.8	3.3	5.6
Myanmar	8.6	8.5	0.8	(1.2)
Africa	**97.70**	**83.2**	**8.0**	**(14.8)**
Of which: Algeria	49.5	42.9	4.1	(13.3)
Egypt	10.4	3.9	0.4	(62.5)
Libya	2.4	5.2	0.5	116.7
Nigeria	25.9	22.4	2.2	(13.5)
FSU	**272.2**	**294.0**	**28.4**	**8.0**
Of which: Russia	221.2	225.5	21.8	1.9
Others	63.00	68.5	6.6	8.7
Middle East	**156.8**	**163.5**	**15.8**	**4.3**
Of which: Oman	10.90	11.5	1.1	5.5
Iran	9.1	9.4	0.9	3.3
Qatar	119.6	125.5	12.1	4.9
UAE	8.0	7.4	0.7	(7.5)
North America	**129.8**	**123.4**	**11.9**	**(4.9)**
Of which: Canada	83.8	78.9	7.6	(5.8)
USA	45.9	44.5	4.3	(3.1)
South America	**40.2**	**44.1**	**4.3**	**9.7**
of which: Trinidad & Tobago	18.5	19.8	1.9	7.0
Others	20.0	24.3	2.3	21.5
Westerm Europe	**201.6**	**203.3**	**19.6**	**0.8**
Of which: Norway	99.4	106.2	10.3	6.8
Netherlands	50.4	53.4	5.2	6.0
UK	16.0	8.9	0.9	(44.4)
Total	**1020.80**	**1035.90**	**100.00**	**1.48**

Source:
- BP Statistical Review of World Energy, June 2013 and June 2014

Table 3-19

World Natural Gas Exports by Region, 2012 and 2013

(Billion cubic meters)

	2012	(%)	2013	(%)
A- Exports by Pipelines.				
Africa	43.9	6.3	36.6	5.2
Asia/Pacific	28.8	4.1	28.5	4.0
Europe	193.8	27.8	194.5	27.4
FSU	257.4	37.0	279.8	39.4
Middle East	28.0	4.0	29.3	4.1
North America	128.9	18.5	123.3	17.4
South America	15.8	2.3	18.6	2.6
Total World Exports by Pipelines	696.6	100.0	710.6	100.0
B- LNG Exports				
Africa	53.8	16.6	46.6	14.3
Asia/ Pacific	93.7	28.9	95.9	29.5
Europe	7.8	2.4	8.9	2.7
FSU	14.8	4.6	14.2	4.4
Middle East	128.8	39.7	134.2	41.3
North America	0.9	0.3	0.1	0.0
South America	24.4	7.5	25.4	7.8
Total World LNG Exports	324.2	100.0	325.3	100.0
Total World Gas Exports	**1020.8**		**1035.9**	
Exports by Pipelines/Total (%)	**68.24**		**68.60**	
LNG Exports/Total (%)	**31.76**		**31.40**	
Exports as LNG/ Total Exports (%)	**30.48**		**32.25**	

Source:
- BP Statistical Review of World Energy, June 2014

Table 3-20

Evolution of World Natrual Gas Prices*, 2009 - 2013

USD / MMBTU

	2009	2010	2011	2012	2013	(%) Change 2013/2012
Canada	3.38	3.69	3.47	2.27	2.93	29.1
EU	8.52	8.01	10.48	11.03	10.72	(2.8)
Japan**	9.06	10.91	14.73	16.75	16.17	(3.5)
UK	4.85	6.56	9.04	9.46	10.63	12.4
USA	3.89	4.39	4.01	2.76	3.71	34.4

* CIF: Cost+Freight+insurance
**LNG
Source:
- BP Statistical Review of World Energy, June 2014

Table 3-21

Distribution of LNG Namplate Production Capacity in the world, 2013

(MTPA)

	Nameplate Production Capacity (MTPA)	(%) of Global Capacity
Atlantic	**86.6**	**29.7**
Of which: Algeria	23.9	8.2
Angola	5.2	1.8
Egypt	12.2	4.2
Equatorial Guinea	3.7	1.3
Nigeria	21.8	7.5
Norway	4.3	1.5
Trinidad and Tobago	**15.5**	**5.3**
Middle East	99.9	34.3
Of Which: UAE	5.8	2.0
Oman	10.4	3.6
Qatar	77	26.4
Yemen	**6.7**	**2.3**
Pacific	105	36.0
Of Which: Australia	24.1	8.3
Brunei	7.1	2.4
USA	1.5	0.5
Indonesia	34.1	11.7
Malaysia	24.2	8.3
Perú	4.45	1.5
Russia	**9.55**	**3.3**
Total	**291.50**	**100.0**

Sources:
- GIIGNL ,the LNG industry in 2013
- IGU world LNG report-2014 edition

Table 3-22

Distribution of LNG Nameplate Production Capacity in the Arab Countries, 2013

(MTPA)

	Nameplate Capacity	(%) of Global Capacity
	MTPA	
Algeria	23.9	8.2
Egypt	12.2	4.2
Oman	10.4	3.6
Qatar	77	26.4
UAE	5.8	2.0
Yemen	6.7	2.3
Total	**136.0**	**46.7**

Sources:
- GIIGNL ,the LNG industry in 2013
- IGU world LNG report-2014 edition

PART TWO

OAPEC ACTIVITIES IN 2014

Chapter 1

THE MINISTERIAL COUNCIL AND THE EXECUTIVE BUREAU

1-1 THE MINISTERIAL COUNCIL

The Ministerial Council of the Organization of Arab Petroleum Exporting Countries held its 92nd meeting in Cairo, the Arab Republic of Egypt, on 2 June 2014. The meeting was held at the level of the ministers' representatives and was chaired by His Excellency Mr Hassan Mohammed Al Rufai'e, the representative of the Republic of Iraq at the Executive Bureau. The council held its 93rd meeting in Abu Dhabi- UAE on 21 December 2014; the meeting was chaired by His Excellency Mr Adel Abdul Mahdi, Minister of Oil of the Republic of Iraq.

The decisions adopted by the Ministerial Council this year are included in the press releases issued after the two meetings, and are appended to this report.

1-2 THE EXECUTIVE BUREAU

The Executive Bureau held its 138th meeting in Cairo, the Arab Republic of Egypt, on 31 May 2014 to prepare the agenda of the 92nd Ministerial Council Meeting (at the level of the representatives). It held its 139th meeting in Kuwait- State of Kuwait, on 11 October 2014, to consider the 2015 budget of the (Secretariat General and the Judicial Tribunal) and to submit recommendations to the 93rd Ministerial Council Meeting.

The Bureau also held its 140th meeting in Abu Dhabi-UAE on 18 December 2014, to draw up the agenda for the 93rd meeting of the Ministerial Council.

Chapter 2
The Secretariat General

OAPEC Secretariat General has implemented its annual program for 2014, including completion of technical and economic studies and research papers relevant to petroleum industries. The Secretariat General has also completed organizing or participating in conferences, seminars and workshops.

These activities are reviewed as follows:

1-1 Reality and Future Prospects of Natural Gas Industry and Trade in the Arab Countries

The study aims at presenting current developments and future projections for natural gas industry and trade in the Arab countries. It tackles the most important current development projects that are expected to contribute to increasing the Arab countries' natural gas output and its implication for meeting the increasing domestic demand for gas, which is the most significant challenge for Arab countries on one hand, and the volume of surplus allocated for exporting on the other hand.

1-2 Shale Oil Resources Development in the Arab World and Worldwide

The study aims at highlighting shale oil resources and production, as well as, obstacles hindering its active investment. It also looks into the extent of its actual impact on energy markets currently and in future.

The study covers shale oil in the Arab countries providing an estimation of its resources both in the Arab countries and worldwide. It specifies also some challenges that hinder developing its industry.

1-3 Prospects of the World Oil Refining Industry

The 9-chapter study aims at highlighting the most important features and challenges of the oil refining industry in the world's main regions, which are Asia Pacific, North America, Western and Eastern Europe, South America, the Middle East, and Africa. It pointed out to the measures taken to enable refineries adapt to challenges in order to exert lessons for those in charge of the industry to opt for appropriate solutions to face their negative impacts whether currently or in the future.

1-4 Development of Natural Gas Prices in the World Markets

The study basically aims at shedding the light on the development of natural gas prices in the world markets and their relation to oil prices. The study consists of 4 parts; the first gives an overview of the world's natural gas markets, the second tackles Arab and global natural gas prices, the third covers natural gas pricing and its development, while the fourth highlights the relationship between natural gas and oil prices. The study then gives some conclusions.

The study's most important conclusions include the different predictions on gas pricing and its relationship to oil prices. Current indications show that, firstly, it is more likely that gas pricing in Europe and Asia is developing towards a more diverse mix including an oil-related pricing and a gas-related pricing, in addition to a pricing that is related to other alternative indices. Secondly, future transformations in Asian gas markets will be more gradual and less extreme compared to European gas markets. Thirdly, gas-related pricing will continue in the US and British markets, since they are more developed, open, and transparent.

1-5 Current and Future Prospects for Crude Oil and Natural Gas Demand in OECD Countries and their Implications for OAPEC Member Countries

The aim of this study is mainly to highlight current and future prospects for crude oil and natural gas demand in OECD countries

and their implications for OAPEC members. Part one of the study reviews and analyzes crude oil main indicators such as proven reserves, production, consumption and trade in OECD countries in general and the USA, EU, and Japan in particular. It also presents future prospects for OECD countries oil demand.

Part two of the study reviews and analyzes OECD countries natural gas industry indicators. It also highlights future prospects for OECD countries natural gas demand during the period (2011-2035). Part three is dedicated to study the impacts of the development of future demand for crude oil and natural gas in OECD countries on OAPEC members. In part four and five, the results and conclusions of the study are presented.

Among the main conclusions of the study is that the global crude oil and natural gas demand is expected to be concentrated in the developing countries in the next two decades. Developing countries crude oil and natural gas demand is expected to grow at annual growth rates of 2.2% and 2.3% respectively. While change in the OECD countries' demand rate is expected to be limited, which would reflect on the global map of the crude oil and natural gas trade on one hand; and OAPEC oil and natural gas exports markets on the other hand.

1-6 Role of Oil Inventories in Global Markets and their Implications for OAPEC Member Countries

The study aims at listing the recent developments on oil inventories and their impact on the different oils price fluctuations from one side, and their impacts on oil supplies, especially from OAPEC members, on the other side, during the period 2010-2014. It is worth mentioning that the Secretariat General has prepared a study in 2010 on the same subject covering the period 1999-2010. Due to the importance of following up oil inventories developments in the world markets, OAPEC Secretariat General decided to do a follow up study covering the recent five years (201-2014) with updated data.

The study defines the various oil inventories types and categories adopted by the oil industry; in addition to the developments of the

various oil inventories volumes and their sufficiency as per the number of consumption days for the period (2010-2014). Also, the study analyzes the relationship between the various oil inventories and the crude oil prices during 2010-2014, oil supply and demand rates in 2010-2014, the role of inventories in striking a balance in the oil market, and the implications of the oil inventories rates fluctuations for the oil market and OAPEC oil supplies and prices.

1-7 Development of Sovereign Debt Crisis in the Euro-zone and its Implications for OAPEC Petroleum Exports

The study aims at highlighting efforts to resolve the crisis after presenting its history, reasons, actual implications for the global economy and world oil markets in general, and OAPEC members' economies and the Arabian petroleum sector in particular.

The study gives a historical background on the development of the EU's monetary union, justifications for its existence, the reality of the European debt crisis and its relation to the global financial crisis, efforts to resolve it, its implications for the Euro-zone, the global economy, the world petroleum markets, and OAPEC members' economies.

1-8 Programme on Improving Performance in the Arab Oil Refining Industry

This paper was presented to Kuwait's 2nd Annual Kuwait Downstream Technology Summit, held on 2 and 3 June 2014, and organized by IQPC.

The paper reviews the features of the refining industry in the Arab countries in terms of refining capacity, and the number of existing refineries in each OAPEC member and non-member country. It also tackles the most important challenges facing the Arabian refining industry, which are mainly found in the large number of small-size and simple refineries that have nor conversion units, which lead to a drop in their profitability, insufficient capacity to meet domestic demand for oil products, difficulties in keeping in pace with the

environmental legislations on oil products and cutting emissions.

The paper presented the available opportunities for the oil refining industry in the Arab countries that would improve its performance, most important of which are:

- The availability of crude oil in the Arab countries, which cuts costs paid by oil refineries in the non-producing countries
- The availability of plans to develop existing refineries and constructing new ones. It is predicted that these projects would increase the total of the refining capacity in the Arab countries from 7.9 million b/d to about 13 million b/d by 2018. This would enable the refining industry to meet the oil products needs of the domestic market and export the surplus to global markets.
- Enhancing integration between the refining and petrochemicals industries in order to utilize the benefits of such integration through feedstock and products exchange or sharing services units.

1-9 Papers presented at The 14th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries

The Secretariat General presented 2 papers at the 14th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries, which took place on 13 and 14 October 2014 at OAPEC Secretariat General's Headquarters.

The first paper tackled the Secretariat General activities during the period between the 13th and the 14th meetings. It also presented some important indicators of the natural gas industry in 2013, as well as, global developments in natural gas production and consumption, pipeline natural gas and LNG trade, in addition to the Arab countries' share of the world's natural gas and LNG trade. The paper gave an overview of the natural gas industry's development domestically in OAPEC member countries.

The second paper tackled the abstract of the study entitled "Reality and Future Prospects of Natural Gas Industry in the Arab

Countries". It presented the most important developments in the natural gas industry and trade in the Arab countries during 2002-2012, including natural gas reserves developments, the role of exploration and developmental activities in compensating for what has been produced in the past decade, developments in natural gas production and consumption, and surplus available for export. The paper has also presented the gas export system that includes pipelines, LNG production and export terminals, and the role of this system in increasing natural gas exports in the Arab countries. The paper concluded by presenting an overview of the natural gas industry's future projections on the medium-term during the period 2014-2018, and the current natural gas export projects to meet the increasing demand for gas in the Arab countries.

1-10 To Flare or Not To Flare: that is the question?

This paper has been presented to the 3rd Annual Flare Management and Reduction Summit that took place from 26 to 29 October in Abu Dhabi, UAE. The event was organized by the International Quality and Productivity Center (IQPC).

It tackled many points including the following:

- Specifying total flare levels in the region and understanding relevant strategies for further reduction
- Identifying ideal techniques for gas recovery and flare reduction
- Companies' role in limiting unplanned flare and reducing its environmental effects
- Role of operating companies and new technology producers in improving flare management

II. Conferences and Seminars Organized by the Secretariat General

The Tenth Arab Energy Conference

Under the high patronage of HH Sheikh Khalifa bin Zayed bin Sultan Al Nahyan, the President of the United Arab Emirates, the Tenth Arab Energy Conference (AEC10) was held in Abu Dhabi, UAE, from 21 to 23 December 2014. The theme of the Conference was "Energy and Arab Cooperation." Official delegations representing 13 Arab countries, mostly headed by their Excellencies Petroleum, Energy, and Electricity Ministers; in addition to, senior officials of Arab, regional, and international organizations, institutions, and research centers took part in the event.

Over three days, the Conference discussed current international energy developments especially oil, gas, and electricity, and their implications for the Arab countries now and in the future. The conference also tackled, through its discussion panels and technical sessions, the overall current developments in global markets, investment prospects required for developing the energy sector while protecting the environment and achieving sustainable development. The conference looked into Arab and global energy resources-related issues, energy consumption and conservation potentials in the Arab countries, and current developments in electricity interconnection among Arab countries.

Following is the conference communiqué:

Communiqué
The Tenth Arab Energy Conference
Abu Dhabi, the UAE
21-23 December 2014

In the Name of Allah the Most Gracious Most Merciful

The Tenth Arab Energy Conference (AEC10) was held in Abu Dhabi, UAE, from 21 to 23 December 2014 under the high patronage of HH Sheikh Khalifa bin Zayed bin Sultan Al Nahyan, the President of the United Arab Emirates. The theme of the Conference was "Energy and Arab Cooperation."

The Conference was organized by the Organization of Arab Petroleum Exporting Countries (OAPEC), the Arab Fund for Economic and Social Development (AFESD), the League of Arab States (LAS), the Arab Industrial Development and Mining Organization (AIDMO), and the UAE's Ministry of Energy.

HE Engineer Suhail Mohamed Faraj Al Mazrouei, the UAE Minister of Energy and the Conference Chairman, opened the Conference by a speech conveying the greetings of the UAE President His Highness Sheikh Khalifa bin Zayed Al Nahyan, Patron of the conference, to ministers and members of the participating delegations, wishing the conference success. The Minister noted that the UAE, that hosted the Conference's first round, had the pleasure to host its tenth round this year.

The Minister of Energy said that the conference was held at a time when the world has been witnessing a significant drop in oil prices, which created and would create a significant economic burden on OAPEC members. Al Mazrouei praised OPEC's recent decision for unchanged production ceiling to give the market time to achieve balance and restore growth gradually adding that it was a correct and strategic decision which would be beneficial to the global economy.

Concluding his speech, the Minister of Energy said he hoped that the conference would introduce working papers, panel discussions

and technical sessions with positive outcomes and recommendations for the growth and development of the Arab world.

Then, HE Abdulatif Al Hamad, Director-General and Chairman of the Board of Directors at the Arab Fund for Economic and Social Development (AFESD), gave a speech on behalf of the Conference organizers and sponsors, expressing highest gratitude and appreciation for HH the President of the UAE for being the Conference Patron. He noted that the Conference is hosted by Abu Dhabi that hosted the First Arab Energy Conference back in 1979. He lauded the role of the late Dr Ali Ahmed Atiqa, OAPEC's former Secretary General in organizing Arab energy conferences. HE Al Hamad referred to the main energy indices in the Arab countries and the pioneer role played by petroleum in the energy system and enhancing cooperation in the field. He stressed that whatever tackled in the conference would be discussed in a scientific way to ensure it contributes to the progress of the Arab economic and developmental cooperation.

Their Excellencies the Ministers of Petroleum, Energy, and Electricity, and the Heads of official delegations representing 13 Arab countries, in addition to senior officials of Arab organizations and institutions, and regional and international agencies have attended the prestigious event. A number of energy experts, representatives of Arab and international companies and petroleum research centers also took part in the Conference. Their Excellencies the Ministers and Heads of delegations have spoken displaying the current situation and future trends of the energy sector and the development plans in their respective countries.

During its discussion panels and technical sessions, the Conference tackled latest world market developments, and investment approaches required for developing the energy sector while maintaining the environment and achieving sustainable development. The Conference also considered issues relevant to Arab and international energy resources, their consumption in the Arab countries, and their conservation opportunities, in addition to electricity interconnection among Arab countries, technological

developments and their implications for this important sector.

Here are the most important conclusions of the conference papers and discussions:

First: Current Developments in the Oil and Natural Gas Markets and their Implications for the Arab Energy Sector

The conference discussed current developments in the oil and natural gas markets and their implications for the Arab energy sector in light of the extraordinary conditions, the unstable conditions of the energy markets that led to sharp price fluctuations due to the drop in the world demand as a result of the global economic growth slowdown from one side, and the oversupply from the other side. These conditions have aggravated due to other geopolitical factors.

Within this framework, the conference recommended the following:

- The vital position of the Arab petroleum producing and exporting countries in the world's energy markets dictates doubling their efforts to reach a harmonized vision on energy issues to coordinated efforts between them on one side, and with other petroleum producing countries from the other side.
- Major oil and natural gas producing and consuming countries should work together to create an appropriate climate to achieve stability in energy markets and eliminate uncertainty that haunted the markets due to economic and environmental challenges.
- The importance of boosting dialogue and intensifying cooperation among all major parties of direct relation to the oil and natural gas industry, including producers, consumers and investors to create an appropriate climate for stabilizing the markets through prices that are acceptable for both producers and consumers, which also encourages investment in the petroleum industry and energy security.

Second: Investments Required for Developing the Energy Sector in the Arab Countries

Investors in the energy sector face three sensitive issues: high costs of projects, shortage in natural gas supplies, and restrictions imposed on funding. The latter is the most sensitive of the three issues. Due to the importance of these issues, the conference recommended the following:

- Decision makers should focus on their commitment to improve the investment climate and empower businesses.
- Since project construction contracts are the main component of costs, it is imperative that policy makers encourage those in charge of projects to assess and control contracting strategies and use alternative tools and methods to reduce risks in order to cut costs.
- Resolving the region's gas sector dilemma represented in shortage in gas supplies in spite of the availability of reserves by handling supply and demand. It is important that decision makers reform energy pricing policy in the domestic market to curb excessive consumption, in addition to, enhancing pricing incentives for investors in the fields of natural gas exploration and development.
- Securing medium and long- term funding is one of the biggest challenges facing investors. With increasing social pressure to get governmental funding and its impact on public budget balances, internal financial resources would not suffice to cover shortage in required funding.

Therefore, policy makers should encourage alternative ways of funding that are more sustainable and less dependent on oil price. Obtaining funding through capital markets is one of the most important alternatives.

Third: Energy, Environment, and Sustainable Development

Arab countries work on achieving sustainable development that aims at merging economic, social, and environmental aspects with modern global economic thinking trends related to energy, as well as endorsing green economy as a means for realizing "The Future We Want" document issued by the Rio+20 Earth Summit in June 2012.

The conference looked into the importance close connection between development, energy, and environment, in addition to the UNFCCC developments.

In this regard, the conference recommended the following:

- Reiterating the basic principles governing international cooperation to tackle climate change or renegotiating it. Stressing the developed countries' responsibility to lead international efforts on cutting emissions, funding, and transferring technology.
- Calling upon Arab countries to adhere to the UNFCCC and avoiding rewriting, re-explaining, re-negotiating, or adding annexes to it. Negotiations should be carried out in line with the UNFCCC principles based on fair, common but differentiated responsibilities, committing to the historical responsibility and the right of the Arab countries to achieve sustainable development.
- Green economy is a way to achieve sustainable development. It should happen according to each country's conditions allow them to take the necessary measures, especially policies on converting to green economy.
- Fossil fuel will remain the prime energy resource. It will contribute vitally to the energy mix for long coming decades in light of having more than 20% of the world population that are deprived of energy. Fossil fuel is the main reason in economic development. There is a need to strike a balance with other types of energy as all these resources are complementary to each other. This will serve international efforts on sustainable energy.
- Stressing the importance of research and technology development on cutting emissions especially the CCS technique, supporting international cooperation on climate change, encouraging using mechanisms endorsed by the UNFCCC to cut emissions resulting from global warming worldwide.
- Giving attention to economic diversification agreed at the COP-18 in 2012 in Doha, Qatar. It gives the developing countries, whose economies depend on limited resources, the right for sustainable development, and their consent to present their measures and current plans on economic diversification to achieve mutual

benefits represented in cutting emissions and adapting to climate change impacts.

- Any new accord proposed at the coming COP-21 in Paris in 2015 should be within the frame of the UNFCCC to protect developing countries gains.
- Reiterating the importance of the unified Arab stance agreed at the COP-20 in 2014, in Lima, Peru. In addition to the importance of coordination between national delegations participating in international events in this regard to prevent reaching resolutions at such events that contradict with the Arab negotiating stance.
- Adaptation to the negative impacts of climate change is a high priority and it has to be a part and parcel of the INDCs that will be agreed in the new accord. Developed countries should provide the different types of funding and support for this cause.

Fourth: Arab and World Energy Resources

Arab countries accounted for about 57% of the total proven conventional oil reserves and 27% of the natural gas reserves in 2014. This is in addition to possessing huge undiscovered oil and gas reserves. However, their production does not conform to these large reserves as Arab countries oil production did not exceed 30% of the total world output. Marketed gas from Arab countries represented only 17% of the marketed gas amounts worldwide in 2013. Some studies indicated that a number of Arab countries have potential shale oil resources.

Arab countries are a promising region for power generation from some renewable like solar and wind; however, exploiting these resources is still limited. There are new projects under contracting or construction in Jordan, Oman, Morocco, the UAE, Bahrain, and KSA.

The nuclear energy is the fastest growing among all other energy resources. Its efficiency and safety in electricity power generation is increasing continuously. The total number of operating nuclear reactors worldwide was 438 by the end of 2013, more than 81% of which are located in 10 countries only.

The conference recommended the following:

- Continuing exploration operations to find new wells to contribute to increasing current reserves in the Arab countries, and adopting modern technology that contributes to increasing extraction from known wells in order to add to the recoverable proven reserves.
- Concentrating exploration efforts on non-associated natural gas in light of the global trend to use it as a clean fuel
- Giving attention to offshore oil and natural gas exploration, especially following the success of many Arab countries in exploring and developing these types of fields.
- Conducting detailed studies on whether to enlist potential shale oil resources in Arab countries on their reserves list. The most important challenge that might face production in this regard is the very large quantities of water required for drilling and hydraulic fracturing.
- Developing the use of nuclear energy as a strategic choice, which calls for Arab collaboration in concentrating on using nuclear power for peaceful purposes.
- Building human capacities in the various energy aspects and developing education systems to suit specializations that are required for national plans in this regard.

Fifth: Energy Consumption in the Arab Countries and Conservation Potentials

The conference noted that there has been a hike in energy consumption in the Arab countries, especially petroleum, natural gas, and electrical power. As energy conservation's positive sides gain support from studies and reports, the conference recommended the following:

- Developing strategies and executive programs on energy conservation and efficiency on all levels and sectors, especially the industrial.
- Working on increasing the electrical systems efficiency through paying attention to maintaining the electrical system components,

and increasing the efficiency of the existing power plants.

- Activating partnership between civil society institutions and the governments in the Arab countries regarding organizing a number of executive programs to raise awareness on the importance of energy conservation.
- Endorsing well prepared and balanced pricing policies on domestic consumption of the various resources to keep in pace with energy tariffs and their actual costs in order to boost rational consumption.

Sixth: Electrical Interconnection among Arab Countries

Calling upon Arab countries to benefit from the recommendations of the study prepared by the Arab Fund for Economic and Social Development entitled "Feasibility of Comprehensive Arab Electrical Interconnection and Assessing the Use of Natural Gas in Electricity Exports". Work should be done to promote the results of this study and invest in the benefits of the electrical power interconnection, in addition to accelerating the development of the Arab electricity market mechanisms.

The conference recommends the following in particular"

- Activating Arab electrical networks interconnection and establish an Arab power market
- Working on developing natural gas projects and contributing to enhancing the Arab electricity interconnection
- Completing and updating the countries database and conducting planning studies and setting up networks basis
- Activating GCC electricity interconnection through establishing a GCC electricity power market mechanism

Seventh: Technological Developments and their Implications for Energy Sector

The conference noted the increasing and hige importance of the technological developments I the energy industry in recent years, and recommended the following:

- Working on obtaining advanced technology that enables Arab countries to use their potential unconventional oil and gas resources.
- Arab petrochemicals companies should pay attention to advanced products industries and should plan to manufacture final products rather than basic ones
- Raising awareness the importance of energy conservation at refineries
- Executing industrial water recycling projects in line with the requirements of environmental protection standards

Eighth: Time and Venue of the Next Conference

OAPEC Secretary General HE Abbas Ali Al Naqi delivered a speech at the end of the Tenth Arab Energy Conference on behalf of the Conference organizers and sponsors, in which he expressed sincere thanks and gratitude to everyone that contributed to the success of the conference.

He welcomed the invitation of the Moroccan Energy, Minerals, Water, and Environment Minister HE Abdul Qader Umarah to hold the 11th Arab Energy Conference in 2018 in the Kingdom of Morocco.

The participants expressed appreciation and gratitude to the UAE's leadership, government, and people for their hospitality and warm welcome.

In the end, the UAE Minister of Energy and the President of the Conference HE Engineer Suhail bin Mohamed Faraj Al Mazrouei sent a cable to the President of the United Arab Emirates HH Sheikh Khalifa bin Zayed Al Nahyan expressing thanks and gratitude of their Excellencies the Ministers and heads of Delegations for being the Conference Patron. The Conference thanked HE Al Mazrouei for all his efforts throughout the conference and for his excellent managing of its progress.

Abu Dhabi on 1 Rabi' Al Awwal 1436H corresponding to 23 December 2014

III. Conferences and Seminars attended by the General Secretariat

3-1 The Final Meeting on Monitoring Work on Arab Electricity Interconnection Feasibility Study, and Evaluation of Natural Gas Utilization for Electricity Export, Kuwait, 14-15 January 2014

In response to an invitation by the Secretariat General of the Arab League (Economic Sector, Energy Department, Secretariat of the Arab Electricity Ministerial Council), the Secretariat General participated in the "Final Meeting on Monitoring Work on Arab Electricity Interconnection Feasibility Study, and Evaluation of Natural Gas Utilization for Electricity Export" (Parts 1 and 2 of the study) being funded by the Arab Fund for Economic and Social Development (AFESD). The meeting was held in the State of Kuwait, during the period 14-15 January 2014.

The main goal of the meeting has been to follow up on the study progress and discuss final conclusions of Part1 and 2 feasibility study presented by the Advisor in charge of conducting the study.

The report presented on the study included a comprehensive review of all its stages.

3-2 The 17th International Conference on Petroleum

In response to an invitation from the Egyptian Petroleum Researches Institute, OAPEC Secretariat General participated in "The 17th International Conference on Petroleum", held from 9 to 11 February 2014 in Cairo, Egypt, under the slogan "Petroleum, Mineral Resources, and Development".

The conference's main topic included:

- Clean technology in the petroleum industry
- Nanotechnology role in petroleum and chemistry
- Role of natural gas in development

- Petroleum and petrochemicals residuals recycling
- Role of chemistry in development

3-3 The GCC – Germany Business and Investment Forum, Berlin, Germany, 12-13 March 2014

OAPEC Secretariat General took part in The GCC – Germany Business and Investment Forum in Berlin from 12 to 13 March 2014 upon a kind invitation from the Chairman of The Gulf Research Center Foundation. The event was cosponsored by The Gulf Research Center Foundation, Arab- German Chamber of Commerce and Industry (Ghorfa), and the Federation of GCC Chambers (FGCCC). A large number of senior officials from both sides participated in the event.

The Forum aims at identifying both sides investment opportunities and reviewing the current status and future prospects of cooperation in energy and other sectors.

The Secretariat General presented a paper on the current situation and future prospects of the oil and gas industry in the GCC countries. It pointed out to the significant position of these countries within the global energy industry. The presentation also touched upon the future of the international energy demand in light of the current global economic and technological developments. It also enumerated the aspects of energy cooperation between the GCC countries and Germany.

3-4 Preparatory Meeting of Senior Officials of the League of Arab States' (LAS) Economic and Social Council at the Summit Level, 25th Ordinary Session, State of Kuwait, 20 March 2014

On 22 March 2014, senior officials held a meeting to discuss the follow up report on executing the decisions of the previous Arab Developmental, Economic, and Social Summits. It also followed up the issue on developing the Arab economic and social joint action, the

establishment of a giant Arab investment zone, the establishment of an Arab banking commission, LAS Secretary General's initiative on renewable energy, and the establishment of an Arab mechanism for the coordination of humanitarian and social aids in Arab countries.

3-5 Meeting of the League of Arab States' (LAS) Economic and Social Council at the Summit Level, 25th Ordinary Session, State of Kuwait, 22 March 2014

The Ministerial Council has been informed about the economic and social issues discussed at the Senior Officials' Meeting.

3-6 Meeting of the League of Arab States' (LAS) Council at the Summit Level, 25th Session, State of Kuwait, 25-26 March 2014

The 25th session of the LAS Council at the Summit Level was held in Kuwait in 25 and 26 March 2014.

3-7 Third Coordinating Meeting for OAPEC Databank Liaison Officers

The meeting was held in Kuwait on 30 and 31 March 2014. It aimed at discussing the energy data collection form, all relevant aspects of oil and energy industry's statistics that are sent periodically to the member countries, and how they are handled by the databank members. The meeting also tackled:

- Evaluating follow up and communication mechanisms in the system's stages 1 and 2 to make communication among member countries' liaison officers a success. Discussing statistical and technical gaps that emerged during the execution of the second stage.
- Discussing the endorsed recommendation of the 90th Ministerial Council Meeting (at the level of Representatives) held in May 2013, that stipulates "Instructing the Secretariat General to prepare

all relevant information and statistics published on national oil companies and their activities in the member countries in order to be included in the OAPEC Secretariat General database to make use of some of the Arab oil companies' experiences."

- Follow up and revision of the 'proposed additions on the energy data collection form' at the Second Coordinating Meeting for OAPEC Databank Liaison Officers. Putting scenarios on synchronizing energy collection form's data with that presented to international oil and energy industry organizations
- Discussing the remarks of the liaison officers on the implementation of the system's second stage and future prospects

3-8 Second Gulf Petroleum Forum 2014, Kuwait, 7 to 8 April 2014

Upon an invitation from the Head of the Organizing Committee, the Secretariat General participated in the Second Gulf Petroleum Forum 'Gulf Petroleum Industry and Energy Perspective' in Kuwait from 7 to 8 April 2014 under the auspices of Kuwait's Prime Minister

HH Sheikh Jaber Al Mubarak Al Hamad Al Sabah. The forum tackled the latest in the oil, gas, and petrochemical industries, the regional changes and their implications for the global oil markets, and highlighting the GCC countries' strategic significance. A group of experts, decision makers, and specialists in oil, gas, and petrochemicals in both public and private sectors in the GCC and Arab countries, in addition to figures from regional and international organizations took part in the forum.

During 5 discussion panels, the forum tackled a number of major topics closely linked to the oil, gas, and petrochemicals industry covering its technical, economic, and commercial aspects, in addition to the role of this vital industry in the overall developmental process in the GCC countries in general. The topics included: the impact of international and economic variables on the future of petroleum industry and energy (seminar); investment prospects and

obstacles in GCC petroleum projects, and the petroleum industry and environmental and technological challenges,

The Secretariat General presented a paper on the 'Petroleum Industry Developments in the Arab Countries' in general and the GCC in particular, in addition to future challenges that could face the Arab petroleum industry.

3-9 13th International Arab Mineral Resources Conference and Exhibition, Marrakesh, Morocco, 28-30 April 2014

Upon an invitation by the Director General of the Arab Industrial and Mining Organization (AIDMO), OAPEC Secretariat General took part in The 13th International Arab Mineral Resources Conference and Exhibition in Marrakech, Morocco, from 28 to 30 April 2014, under the high patronage of King Mohammed VI of Morocco.

The event was organized by the Arab Organization for Industrial Development and Mining in collaboration with the Moroccan Ministry of Energy, Mines, Water and Environment, as well as, the Saudi Ministry of Petroleum. The conference was held under the slogan "Mineral Resources: promising potential for sustainable development," with the participation of several Arab ministers in charge of mineral resources, experts, and leaders of organizations working in the mining sector. The 5th Arab Ministerial Consultative Meeting on Mining Resources was held at the same time with the participation of official delegations from Arab countries.

The conference aimed at exchanging knowledge, experiences, and activating cooperation among Arab and international institutions working in the mining sector. It also aimed at raising awareness about the status quo of the mining sector and its impact on the Arab countries' economies, promoting mining projects, removing obstacles facing Arab and foreign investments in the sector, and identifying modern mining exploration and production technologies.

His Excellency OAPEC Secretary General represented the Secretariat General and chaired the conference's third session on

mineral resources as a source of energy. The Secretariat General also presented a paper on the relationship between energy and mining industry.

3-10 Europe and the Arab World Conference: Strengthening Political, Business and Investment Ties, Athens, Greece, 5-6 May 2014

Upon a kind invitation from His Excellency the Arab League (LAS) Secretary General and His Excellency the Greek Deputy PM/ Foreign Affairs Minister, OAPEC Secretariat General took part in the "Europe and the Arab World: Strengthening Political, Business and Investment Ties" conference held in Athens, Greece, on 5 and 6 May 2014. The event was co-organized by the Greek Presidency of the Council of the EU and LAS, with the participation of a group of senior officials from the EU and Arab countries.

The conference was attended by LAS Secretary General HE Dr Nabil Al Arabi, His Excellency the Prime Minister of the Kingdom of Morocco, a number of Arab Foreign and Energy Ministers, and representatives of specialized Arab organizations. From the EU side, the Greek Deputy PM/Minister of Foreign Affairs, the Greek Parliament Speaker, and representatives from the European Commission, the European Parliament, European Investment Bank, and the European Council.

The Conference aimed at discussing means of developing Arab-European political, business, and investment relations. Topics discussed mainly revolved around the implications of the political developments in the Arab region in the past few years; the current status and future perspective of the Arab-European political, economic, and cultural ties; strengthening Arab-European political and investment ties; in addition to energy policies and their major role in sustainable development.

OAPEC Secretary General took part as a keynote speaker in "Energy Prospects in the Arab Region" session. He gave a

comprehensive presentation on the oil and gas industry on both Arab and international levels. The Secretary General gave a presentation on the status quo and future prospects of energy in the OAPEC member countries in particular, and the world in general. He clarified that petroleum industry cooperation between the two sides and means of boosting it in the future.

3-11 The 14th IEF Ministerial Meeting, Moscow, 15-16 May 2014

OAPEC took part in the 14th IEF Ministerial Meeting held in Moscow, Russia, on 15 and 16 May 2014 upon an invitation by the Russian Energy Minister and the International Energy Forum Secretary General. The ministerial meeting was held under the title "The New Geography of Energy and the Future of Global Energy Security". The purpose of the meeting was to follow up on the 13th IEF Conference held in Kuwait on 12 to 14 March 2012. The forum tackled the following topics over 2 days and 5 specialized sessions:

1. New energy geography: maintaining the status quo or stepping into a new era of energy demand and supply?
2. Oil and gas production from unconventional resources: future outlook, risks, and potentials
3. Sustainable energy for all
4. Building new flexible energy systems
5. Transforming into low-carbon economy: reality or science fiction?

Most oil and energy ministers, undersecretaries, and senior officials from OAPEC members and other Arab oil exporting and consuming countries participated in the forum.

A special session was held to launch the new Joint Organisations Data Initiative gas market database (JODI-Gas).

During the meeting, the first session of its kind since the establishment of the IEF, between IEF Ministers and CEOs was held. On the sidelines of the forum, various bilateral meetings took place among exporting and importing countries and oil companies' CEOs to discuss relations and joint ventures.

The meeting has included 3 parallel sessions as well which tackled:

6. Sustainable energy for all: what is appropriate for the current situation? What needs developing?
7. Expansion of clean energy: public and private sectors' partnerships
8. New energy composition: building up strong national and regional systems

OAPEC was represented by His Excellency the Secretary General who attended all the sessions, in addition to participating in one of the roundtable sessions allocated for energy and petroleum organizations regarding the challenges they might face.

3-12 Kuwait's 2nd Downstream Technology Summit

The Secretariat General took part in **Kuwait's Second Downstream Technology Summit** held in Kuwait from 2 to 3 June 2014 and organized by the International Quality and Productivity Center (IQPC). Experts from OAPEC member countries (UAE, Kingdom of Bahrain, KSA, State of Qatar, State of Kuwait and the Arab Republic of Egypt) took part in the conference. The event was also attended by representatives of international oil, refining requirements, and petrochemicals companies.

The conference consisted of 4 sessions that tackled the following:

- Improving the performance of petroleum installations and the execution of their development projects with high efficiency
- Improving production units operations to secure supplies
- Selecting the best catalysts and best fracturing/refining technologies
- Improving health, safety and environment systems in refineries and petrochemical installations

3-13 Crans Montana Forum's 25th Annual Assembly

Upon an invitation from the organizers and patrons of the forum, OAPEC Secretariat General took part in Crans Montana Forum's

25th Annual Assembly from 19 to 22 June 2014, hosted by the Islamic Educational, Scientific and Cultural Organization (ISESCO) based in Rabat, Morocco. The Forum has been attended by heads of states, prime ministers, ministers, heads of international organizations, economic experts, and businessmen from various countries. The Forum was held under the high royal patronage of the King of Morocco His Majesty Mohammed VI. The Forum's theme was "Heading to the South-South: not only a strategy, but a necessity."

During 3 days, the Forum discussed a number of main topics including:

- Energy- main issue for decision-makers: how Arab petroleum exporting countries contribute to face this challenge
- Peace and development in the Mediterranean: improving cooperation and building a better world
- New methods to integrate with Africa and the Green Economy: challenges and solutions
- Food security in Africa: the new green revolution

OAPEC Secretary General chaired one of the Forum's key sessions titled "Energy- main issue for decision-makers: how Arab petroleum exporting countries contribute to face this challenge" which tackled:

- The future of renewable energy
- Financing petroleum and energy projects
- The relationship between energy and environment

3-14 The 14th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries

The 14th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries took place on 13 and 14 October 2014 at OAPEC Secretariat General Headquarters. The meeting was attended by 19 experts from OAPEC member countries, in addition to the Secretariat General's delegation. OAPEC Secretary General opened the meeting with a speech stressing the Secretariat

General's appreciation for its member countries' efforts, its keenness on encouraging mutual Arab cooperation in the gas industry, and its efforts in providing relevant data and information, in addition to; following up Arab and international developments in the industry. This keenness stems from OAPEC's belief in the importance of natural gas as a basic source for Arab economic development. He stressed OAPEC efforts on following up the developments in the natural gas industry.

The Secretary General concluded his speech by wishing the participants success in achieving the goals of the meeting.

The participants presented papers on natural gas developments in their respective countries, which generated further discussions.

3-15 3rd Annual Flare Management and Reduction Summit

OAPEC Secretariat General took part in the 3rd Annual Flare Management and Reduction Summit that took place from 26 to 29 October in Abu Dhabi, UAE. The event was organized by the International Quality and Productivity Center (IQPC).

The event included 14 presentations, 2 seminars, and 2 workshops. The Secretariat General presented a keynote opening speech titled "To Flare or Not To Flare: that is the question?". It also took part in the first session on the current flare reduction methods. The second session tackled reduction of greenhouse gases emissions.

3-16 AMADEUS Conference

Upon a kind invitation from HE Ibrahim Al Fasi Al Fahri, Head of Amadeus Institute, OAPEC Secretary General HE Abbas Ali Al Naqi took part in the Amadeus Conference activities held in Tangier, Morocco from 12 to 15 November 2014.

Following are some of the most important issues covered by the conference:

- The new world energy order

- Economic and political challenges for emerging Africa
- The reformation of the ever changing Arab World
- The new security threats versus multi-polar crises
- BRICS Group and the emerging markets: the mobilizers of the south

HE Al Naqi delivered a speech at the first session titled "The World's Energy Prospects: new energy, new policies" in which he tackled the e=reality and future prospects for the oil, gas, and complementary energies (new and renewable).

3-17 The 20th Annual Energy Conference

Upon an invitation from the organizing committee, OAPEC **Secretary General took part in the** 20th Annual Energy Conference - Future Energy Trends: Innovation, Markets and Geopolitics - on 18 and 19 November 2014, in Abu Dhabi. The conference was organized by the Emirates Center for Strategic Studies and Research (ECSSR).

The conference addressed ways in which production and distribution of the world's energy resources are being transformed by the introduction of innovative new technologies and policies. It considered the effects of technological development on conventional energy markets, discussed the prospects for unconventional and renewable energies, and traced the economic and geopolitical consequences of these transformations for the Gulf region and the world.

The conference comprised four panels, each featuring three sessions:

- The first panel: "Innovation and Conventional Energy Sources"
- The second panel: "Innovation and Trends in Unconventional and Renewable Energies"
- The third panel: "Emerging Geopolitical Developments and Competition"
- The fourth and final panel: "Energy Market Developments and their Effects on the GCC"

HE Al Naqi gave a speech at the Conference in which he highlighted

the current situation and future trends for energy in the Arab World and worldwide.

3-18 The Fourth Session Of the Conference of Arab-Chinese Cooperation in the Field of Energy, KSA, 18-20 November 2014

Upon an invitation from the League of Arab States (LAS), the Secretariat General participated in the **Fourth Session Of the Conference of Arab-Chinese Cooperation in the Field of Energy, Riyadh, KSA, from 18 to 20 November 2014.**

The fourth session comes in line with the 3rd session held in China from 16 to 18 September 2012, and the recommendations of the 5th Ministerial Meeting for the Conference of Arab-Chinese Cooperation in the Field of Energy, held in Tunis in May 2012.

Representatives from China's National Energy Authority; oil, electricity, and renewable companies and syndicates participated in the event. From the Arab side, LAS Secretariat General, OAPEC, and representatives from energy bodies in a number of Arab countries took part in the conference.

The Secretariat General presented two papers; the first entitled "Arab- Chinese Oil Cooperation and its Future Prospects", which tackled in 4 points, the position of Arab countries in the world oil market and its future prospects. It also tackled the recent developments in terms of global oil supply and demand, the current and future position of the oil sector in China, and the potential implications of the Chinese oil balance developments for the Arab oil exporting countries.

The second paper tackled "Arab-Chinese Cooperation Prospects in the field of Natural Gas". The paper highlighted the significant position of the Arab countries on the world's natural gas map, the last 10 years natural gas production rates developments in the Arab countries that exceeded the domestic market needs. It also reiterated the importance of the Arab- Chinese natural gas cooperation since the China is a promising market for natural gas imports, which opens new horizons for Arab gas demand.

3-19 Fourth GCC- Moroccan Forum and Expo

Upon a kind invitation by Mr Abdul Rahim Hassan Naqi, Secretary General of the Federation of GCC Chambers of Commerce & Industry (FGCCC), OAPEC Secretary General HE Abbas Ali Al Naqi took part in the Fourth GCC- Moroccan Forum and Expo held in Casablanca, Morocco from 28 to 29 November 2014 under the High Patronage of His Majesty King Mohammed VI of Morocco, with the support of the Moroccan Government.

The Forum seeks utilizing available opportunities in the GCC and Morocco, boosting communication channels, increasing commercial relationship, and opening new horizons for GCC- Moroccan partnerships and investments in Africa.

Some of the most important topics discussed during the Forum were:

- Horizons for GCC- Moroccan partnership and investment in Africa
- GCC- Moroccan collaboration in energy and minerals
- GCC- Moroccan collaboration in communication, transportation, and railways
- GCC- Moroccan collaboration in SMEs (legal framework for launching business in the GCC and Morocco)
- GCC- Moroccan collaboration and integration in agriculture and food security

IV. Environment, Climate Change, and Sustainable Development: OAPEC Role

In line with the global focus on environment and climate change issues, OAPEC Secretariat General has been giving these issues a special attention to clarify the stances of its member countries in this respect. Furthermore, OAPEC coordinates stances of the delegations of OPEC and OAPEC member countries, and the LAS Arab Group, towards discussing the draft resolutions under negotiations. OAPEC is keen to avoid any resolutions that may adversely reflect on the economic interests of its members based on the common but differentiated responsibilities concept between developed and developing countries.

In line with the Ministerial Council's directives, the Secretariat General followed up the United Nations Framework Convention on Climate Change (UNFCCC) developments, the Kyoto Protocol, and the coordinating meeting for OAPEC environmental experts. Here is a review of these issues in 2014:

First: ADP Meeting

The Secretariat General took part as observer in the new round of the ADP (Ad-hoc Working Group on the Durban Platform for Enhanced Action) session in Bonn, Germany, from 10 to 14 March 2014 that discussed preparing a comprehensive draft agreement that should be ready in 2015 to enter into force in 2020.

Following is a summary of the round:

Capacity building

It is important to put an official action plan within the framework of the Durban Platform on special capacity building in connection to mitigation and adaptation. This platform is an opportunity to exchange information on capacity building in terms of climate change.

Loss and damage

This issue is discussed for the first time. It is a mechanism endorsed by COP19 in Warsaw, Poland, in 2013 and linked to the impact of climate change. Thus a final formula is discussed to regulate it, assess COP20 in Lima, Peru in 2014, and introduce recommendations on this mechanism to be endorsed in the next COP.

Technology Transfer Development

Finalizing the assessment by 31 countries on the financial support presented by the Global Environmental Facility's Poznan Strategic Program on technology transfer in terms of the technical support of the UN program and regional organizations. This is in addition to, consultations between the Global Environmental Facility and the Climate Technology Centre and Network (CTCN).

Deciding on potential links between technological needs assessments, domestic climate processes, and development like NAMAS; and national plans.

Review

Looking into the national reports submitted by developed countries for a period of two years on national inventory reviews and requesting the Secretariat General to decide on an index to specify and describe the data that would be available for the parties in October 2014.

Calling on the parties to submit their views on the additional entries and review methods for the years 2013-2015 in the Paris 2015 COP-21's final report to the Agreement's Secretariat General by 1 November.

NAMA (Nationally Appropriate Mitigation Actions)

The committee welcomed the information presented during the workshop. It has been notified about the information presented by the Agreement Secretary on the extent to which procedures conform to the support provided under "NAMA" registry.

Requesting Technical Secretary to arrange for annual reports in parallel with the meetings of the sub committees, prepare written information to allow for exchanging views on the latest NAMA information and support to be presented at the COP-20.

21st Coordinating Meeting of Environmental Experts in the Member Countries

In implementation of the OAPEC action plan for 2014, the 21st Coordinating Meeting of Environmental Experts in the Member Countries was held in Cairo, Egypt, during the period 27-28 October 2014.

Participants to the meeting were specialists from OAPEC member countries: Bahrain, Algeria, KSA, Qatar, Kuwait and Egypt, in addition to experts from the League of Arab States, and the General Secretariat of the GCC Council.

OAPEC Secretariat General presented 2 papers. The first paper talked about the developments of the UNFCCC, the output of the Climate Summit, New York, in September 2014, the features of the new proposed agreement, the stances of the negotiating countries and groups, OAPEC member countries' negotiating stances, and the coordination recommendations to safeguard their petroleum interests. It also included calling upon member countries to participate actively in all regional and international conferences and meetings of importance to them, especially the coming COP-21 in Paris in 2015. The second paper reviewed the IPCC scenarios on emissions mitigation.

V. MEDIA ACTIVITY

The Secretariat General continued its media activity in 2014 on both Arab and international levels through the Information and Library Department. The department supervises all publications and periodicals prepared by the Secretariat General in collaboration with other concerned departments. It follows up the Arab and international petroleum industry's developments, energy affairs, and its economics. The department keeps a close eye on whatever published about these developments in the media. It is also in charge of documentation, bibliography, current affairs reporting, and providing references and journals to researchers from inside and outside the organization.

5-1 Editing, Printing, Publishing and Distribution

The Secretariat General continued to issue all OAPEC's publications, including books and periodicals. This action involved all matters relating to editing, proofreading, translation, designing, printing, publishing and distribution.

5-2 Press and Media Activity

A number of press releases were issued by the Secretariat General, covering the various activities of the organization, such as the meetings of OAPEC Council of Ministers, the meetings of the Executive Bureau, and the 10th Arab Energy Conference. On the other hand, certain local and Arab newspapers highlighted OAPEC activities, its role in coordinating between its member countries, and its efforts towards supporting the joint Arab action. The Secretariat General continued to monitor the contents published by local, Arab and certain foreign newspapers on energy affairs, and collected and archived the top oil, economic and environmental stories. In addition, it monitored certain other topics that are relevant to member countries in general.

5-3 Website

The Secretariat General released its new electronic website to keep in pace with the new technological developments. It seeks to provide those browsing its website with all the new information and data on the oil and gas industry in the member countries and other Arab countries.

The new website has many developed sections, including the databank, the library, the organizational structure, and the news bar. Other new sections include the OAPEC establishment agreement, international relations, FAQs, social media, and the electronic monthly bulletin.

Also, as part of its efforts to reach out to the widest audiences possible, OAPEC allocated a new section named "Issues and Views", which mainly aims at knowing the views of the website visitors regarding energy, oil, gas, and sustainable development issues. The web administrator updates the topics periodically to enable the website visitors express their views according to their interests.

A section dedicated for the 10th Arab Energy Conference, held in Abu Dhabi, the UAE, from 21 to 23 December 2014, has been launched on the new website to cover all information relevant to the conference.

5-4 39th Arab Book Fair

OAPEC Secretariat General participated in the 39th Arab Book Fair, which was held in Kuwait during the period 19-29 November 2014, under the auspices of the National Council for Culture, Arts, and Letters–State of Kuwait.

519 publishers from 15 Arab and 13 foreign countries (458 private publishers, 53 official institutions, and 8 Arab and international organizations) participated in the fair. Also, a number of Arab and foreign embassies, as well as Arab organizations and diplomatic missions participated directly, or indirectly, via publishers. Several

cultural and art events were held on the sidelines of the fair. It is worth mentioning that the Secretariat General has been participating in Kuwait's Arab Book Fair since 1975 when it was first launched.

5-5 Information and Library Services

The Library is a comprehensive oil library due to what it provides of a wide range of invaluable petroleum-specialized, economic, commercial, and environmental books and references. The Library provides various references and documented information for the Secretariat General and databank researchers, other libraries and researchers from outside OAPEC. It also continues cooperation with other libraries like the library of the Arab Fund for Economic and Social Development. More than 150 visitors had the chance to utilize from the library services including experts, researchers, university professors, and students throughout the year.

The Library continued to expand its bibliographical database established in 2008 using the new Secretariat General's system "Oracle" through feeding in new data of the Arabic and foreign books, documents, and periodicals. The library also provides information recovery services for researchers, and the following documentation services: quarterly bibliography published in the Oil and Arab Cooperation Journal (issues 147-150), and the Library's new references' bibliography that is distributed to all the Secretariat General's researchers on a monthly basis.

1-5-5 Indexing and Classification

The Library continued to provide technical services related to indexing and classifying and fed the data of all books and documents into the Library's Oracle database. The number of books and documents increased from 30210 in 2013 to 30391 in 2014.

The Library pursued services in the preparation of an index for

the old books and document and feeding their data into the Library's e-database.

5-5-2 Acquisition

The Library's acquisition focused on the following this year:

- Providing the Library with new books as proposed by the Secretary General's Office, relevant departments, and the Library's needs.
- Following up on the subscription of Arab and foreign periodicals in 2014
- Monitoring official publications of the governmental authorities and departments, as well as oil companies
- Monitoring and downloading the electronic periodicals and studies received on the Secretariat General intranet.
- Monitoring the development of the electronic publications which are stored in PDF format or on CDs.

5-5-3 Public Services

The Library continued to provide in-house services for the Secretariat General's researchers, visitors, and external delegates through the following services:

- Internal borrowing
- Responses to researchers' inquiries
- Readers' guiding
- Reference services
- Binding
- Photocopying

A file on the "Contents Page" of the new periodicals and books is issued to inform the Secretariat General's staff on the new publications received by the Library.

During the year, the Secretariat General staff managed to rearrange all the Library's books and periodicals to make a better use of the space with the advent of new publications.

VI. DATABANK WORK PROGRESS

The Databank continued to update the database and boost cooperation with member countries. Here are the most important achievements:

6-1 Boosting Cooperation between OAPEC Secretariat General and its Member Countries

In implementation of the 2014 plan to activate the Secretariat General Databank services in order to ensure the success of its statistical project internally and externally at the member countries level, OAPEC Secretariat General held its 3rd Coordinating Meeting for OAPEC Databank Liaison Officers during the period 30-31 March 2014 at OAPEC Headquarters in the State of Kuwait.

6-2 Reports

The Databank, in collaboration with the specialized departments in the Secretariat General, completed the statistical report for 2014, covering the period 2009-2013, which was published as CDs and sent to member countries. It will also be uploaded on the Secretariat General's website. Energy Data publication was also prepared by the Databank, according to international groups, for the period 1970-2013, relying on the BP database. This publication is annually updated. It was uploaded on CDs. As per the agreement with BP, the distribution of this publication will remain limited to member countries.

6-3 Launch of OAPEC Secretariat General's Website

The Secretariat General has assigned a specialized company to update its website (both Arabic and English versions) in terms of design, outlook, and using latest website building technology to compete with other oil and energy specialized websites. The website was launched in August 2014.

VII. Encouraging Scientific Research

1. OAPEC Scientific Award 2014 Results

In line with the resolution of the Executive Bureau number 1/133 on 07/10/2012 choosing "Integration between Refining and Petrochemicals Industries" as the topic of the OAPEC Scientific Award 2014; the Secretariat General announced that in January 2013. Concerned parties were all notified. The Secretariat General promoted the Award via announcements on its monthly bulletin, quarterly journal, and website until the due date by the end of May 2014.

The Secretariat General received (4) research works as follows: Algeria (2), Kuwait (1), and Libya (1).

Pursuant to articles (11) and (12) of the Executive Bureau resolution number 1/55 on regulating the Award, the Secretary General issued a decision on forming the Research Arbitration Committee as follows:

Dr Samir M. Al Qar'aish
Director, Technical Affairs Department, Secretariat General

Eng. Emad N. Mekki
Senior Refining Expert, Secretariat General

Dr Maamon A. Halabi
Senior Researcher, Petroleum Research Centre,
Kuwait Institute for Scientific Research, State of Kuwait

Dr Mohammed M. Al Sukkari
Professor Emeritus, Petrochemicals Department
Petroleum Research Institute, Egypt

The arbitrators studied the submitted research works and presented appraisals. The committee convened at OAPEC Secretariat

General's headquarters in Kuwait. They discussed the appraisals and after exchanging views, the committee decided the following:

1. Research number (1): disqualifies for not adhering to the main elements of the Award's topic. Research number (4) disqualifies for not adhering to the Award's topic.
2. Research number (2): concise and failed to cover all aspects of the topic.
3. Research number (3): did not adhere to scientific research methods; did not present any valuable recommendations, therefore it disqualified.

Based on the above, the committee decided the following:

Awards concealed for this year.

VIII. ADMINISTRATIVE AND FINANCIAL ACTIVITIES

8-1 Evolution of the Administrative Structure

At the end of 2014 there were (43) employees working at the Secretariat General, (21) of whom were of the professional staff and (22) of the general staff.

8-2 Evolution of Expenditure

Expenditure in 2014 totaled KD 1,610,135.

Chapter 3
OAPEC Joint Ventures

The report observes the challenges and opportunities to access financial and banking services, and the funding in the Arab countries. The report exhibits the Arab and International developmental aid about $6.3 billion in 2011, in the framework of highlighting the importance of the joint Arab economic cooperation. The report includes a chapter on Arab cooperation in the area of anti-desertification. In conclusion the report comprises a chapter on the Palestinian economy.

OAPEC joint ventures continued executing their projects and businesses in 2013 and the first half of 2014, in spite of the world economy conditions in general, and the security situation in the Arab region in particular especially in some Arab countries that host the headquarters of the joint ventures. This unstable security situation has had a negative impact on the performance of some joint ventures, as some of their properties and equipment have been damaged and destroyed. However, the joint ventures have been sparing no effort in developing their activities to achieve better financial and operational results.

For long years, some joint ventures have been facing real challenges due to the nature of their activities as they find themselves in a constant great competition with international energy companies of similar activities on one hand, and difficulties to enter some Arab markets on the other hand. In spite of all these challenges, OAPEC joint ventures put great efforts to boost their activities and presence in the Arabian market depending on their own potentials and their long expertise in the field of oil and gas. These efforts have resulted in achieving good and encouraging financial and operational results by some joint ventures like The Arab Petroleum Investments Corporation (APICORP) that managed to maintain its position among the regional financial institutes in project funding and trading throughout 2013. It continued to boost its loans portfolio at an internal rating of AA. The

same period saw the Arab Shipbuilding and Repair Yard Company (ASRY) putting the final touches on its ambitious expansions; it invested $188 million to diversify its income and build new facilities to enable the company grow even further.

OAPEC joint ventures enjoy administrative and financial independence. Their general assembles (consisting of their owners that are OAPEC member countries) draw their strategic plans and take appropriate decisions to develop their businesses.

OAPEC Secretariat General plays a coordination role among these joint ventures. It organizes an annual meeting for the joint ventures officials to discuss methods to boost cooperation, and review joint challenges in light of successive developments in the oil and gas industry both on the Arab and international levels.

The joint ventures are looking forward to receive more support from the member countries and to enjoy more investment opportunities in the Arabian market on competitive or preference basis.

Here is a summary of the OAPEC joint ventures' activities:

A- ARAB MARITIME PETROLEUM TRANSPORT COMPANY (AMPTC)

Arab Maritime Petroleum Transport Company (AMPTC) was established on 6 May 1972, with an authorized capital of US$500 million, and paid-up capital of US$250 million. The company is situated in the State of Kuwait, and all OAPEC members, with the exception of Syria, have stakes in the company. The goal of the company is to carry out maritime transport of hydrocarbons. Its general assembly issued its decision number 1/6 on 13/06/2014 to increase its paid-up capital to $350 million.

• AMPTC Activities in 2013

The company's fleet consists of 11 crude oil, liquefied gas, and clean petroleum products tankers. The company charters out its tankers under time charter contracts or spot voyage system according

to the prevailing market rates. All APTC tankers are recognized by international oil companies. They go through regular technical checks to be able to continue operating. The company has close ties with Arabian oil marketing companies and from time to time, the company's tankers are chartered to these companies according to their needs and prevailing market prices.

In another vein, the company transports and sells about 1.6 million tons/year LNG to Egypt, Sudan, Yemen, Djibouti, and Eretria. For this purpose, the company uses its tankers and 10 other tankers chartered by contracts conforming to gas export dates to these countries.

Owing to the decline in chartering rates at petroleum maritime transport markets in the past few years, this additional activity of the company (gas trading) enables it to realize financial revenues and profits, as well as financing and compensating the operating losses of the fleet operating in the free markets, which is expected to continue for the three coming years at least.

It should be mentioned that the company, by entering into the field of liquefied gas trading, has successfully cooperated with the sisterly Arab gas exporting companies by concluding liquefied gas purchasing contracts from Arab marketing institutions, with total quantities amounting to about 1.8 million tons annually. This led to enhanced cooperation between the company and those companies in the member countries (Saudi ARAMCO, Kuwait Petroleum Corporation, Tasweeq of Qatar, and SONATRACH).

On the other hand, the company, from its own resources and in spite of the global financial crisis, continued to implement its plans aimed at upgrading and increasing the units of its fleet with 8 new tankers and gradually dismissing old ones.

- **AMPTC Financial Results for the Financial Year 2013**

The company's 2013 revenues amounted to about $111.20 million, and the actual operating expenses, before tanker depreciation, stood at $85.100 million. Book depreciation of tankers amounted to nearly $26.036 million.

Gas transport and supply projects posted a net profit of about $57.568 million. Taking into consideration the impairment of market value of tankers by about $20 million, the net profit posted by the company amounted to about $26.681 million in 2013.

- **Company's Financial Results for the First Half of 2014**

Tanker operating income amounted to approximately $51.61 million, and the operating expenses were nearly $33.60 million. Meanwhile, book tanker depreciation amounted to about $11.66 million. Net of general and administrative expenses, and financing interest to banks, the company posted a net profit of about $31.32 million for the first half of 2014.

- **Training and Staffing**

The company seeks to upgrade its staff by training according to needs of each. Five employees were delegated on training courses in 2013 and two in the first half of 2014.

By the end of 2013, the company had 69 employees, including 44 Arabs. In mid-2014, it had 72 employees, including 44 Arabs.

In 2013, the fleet had 242 officers and engineers, including 145 Arabs. In mid-2014, it had 240 officers and engineers, including 140 Arabs.

B- THE ARAB SHIPBUILDING AND REPAIR YARD COMPANY (ASRY)

Established on 8 December 1973, Arab Shipbuilding and Repair Yard Company (ASRY) has an authorized capital of $340 million, issued and paid-up capital of $170 million. The company is located in Manama, Kingdom of Bahrain, and all OAPEC member countries, with the exception of Algeria, Syria and Egypt, have stakes in the company. The objectives of the company cover all operations of

building, repairing and maintaining all types of ships, tankers, and other maritime vessels for transporting hydrocarbons, etc.

- **ASRY Activities in 2013**

The year 2013 witnessed the completion of the majority of expansionary projects. Investment in those projects amounted to about $188 million in a series of works to diversify income resources and build new facilities. Those projects equipped the company with new devices enabling to grow further.

In 2013, the company's board of directors announced a roadmap tp develop the company's future business. The roadmap provides a strategic plan for the period from 2013 to 2017. It is designed to work as a guideline to develop the company on the medium-run. It includes a series of projects that indicate the fast growing of the company, most important of which:

- Building a dry dock, the fourth of the company
- Expanding the consultancy work
- Opening an office in KSA (Eastern Province)
- Restructure the company and organizing its human resources

The year 2013 witnessed a substantial turnaround by diversifying and dividing the company into four business units: ship repair services, maritime services, consultancy services, and energy services. Regional clients will be able to reach maximum benefits from the company's developed services, making it the leading ship repair company in the region. ASRY's future will not depend on ship repairing only; it will provide a wide range of maritime services that open new and supporting doors for future sustainable revenues.

In 2013 ASRY managed to realize a good income despite the difficult global economic conditions and the sharp competition it faced regionally and internationally. Sales amounted to $177.6 million, an increase of 5.23% compared to sales of 2012 of $168.8

million. 185 ships were repaired this year, compared to 200 ships for 2012. However, the average income per ship rose to about $854,000, compared to $787,000 for the previous year.

- **Financial Results 2013**

In 2013, the company achieved more revenues growth and posted a net profit of $199 million with an increase of 12.1% compared to 2012.

- **Training and Arabizing**

In 2013, ASRY organized different training programs for top, middle and supervisory management. The company held 126 miscellaneous professional training courses for 1824 employees.

By the end of 2013, the company had 789 Arab employees. Permanent employees were 1823. At peak times, the company outsources sub-contractors.

- **Activities in the First Half of 2014**

The company repaired 98 ships in the first half of 2014. Repair specifications received by the company amounted to 240.

- **Financial Results in the First Half of 2014**

The company achieved good results in the first half of 2014, with sales reaching $92,599,000 during this period compared to $108,554,000 for the same period in 2012. Net revenues reached $7,389,000 compared to $10,913,000 the same period of 2013

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C: THE ARAB PETROLEUM INVESTMENTS CORPORATION (APICORP)

The Arab Petroleum Investments Corporation (APICORP) was established on 14 September 1974 with an authorized capital of $1200 million. The fully paid-up capital is $550 million. The company's

headquarters is located in Khobar, Saudi Arabia. According to the resolution of the extraordinary general assembly, held in the Kingdom of Bahrain in April 2013, the company's authorized capital was increased from $1.2 billion to $2.4 billion, and the subscribed capital by $1500 million. Also, according to the resolution of the extraordinary general assembly, held in the KSA in April 2014, the company's paid capital was increased from 4750 million to $1000 million.

- **Project and Trade Finance in 2013**

In 2013 APICORP maintained its foothold as one of the largest regional financial institutions in project and trade finance sector. In spite of shrinking project funding opportunities, some transactions were introduced in the GCC, which APICORP took part in.

APICORP continued to improve its loan portfolio, with net value by end of 2013 amounting to about $2.92 billion, compared to $2.89 billion by the end of 2012. Also, APICORP maintained a high quality loan portfolio, giving grounds for rating it at an affirmed "stable", with AA for internal rating. Meanwhile, defaults on loan installment repayments remained at their minimum levels.

Project and trade finance activity posted a net profit of about $67.2 million in 2013, compared to nearly $44.5 million in 2012.

During 2013, APICORP managed to secure 29 final committed funding agreements worth $1,339 million. APICORP's final stakes out of these transactions reached $1,070 million. Most of these deals were concluded based on maintaining the amounts of the committed funding or those arranged by a consortium of banks, therefore there was no marketing for these facilitations. Funded amounts reached $811 million while unfunded amounts reached $259 (through LC and documentary letters of credit).

- **Project Funding**

In 2013, APICORP entered into 15 project funding transactions with a total of $810 million. $760 million were used in funded

transactions that included construction and expansion projects in refineries, petrochemicals, and heavy industries projects. It also entered into 5 unfunded transactions worth $50 million in total, 4 of which worth $40 million on bank guarantee for the last payment of the loan arranged by APICORP with a group of banks for the APICORP Petroleum Shipping Fund (APSF) launched in 2012. The fifth transaction was to increase APICORP's contribution to facilitate guaranteeing the European Investment Bank's loan funding the Egyptian Refining Company's project by $10 million.

As for the sub-market, APICORP's acquisition has been limited to $10 million due to the excessive regional and global bank liquidity, which minimize available offers and encouraging discounts that would motivate APICORP to buy available loans.

- **Direct Participations in Project Capitals for 2013**

APICORP's objective is to participate in developing hydrocarbon and energy industry projects in the Arab region. APICORP participates in the capitals of 11 projects that have presence in 5 Arab countries: Saudi Arabia, Libya, Iraq, Egypt, and Tunisia. These active projects cover different activities, including petrochemical industries, nitrogen fertilizers, liquefied petroleum gas (LPG), geophysical services, oil and gas well drilling, and storage materials for petroleum products.

During 2013, APICORP changed methods in presenting its financial statements for auditing. Financial statements of APICORP's Petroleum Shipping Fund have been merged with APICOPRP's consolidated financial statements, and the international criteria on the fair value for the corporation's investments that reflected on the re-evaluation of (Ibn Zahr) and Egypt Methanex. By the end of 2013, the corporation's net book value of equity portfolio amounted to about $823 million.

• Financial Results in 2013

APICORP posted a net profit of $112.1 million in 2013, compared to a net profit of $108.9 million realized in 2012, an increase by 3% over the previous year. Operating revenues for 2013 stood at $150 million, net of cost of funding.

In line with the extraordinary general assembly's resolution, at its meeting last year, to increase the company's authorized capital from $1.2 billion to $2.4 billion, and subscription of $750 million to increase the corporation's paid-up capital to $1500 million, the general assembly, upon recommendation by the board of directors, approved, at its meeting held in KSA in April 2014, to increase the corporation's paid-up capital from $750 million to $1 billion through capitalizing $250 million of the public reserves.

• Project Finance Activity for the First Half of 2014

Project finance and international trade activity retreated in the first half of 2014, as project funding has been limited in the GCC countries. However, this activity was quite in other Arab countries and quiet in other Arab countries. Therefore, the company focused on trade funding in the same pattern of last year.

In the first half of 2014, APICORP managed to secure 8 final committed funding agreements worth $293 million. Funded amounts reached about $283 million while unfunded amounts reached $10 (through LC and documentary letters of credit). Islamic financing reached $15 million based on Murabaha for Pakistan to buy oil products.

• Project Finance

In the first half of 2014, APICORP entered into 11 finance transactions with a total of $112 million. Financed projects included the expansion of Oman Oil Refineries and Petroleum Industries Company's refinery worth $100 million, and buying a $12 million stake in the $326 million deferred loan of the sub-market for the

Arab Maritime Petroleum Transport Company (AMPTC).

- **Financial Results for the First Half of 2014**

APICORP posted a net profit of $70.4 million in the first six months of 2014.

The corporation's assets totaled $5,690 million as of 30 June 2014, compared to $5,675 million as of 31 December 2013. The corporation's total shareholders' equity increased to $1,877 million, from $1,807 million as of 31 December 2013.

- **Staff and Training**

Currently, APICORP employees about 126 staff members at the corporation's headquarters in Khobar, Saudi Arabia, and at the foreign banking unit in the Kingdom of Bahrain. 69% of the employees are Arabs (81 employees, out of whom 93% are member countries' citizens), and the others are of non-Arab nationalities (39 employees). According to the human resources strategy, and as needed, the corporation increases the number of non-Arab employees to strike a balance between Arab and non-Arab expertise in certain technical and specialist jobs that require experience unavailable to Arabs, or difficult to obtain.

The corporation exerts efforts to develop the skills and capabilities of its employees to strike a balance between the training requirements necessary for the efficient performance of work and the necessity to cope with the latest developments in economic, financial, petroleum, administrative, and ICT areas. To realize this goal, the corporation utilizes the employee performance appraisal program.

D: THE ARAB PETROLEUM SERVICES COMPANY (APSCO)

The Arab Petroleum Services Company (APSCO) is an Arab shareholding company established on 23 November 1975, located

in Tripoli, Libya, under an agreement signed by the governments of OAPEC member countries, with an authorized capital of 100 million Libyan dinars (LD), and a subscribed capital of LD 15 million, with 10 OAPEC member countries having stakes in the company. The company's capital was increased from LD 44 million to LD49 million under General Assembly Resolution No. 221/38/2010 issued on 19 June 2010.

- **APSCO's Activities in 2013**

The company's activity was centered during the year on monitoring improving and developing the activities of the existing ventures of the company, expanding through them, and studying the possibility to establish other companies to implement the objectives stated in its incorporation agreement. These companies are:

1. The Arab Drilling and Workover Company (ADWOC).
2. The Arab Well Logging Company (AWLCO).
3. The Arab Geophysical Exploration Services Company (ADESCO).

- **Financial Results for 2013**

APSCO's net loss for 2013 amounted to LD1,104,283. The net loss was carried forward to the retained earnings account, bringing the total retained losses to LD 1,725,331 on 31 December 2013.

- **Company Activity during the First Half of 2014**

The company continued to monitor and support the three existing companies. It also studied future projects.

- **Manpower in the First Half of 2014**

On 30 June 2014, the company employed 14 staff members, all Arabs.

- **Financial Results for the First Half of 2014**

APSCO's financial results for the first half ending on 30 June 2014, are summarized as follows:

	LD
Total revenues	2,584,800
Total expenses	1,606,300
Profits for the period	978,500

E: THE ARAB DRILLING AND WORKOVER COMPAN (ADWOC)

The Arab Drilling and Workover Company is an Arab company specialized in offshore/onshore oil and gas well drilling and workover. It is a subsidiary of some OAPEC sponsored ventures.

The company was established in 1979 under an international agreement between three companies: Arab Petroleum Services Company (APSCO), Arab Petroleum Investments Corporation (APICORP), and Santafe International Services Company. The company's authorized capital is LD12 million, and its paid-up capital is LD12 million, which was later increased to LD60 million upon the shareholders general assembly resolution No. 8/29/2008, issued on 27 June 2008. The company is located in Tripoli, Libya.

In 2009 Santafe sold its stake in ADWOC to First Energy Limited.

- **Company Activities in 2013**

2013 has been a challenging year as it faced many problems including the unclear vision on the drilling activity in the headquarters' country, difficulties in credit collecting, labor demands, disturbances, and strikes.

In the beginning of 2013, the company managed to operate 14 rigs, 12 of which owned by the company and 2 chartered from Croatia's

CROSCO. In Q2, a Kuwaiti chartered rig replaced the two chartered rigs after preparing it. Another Kuwaiti rig has been used to work with RIMSA Company in Awbari oilfield.

By the end of 2013 Q4, the total operating rigs were 14, 12 of which owned by the company and 2 chartered from Kuwait Drilling Company. Damaged rigs due to war have been repaired. It increased operating prices of 9 rigs between 5% and 15%.

The company re-scheduled its loan provided by ABC Bank and APICORP. It has completed transporting its rig operating in Syria to the Zarqa Free Zone in Jordan.

- **ADWOC Financial Results for 2013**

Income totaled a net profit of LD14.6.

- **Manpower and Training**

During 2013 there were 1239 employees, including 868 nationals, 147 Arabs, and 16 Europeans, and 208 southeastern Asians.

- **Company Activities in the First Half of 2014**

By the end of the first half of 2014, the company operated 10 rigs owned by the company, and two chartered rigs, totaling 12 rigs.

- **Company Financial Results for the first Half of 2014**

During the first half of 2014, the company posted a net profit of $6,038,355.

F: THE ARAB WELL LOGGING COMPANY (AWLCO)

One of the specialized subsidiaries of the Arab Petroleum Services Company (APSCO) AWLCO was established on 24 March 1983, with a fully paid-up capital of $20 million, and is based in Baghdad, Republic of Iraq. All OAPEC member countries have equal stakes

in the company pro-rata their stakes in the Arab Petroleum Services Company (APSCO). The company specializes in well logging and perforation, and has operation centers in the north and south.

- **Company Activities during the Period from 1 January 2013 to 30 June 2014**

1. **Company Equipment**

A. **North Operations Center:** completing some hole wells logging requirements by two devices per center on average. The company has also put on operation production guages, modern devices measuring cement bond, as well as providing the center with various types of drillers that have been used in the north and the east Baghdad fields. The company has also received a new logging vehicle for open and cased wells with all accessories and backup material needed for work.

B. **South Operations Center:** open well logging devices arrived along with a new logging Aratech vehicle and equipment operating system. It has been used after a successful pilot operation at Basra and Maysan fields following the company's acquisition of licensing for possessing and importing radioactive materials from the Public Authority for Radioactive Elements. The radioactive materials arrived in Iraq where special stores have been built for this purpose. Therefore, the company was able to operate using its basic equipment and saving income without the need to merge with other companies except at times of bottlenecks or using advanced equipment.

C. **Midlands Operations Center:** the company is currently building a new operations center. It will be equipped with open well logging devices that have been purchased for this center. It will also be equipped with

probes removed from the company's capital after being fixed in the USA for free. These devices, along with cased hole well logging devices will be essential for operations in the midlands.

Based on these preparations, the company started executing a number of operations at these sites in connection to well logging. As for well perforation, and in spite of the difficulties, the company's management has perforation bullets inventory in the north and the south to be ready to cover perforation guns operations for two years. Drillers have also been diversified to be used according to operating companies' demands, and providing required devices for their safe use like transport vehicles, maintenance devices, risk assessment devices, blowout preventers, H_2S detectors, and cables with sufficient necessary backups.

2- Qualifying the Company

After being recognized and qualified by the international companies, AWLCO continued to develop its work and devices to obtain the required documents to bid for service contracts. It managed to obtain tax exemption letter, and renew the US Treasury Department's letter on being excluded from the US ban. Therefore, everything was ready to contract licensing companies to do businesses.

The company has also upgraded its equipments operating in the south oilfields and Maysan. It provided training to its staff and made work requirements available. AWLCO obtained certificates on its equipments, industrial safety and its requirements, and injury prevention, which were authenticated by licensing companies as a requirement for job applications. The company prepared schedules on injuries and size of work to be presented to licensing companies on a monthly basis to determine the type of industrial safety and risk prevention. The company managed to obtain certificates on radioactive material possession, transfer, and import following the rehabilitation of the south shelter where these hazardous materials

would be stored.

- **Relations with the Iraqi Oil Ministry**

The Ministry of Oil continued to provide AWLCO with assistance to perform its business, as follows:

- A land parcel was received, of 2000 m, to construct the Midlands Operations Center in East Baghdad Field thereon.
- Correspondence with security departments to allow the company bring in well drillers with the required number and types
- Contacting Radioactive Resources Authority to allow the company bring in radioactive material to be used for the well logging devices
- Correspondence with the Finance Ministry for tax exemption according to the law regulating its establishment
- Correspondence with the Public Tax and Customs Authority to exempt the company from Iraq reconstruction taxes.
- Correspondence with the Customs Department to facilitate the transit of the company's equipment and devices, and vehicle registry at traffic departments

In addition to other services that guarantees the sustainability of the company's business.

- **Training and Manpower**

The company conducted the following:

- Training 6 engineers on the operation and maintenance of hole well loggers.
- Training 3 engineers on the operation and maintenance of cased hole well loggers.
- Training company staff on well perforation.

This is in addition to training a number of staff on safety from hazardous material, the right use and maintenance of devices and equipment, vehicle driving in collaboration with Schlumberger, as

well as training a number of Baghdad University students.

- **Company Financial Results for 2013 and First Half of 2014**

By the end of 2013, the company posted a net profit of $1512624; and a net profit of $463973 in the first half of 2014.

G: THE ARAB GEOPHYSICAL EXPLORATION SERVICES COMPANY (AGESCO)

AGESCO was established in 1984 in Tripoli, Libya, with an authorized capital of LD19 million and paid-up capital of LD19 million. APSCO has a stake of 66.66%, APICORP has a stake of 16.67%, and National Oil Corporation has a stake of 16.67% in AGESCO. The company's headquarters is in Tripoli, Libya.

The company's assembly general issued its decision number 02/EO/13 during its meeting in Cairo on 20/06/2013 to increase its authorized capital to LD35 million and paid-up capital to LD35 million.

- **Company Activities in 2013**

Crew AG-002

The Crew continued their activity in concession MN-95/96 for the Seapics . Seismic surveys continued recording 205.18km^2 in January, 189.33km^2 in February, 193.16km^2 in March, 139.13km^2 in April, 237.61km^2 in May, 231.72km^2 in June, and 59.86km^2 in the first days of July. Then the crew moved on to work for the Arabian Gulf Oil Company, in concession no. MN-129/bloc A56 recording 59.89km^2 in July, 319.89km^2 in August, 319.78km^2 in September, 313.97km^2 in October, 236.50km^2 in November, and 229.10km^2 in December.

As shown above, the crew recorded a total of 2,735.11^2 in 2013 for both Seapics and the Arabian Gulf Oil Company.

Crew AG-003

This crew continued activity for Al Waha Oil Company in concession MN-59 recording 144.10km^2 in January, 122.56km^2 in February, 126.87km^2 in March, 142.21km^2 in April, 119.00km^2 in May, and 24km^2 in June. Then the crew moved on to work for the Arabian Gulf Oil Company, in concession MN-47 recording 69.03km^2 in the remaining days of June, 203.95km^2 in July, 216.76km^2 in August, and 184.81km^2 in September. By this, the company has completed the agreed program with the Arabian Gulf Oil Company.

- **AGESCO/CGG VERITAS Seismic Data Processing Center**

AGESCO/CGG VERITAS Seismic Data Processing Center ceased activity in 2011 due to the events in Libya, and has not resumed activity to date.

- **Manpower**

By the end of 2013 the company had 622 employees, out of whom 413 Libyans, 172 Arabs, and 37 foreigner.

- **Financial Results for the 2013**

By the end of 31/12/2013, the company posted revenues of LD76,166, expenditure of LD61,484, and a net profit of LD14,682.

- **Company Activities in the first half of 2014**

Crew AG-002

The Crew continued their activity in concession A75 for the the Arabian Gulf Oil Company. Seismic surveys continued recording 103.85km^2 in January, 291.62km^2 in February, 322.47km^2 in March, 318.64km^2 in April, 337.82km^2 in May, and 317.70km^2 in June

As shown above, the crew recorded a total of 1,692.10^2 in 2013

for the Arabian Gulf Oil Company in the first half of 2014.

Crew AG-003

This crew continued seismic activity for RWE Company in concession 195/193 recording 247.93km^2 in January, 107.60km^2 in February, and 44.14km^2 in March. After which the crew stopped work in April and May, then resumed work for Tatneft after a halt during the events since 2011. It recorded 172.70km^2 in June 2014. The crew productivity was 572.37km^2 during this period.

- **AGESCO/CGG VERITAS Seismic Data Processing Center**

AGESCO/CGG VERITAS Seismic Data Processing Center ceased activity in 2011 due to the events in Libya, and has not resumed activity to date.

- **Manpower**

By the end of the first half of 2014 the company had 629 employees, out of whom 425 Libyans, 170 Arabs, and 34 foreigner.

- **Training**

By the end of the first half of 2014 the company held 6 external training courses: 3 in London-UK at the Oil and Gas Forum and 3 in Amsterdam with the European Geophysical Society.

- **Financial Results for the first half of 2014**

By the end of the first half of 2014, the company posted total revenues of LD40,064; total expenditure of LD28.448, and a net profit of LD11.616.

K: THE ARAB DETERGENT CHEMICALS COMPANY (ARADET)

The company was established on 12 March 1981 in Baghdad, Iraq,

with an authorized capital of ID72 million and subscribed and fully paid-up capital of ID36 million. Three OAPEC member countries, i.e. Iraq, Saudi Arabia, and Kuwait, in addition to three companies: APICORP, Arab Mining Company – Jordan, and Arab Investment Company, have stakes in ARADET.

- **Company Activities in 2013**

The company's different activities were affected negatively by the headquarters' country and some neighboring countries during 2013.

During 2013, net sales were made, exceeding ID48.8 billion, equivalent to about $70.7 million. The company marketed 23822 tons of Linear Alkyl Benzene . It also marketed its excess middle products like paraffin (about 6043 tons), BTX (about 10861 tons), and other products.

- **The Company's Financial Status in 2013**

The financial statements showed a total profit in 2013 of nearly $3.6 million, compared to a total profit of about $7.7 million realized in 2012. Meanwhile, net profit for the financial year 2013 was about $2.2 million, against $4.2 million in 2012.

- **Manpower and Training in 2013**

Manpower movement was characterized by the stability of the remaining senior staff, and young employees were appointed to occupy vacancies of company owners. By the end of 2013 the company had 349 employees, including 348 Iraqis and one Arab.

- **Company Activity during the First Half of 2014**

During the first half of 2014, the company's activity and business was affected by the security and military events that hit the work site (Baiji). Unit operations and sales stopped in Q2 of 2014. The 2014 lab production plan achievements have dropped; achieving 52% of the planned production, 74% of the planned paraffin, 83% of benzene, 39%, 45% Heavy Alkyl Benzene , and 38% of coloring productions. However, the company managed to market part of its

achieved production to domestic and export markets in spite of the unstable situation at the distribution areas during the first half of this year.

- **Financial Results for the First Half of 2014**

Financial statements for the first half of 2014 show a total profit of $1.1 million, while the net profit for the period amounted to $575 thousands.

- **Manpower in the First Half of 2014**

During the first half of 2014, the company had 346 employees, out of whom 344 Iraqis and 2 Arabs.

Company Projects

- The company continues working to construct its aromatics development project aiming at reducing aromatic benzene production costs, and adding new highest value added mid products. It is due for completion in Q1 of 2015
- The company is continuing to replace Molecular Sieve . It is due for completion in Q3 of 2014. Once completed, paraffin production would increase by 10% of the available capacity.
- The company has received in 2013 its completed project of the new 1000m^3 reservoir that has been added to the company's reservoirs to store mid products and for marketing purposes.
- The company contracted Lilani company to conduct a study on water treatment by chemicals at a cost of $28,000
- The company launched a bid to re-evaluate its assets and shares while studying the restructuring of the company's capital on 31/12/2013
- Working to overcome IT system and application glitches of the programs used in the company for its various operations.

APPENDICES

PRESS RELEASES OF OAPEC MINISTERIAL COUNCIL MEETINGS IN 2014

92nd Meeting of OAPEC Ministerial Council

(At the level of the Representatives)

The Ministerial Council convened its 92nd meeting on 4 Shaban, 1435, corresponding to 2June 2014, in Cairo, Egypt. The meeting was held at the level of the Executive Bureau Members representing their Excellencies the ministers and was chaired by HE Hasan M. Al Rufai, the Executive Bureau Representative of the Republic of Iraq.

HE the Chairman welcomed their Excellencies members of the Ministerial Council and HE OAPEC Secretary General. He expressed thanks to the General Secretariat for the outstanding preparation for the meeting. His Excellency extended thanks and gratitude to the Arab Republic of Egypt for the hospitality and constant support to OAPEC Secretariat General.

H.E. Mr. Abbas Ali Al-Naqi, OAPEC's Secretary General welcomed their Excellencies the representatives of member countries to the 92nd Ministerial Council Meeting. Mr. Al-Naqi expressed profound appreciation to Arab Republic of Egypt.

After approving the agenda, the Council took the following actions:

- The Council endorsed the minutes of the 91st council of ministers meeting that was held in Doha, Qater on 21 December 2013.
- The Council approved OAPEC's financial statements (Secretariat General and Judicial Tribunal) for 2013.
- The Council reviewed the preparations for the 10th Arab Energy

Conference to be held in Abu Dhabi, UAE from 21 to 23 December 2014.

- The Council also reviewed the activity report of OAPEC Secretariat General, adopted the Executive Bureau recommendations including follow-up of environment and climate change, the course of work at the databank, annual program of seminars and meetings organized or attended by the Secretariat General at the level of the Arab League, and the economic and technical studies prepared by the Secretariat General during the first half of 2014.
- It was previously agreed at the 91st Minsterial Meeting to hold the 93rd Ministerial Meeting on Sunday, 29 Safer, 1436 H, corresponding to 21December 2014 in Abu Dhabi, UAE.

The Council concluded the meeting, expressing their thanks and appreciation to the Arab Republic of Egypt for the hospitality and quality preparations that helped in rendering the meeting successful.

Cairo, 4 Shaban **1435H, corresponding to 2 June 2014AD**

Cairo: 2 June 2014

Press Statement issued by the 93rd Meeting of OAPEC Council of Ministers

OAPEC Council of Ministers held its 93rd meeting, chaired by His Excellency Mr Adil Abdul Mahdi, Minister of Oil in the Republic of Iraq, Chairman of the current session of the Council, in Abu Dhabi, UAE, on 21 December 2014.

His Excellency the Chairman opened the meeting welcoming Their Excellencies the Ministers and heads of delegations. The Chairman especially welcomed HE Dr Abdul Hussein bin Ali Mirza, Bahrain's Minister of Energy, who rejoined the ministerial meeting and HE Dr Ali Saleh Al Omair, Kuwait's Oil Minister and State Minister for National Assembly Affairs who was taking part for the first time in these meetings. The Chairman also welcomed HE Engineer Tariq Al Mulla, CEO of the Egyptian General Petroleum Co (EGPC), heading Egypt's delegation on behalf of HE Engineer Sherif Ismail, Egypt's Petroleum and Mineral Resources Minister.

HE Mr Chairman hoped for successful deliberations of the items on the agenda, and has emphasized that OAPEC's main objective was to achieve cooperation among the member countries in the various aspects of economic, technical and human activities in the petroleum industry. His Excellency congratulated the leadership, government and people of the sisterly United Arab Emirates on the occasion of the National Day, wishing them constant prosperity. He also thanked the UAE for hosting the Tenth Arab Energy Conference and the warm welcome and hospitality. HE Al Naqi welcomed HE the Chairman of the current session as he was attending the meeting for the first time. OAPEC Secretary General also welcomed HE the Kuwaiti Minister of Oil for attending the meeting for the first time; and HE the Bahraini Minister of Energy for rejoining the meetings. He thanked and appreciated their predecessors for all their efforts in supporting the Organization and its activities.

OAPEC Secretary General, extended thanks and appreciation to the UAE for hosting the Organization's meetings and the Tenth Arab Energy Conference and for the hospitality and warm welcome. HE Al Naqi congratulated Abu Dhabi for being chosen to host the World Energy Council's meeting in 2019.

Then, the Council approved the draft agenda, and deliberated its items as follows:

- The Council endorsed the minutes of the 92nd Council of Ministers Meeting that was held in Cairo, Egypt, at representatives' level on 2 June 2014.
- The draft OAPEC budget for 2015 (Secretariat General and Judicial Tribunal) was approved.
- Tareq Al Osaimi & Partners were reappointed as OAPEC (Secretariat General and Judicial Tribunal) Auditors for 2015.
- Taking note of the OAPEC Scientific Award 2014 under the title "Integration between Refining and Petrochemicals Industries" and the Award Arbitration Committee's decision to reserve and not award the prize. The Council endorsed the Committee's decision and gave directives in this regard.
- Reviewing the reports exhibiting the General Secretariat's activities for 2014 in following up environment and climate change issues, League of Arab States meetings, finalized studies, databank development, and all other activities which the Secretariat General organized or took part in during 2014.
- The Council reviewed the OAPEC Joint Ventures Activity Report in 2013 and the first half of 2014, and took note of the outcome of the 43rd Coordinating Meeting of the Joint Ventures Officials.
- The Council resolved to extend the period where the Republic of Iraq is assigned to supervise the Arab Oil Training Institute, for one year, with effect from 1 January 2015.

- The Chairman has sent a cable of thanks and appreciation to the President of the UAE HH Sheikh Khalifa bin Zayed Al Nahyan on behalf of Their Excellencies the Ministers and Heads of delegations for the hospitality and warm welcome.
- It was agreed to hold the next meeting in Cairo on Sunday 20 December 2015. The Council's next session will be headed by the State of Qatar.

Abu Dhabi 29 Safar 1436H, corresponding to 21 December 2014AD

ORGANIZATION OF ARAB PETROLEUM
EXPORTING COUNTRIES (OAPEC)